CITY OF HOBART

AGENDA

City Planning Committee Meeting

Open Portion

Monday, 6 June 2022

at 5:00 pm
Council Chamber, Town Hall

THE MISSION

Working together to make Hobart a better place for the community.

THE VALUES

The Council is:

People	We care about people – our community, our customers and colleagues.
Teamwork	We collaborate both within the organisation and with external stakeholders drawing on skills and expertise for the benefit of our community.
Focus and Direction	We have clear goals and plans to achieve sustainable social, environmental and economic outcomes for the Hobart community.
Creativity and Innovation	We embrace new approaches and continuously improve to achieve better outcomes for our community.
Accountability	We are transparent, work to high ethical and professional standards and are accountable for delivering outcomes for our community.

ORDER OF BUSINESS

Business listed on the agenda is to be conducted in the order in which it is set out, unless the committee by simple majority determines otherwise.

APOLOGIES AND LEAVE OF ABSENCE

1. CO-OPTION OF A COMMITTEE MEMBER IN THE EVENT OF A VACANCY 5

2. CONFIRMATION OF MINUTES..... 5

3. CONSIDERATION OF SUPPLEMENTARY ITEMS 5

4. INDICATIONS OF PECUNIARY AND CONFLICTS OF INTEREST..... 6

5. TRANSFER OF AGENDA ITEMS..... 6

6. PLANNING AUTHORITY ITEMS - CONSIDERATION OF ITEMS WITH DEPUTATIONS..... 6

7. COMMITTEE ACTING AS PLANNING AUTHORITY 7

7.1 APPLICATIONS UNDER THE HOBART INTERIM PLANNING SCHEME 2015 8

7.1.1 209-213 Harrington Street, 215-217 Harrington Street, Hobart - Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works.....8

7.1.2 156 New Town Road, New Town - Demolition, Subdivision (Lot Consolidation) and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation) 490

7.1.3 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart - Temporary Housing.....798

7.1.4 32 Commercial Road, North Hobart - Partial Demoltion, New Parking Space & Front Fencing 914

7.1.5 1 Bell Street, New Town - Upgrading of Existing Telecommunications Facility and Associated Works.....998

7.1.6 ETA-21-158 - 209-213 Harrington Street, Hobart - Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire.....1154

8. REPORTS 1635

8.1 Amendment PSA-21-4 - Enterprise Road Rezoning - Report on Representations..... 1635

8.2 Amendment to Planning Legislation (Major Projects)..... 1705

8.3 City Planning - Advertising Report 1713
8.4 Delegated Decision Report (Planning) 1719

9. QUESTIONS WITHOUT NOTICE 1723

10. CLOSED PORTION OF THE MEETING 1724

City Planning Committee Meeting (Open Portion) held Monday, 6 June 2022 at 5:00 pm in the Council Chamber, Town Hall.

This meeting of the City Planning Committee is held in accordance with a Notice issued by the Premier on 31 March 2022 under section 18 of the *COVID-19 Disease Emergency (Miscellaneous Provisions) Act 2020.*

The title Chief Executive Officer is a term of reference for the General Manager as appointed by Council pursuant s.61 of the *Local Government Act 1993* (Tas).

COMMITTEE MEMBERS
Deputy Lord Mayor Councillor H Burnet (Chairman)
Alderman J R Briscoe
Councillor W F Harvey
Alderman S Behrakis
Councillor M Dutta
Councillor W Coats

Apologies:

Leave of Absence:
Deputy Lord Mayor Burnet

NON-MEMBERS
Lord Mayor Councillor A M Reynolds
Alderman M Zucco
Alderman Dr P T Sexton
Alderman D C Thomas
Councillor J Fox
Councillor Dr Z Sherlock

1. CO-OPTION OF A COMMITTEE MEMBER IN THE EVENT OF A VACANCY

2. CONFIRMATION OF MINUTES

The minutes of the Open Portion of the City Planning Committee meeting held on Monday, 23 May 2022, are submitted for confirming as an accurate record.

3. CONSIDERATION OF SUPPLEMENTARY ITEMS

Ref: Part 2, Regulation 8(6) of the *Local Government (Meeting Procedures) Regulations 2015*.

Recommendation

That the Committee resolve to deal with any supplementary items not appearing on the agenda, as reported by the Chief Executive Officer.

4. INDICATIONS OF PECUNIARY AND CONFLICTS OF INTEREST

Ref: Part 2, Regulation 8(7) of the *Local Government (Meeting Procedures) Regulations 2015*.

Members of the Committee are requested to indicate where they may have any pecuniary or conflict of interest in respect to any matter appearing on the agenda, or any supplementary item to the agenda, which the Committee has resolved to deal with.

5. TRANSFER OF AGENDA ITEMS

Regulation 15 of the *Local Government (Meeting Procedures) Regulations 2015*.

A Committee may close a part of a meeting to the public where a matter to be discussed falls within 15(2) of the above regulations.

In the event that the Committee transfer an item to the closed portion, the reasons for doing so should be stated.

Are there any items which should be transferred from this agenda to the closed portion of the agenda, or from the closed to the open portion of the agenda?

6. PLANNING AUTHORITY ITEMS - CONSIDERATION OF ITEMS WITH DEPUTATIONS

In accordance with the requirements of Part 2 Regulation 8(3) of the *Local Government (Meeting Procedures) Regulations 2015*, the Chief Executive Officer is to arrange the agenda so that the planning authority items are sequential.

In accordance with Part 2 Regulation 8(4) of the *Local Government (Meeting Procedures) Regulations 2015*, the Committee by simple majority may change the order of any of the items listed on the agenda, but in the case of planning items they must still be considered sequentially – in other words they still have to be dealt with as a single group on the agenda.

Where deputations are to be received in respect to planning items, past practice has been to move consideration of these items to the beginning of the meeting.

RECOMMENDATION

That in accordance with Regulation 8(4) of the *Local Government (Meeting Procedures) Regulations 2015*, the Committee resolve to deal with any items which have deputations by members of the public regarding any planning matter listed on the agenda, to be taken out of sequence in order to deal with deputations at the beginning of the meeting.

7. COMMITTEE ACTING AS PLANNING AUTHORITY

In accordance with the provisions of Part 2 Regulation 25 of the *Local Government (Meeting Procedures) Regulations 2015*, the intention of the Committee to act as a planning authority pursuant to the *Land Use Planning and Approvals Act 1993* is to be noted.

In accordance with Regulation 25, the Committee will act as a planning authority in respect to those matters appearing under this heading on the agenda, inclusive of any supplementary items.

The Committee is reminded that in order to comply with Regulation 25(2), the Chief Executive Officer is to ensure that the reasons for a decision by a Council or Council Committee acting as a planning authority are recorded in the minutes.

7.1 APPLICATIONS UNDER THE HOBART INTERIM PLANNING SCHEME 2015

7.1.1 209-213 HARRINGTON STREET, 215-217 HARRINGTON STREET, HOBART - DEMOLITION, NEW BUILDING FOR FOOD SERVICES, SIGNAGE, SUBDIVISION (LOT CONSOLIDATION), AND ASSOCIATED WORKS PLN-20-651 - FILE REF: F22/52410

Address:	209-213 Harrington Street, 215-217 Harrington Street, Hobart
Proposal:	Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works
Expiry Date:	14 June 2022
Extension of Time:	Not applicable
Author:	Tristan Widdowson

RECOMMENDATION

That pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for demolition, new building for food services, signage, subdivision (lot consolidation), and associated works at 209 - 217 Harrington Street, Hobart 7000 for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-20-651 - 209-213 HARRINGTON STREET & 215 - 217 HARRINGTON STREET HOBART TAS 7000 - Final Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2021/02071-HCC dated 10/12/2021 as

attached to the permit.

Reason for condition

To clarify the scope of the permit.

PLN 15

A demolition waste management plan must be implemented throughout demolition.

A demolition waste management plan must be submitted and approved as a Condition Endorsement, prior to commencement of work on the site. The demolition waste management plan must include provisions for the handling, transport and disposal of demolition material, including any contaminated waste and recycling opportunities, to satisfy the above requirement.

All work required by this condition must be undertaken in accordance with the approved demolition waste management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

It is recommended that the developer liaise with the Council's City Resilience Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill. Further information can also be found on the Council's website.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

PLN 10

The signage must only be illuminated during the approved hours of operation.

Advice:
Refer to condition PLN 6 for the approved hours of operation.

Reason for condition
To clarity the scope of the permit.

PLN 14

Noise emissions from the use measured at the boundary of a residential zone must not exceed the following:

a) 55dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm;

b) 5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 7.00 pm to 7.00 am;

c) 65dB(A) (LAmax) at any time.

Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.

Noise levels are to be averaged over a 15 minute time interval.
Reason for the condition

To ensure noise emissions stated in the application are not exceeded and do not have an unreasonable impact on residential amenity.

PLN 17

The security lighting must operate in accordance with Australian Standard AS 4282 - Control of the obtrusive effects of outdoor lighting.

Reason for condition

To ensure that the non-residential use does not unreasonably impact residential amenity.

PLN 6

The use must not be open to the public outside of the following hours:

7.00 am to 10.00 pm Mondays to Saturdays inclusive
7.00 am to 9.00 pm Sundays and Public Holidays

Reason for condition

To ensure that non-residential use does not unreasonably impact on residential amenity

PLN s2

A landscape plan must be prepared for the site by a suitably qualified landscape architect. Prior to the issue of any approval (excluding demolition, excavation and works up to the ground floor slab) under the *Building Act 2016*, the plan must be submitted and approved as a Condition Endorsement with the inclusion of the following specific

elements:

1. Additional sections of vegetation (can be supported by a trellis or similar) adjoining the glazed sections of the awning on both frontages and equal to the full height of the glazing.
2. Vegetation screening to a minimum height of 1.8m above the drive- through driveway level at the north-eastern corner of the Patrick Street frontage of the site. The vegetation must be able to adequately diffuse vehicle headlights, provide screening properties and be effective prior the use of the drive-through.

Prior to occupancy, the person who prepared the plan, or another suitably qualified person, must confirm that the planting has been installed in accordance with the approved landscaping plan. The landscaping must be maintained for the life of the development.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

In the interest of streetscape

PLN s4

Prior to the issue of any approval under the *Building Act 2016* (excluding demolition, excavation and works up to the ground floor slab), revised plans must be submitted and approved as a Condition Endorsement showing:

1. The rear wall of the planter adjoining the glazed sections of the awning raised to height of 1m above the drive-through driveway level.

All work required by this condition must be undertaken in accordance with the approved revised plans.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

In the interest of the streetscape

ENG 12

A Construction Waste Management Plan must be implemented throughout construction.

The Construction Waste Management Plan must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* or commencement of work (whichever occurs first). The submitted plan must;

1. Demonstrate how provisions for commercial waste services, to facilitate the handling, storage, transport, and disposal of all construction solid waste and recycle bins from the development, are provided.

All work required by this condition must be undertaken in accordance with the approved Construction Waste Management Plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG sw1

Prior to first occupation or commencement of use (whichever occurs first), all stormwater from the proposed development (including but not limited to, roofed areas, ag drains, retaining wall ag drains, and

impervious surfaces, such as driveways and paved areas) must be drained to the Council's stormwater infrastructure.

Any private or private shared stormwater system passing through third-party land must have sufficient receiving capacity.

Advice:

Under section 23 of the Urban Drainage Act 2013 *it is an offence for a property owner to direct stormwater onto a neighbouring property.*

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

ENG sw6

All stormwater from the proposed development (including roofs, ag drains and hardstand runoff) must be discharged to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first). All costs associated with works required by this condition are to be met by the owner.

Design drawings and calculations of the proposed stormwater drainage and connections to the Council's stormwater infrastructure must be submitted and approved prior to the commencement of work. The design drawings and calculations must:

1. prepared by a suitably qualified person; and
2. include long section(s)/levels and grades to the point of discharge.
3. demonstrate as much as practicable is drained via gravity

All work required by this condition must be undertaken in accordance with the approved design drawings and calculations.

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

SW 7

Prior to occupancy or the commencement of the use (whichever occurs first), any new stormwater connection must be constructed and existing redundant connection(s) be abandoned and sealed at the owner's expense.

Prior to the issuing of any approval under the *Building Act 2016* or commencement of works (whichever occurs first), detailed engineering drawings must be submitted via the City of Hobart's online request form which is available on its website and approved. The detailed engineering drawings must include:

1. the location of the proposed connections and all existing connections / disposal points. The existing shared private stormwater outlet must be abandoned within the site.
2. the size and design of the connection such that it is appropriate to service the development to the 5% ARI event;
3. long-sections of the proposed connection clearly showing clearances from any nearby services, cover, size, gradient, material, manhole at the junction with the main, and delineation of public and private infrastructure;
4. be substantially in accordance with the Local Government Association of Tasmania: Tasmanian Municipal Standard Drawings (May 2020), as varied by the City of Hobart's published departures from those Drawings

All work required by this condition must be undertaken in accordance with the approved detailed engineering drawings. The approved stormwater connection documents must be included in your plumbing permit application document set and listed in accompanying forms.

SW 9

Prior to occupancy or the commencement of the approved use (whichever occurs first), stormwater pre-treatment and detention for stormwater discharges from the development must be installed.

A stormwater management report and design must be submitted and approved, prior to the issue of any approval under the *Building Act 2016* or the commencement of work on the site (whichever occurs first). The stormwater management report and design must be prepared by a suitably qualified engineer and must:

1. include detailed design of the proposed treatment train, including estimations of contaminant removal compared to those in Table E7.1 in HIPS. Treatment from the carpark/ driveway must target gross pollutants, fine sediments and hydrocarbons.

2. include detailed design and supporting calculations of the detention tank showing:

    1. detention tank sizing such that there is no increase in flows from the developed site to the receiving system up to the critical 5% AEP event and no worsening of flooding;
    2. the layout, the inlet and outlet (including long section), outlet size, overflow mechanism and invert level;
    3. the discharge rates and emptying times; and
    4. all assumptions must be clearly stated;

3. include a supporting maintenance plan, which specifies the required maintenance measures to check and ensure the ongoing effective operation of all systems, such as: inspection frequency; cleanout procedures; descriptions and diagrams of how the installed systems operate; details of the life of assets and replacement requirements.

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

ENG 13

Prior to first occupation or commencement of use (whichever occurs first), an ongoing waste management plan (including storage and removal) for all commercial waste and recycling generated on site must be implemented.

Reason for condition

To ensure that solid waste management from the site meets the Council’s requirements and standards.

ENG tr2

A Construction Traffic and Parking Management Plan must be implemented prior to the commencement of any work on site (including demolition).

The Construction Traffic and Parking Management Plan must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* (including demolition) or commencement of work (whichever occurs first).

The submitted plan must;

1. Be prepared by a suitably qualified person,
2. Develop a communications plan to advise the wider community of the traffic and parking impacts during construction,
3. Include a start date and finish dates of various stages of works,
4. Include times that rigid vehicles, and other commercial traffic associated with the works, will be allowed to operate, and
5. Nominate a superintendent (or the like) responsible for the implementation of the approved plan, and must be available as a direct contact to the City of Hobart and/or community members regarding day- to-day operations, including any immediate issues or hazards that may arise.

All work required by this condition must be undertaken in accordance with the approved Construction Traffic and Parking Management Plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Note the term 'Traffic' includes (but isn't limited to) cars, public transport vehicles, service vehicles, pedestrians, and cyclists, in the context of this condition.

Reason for condition

To ensure the safety of vehicles entering and leaving the development and the safety and access around the development site for the general public and adjacent businesses.

ENG 2a

Prior to first occupation or commencement of use (whichever occurs first), vehicular barriers compliant with the Australian Standard AS/NZS

1170.1:2002 must be installed to prevent vehicles running off the edge of parking areas where the drop from the edge of the trafficable area to a lower level is 600mm or greater, wheel stops must be installed for drops between 150mm and 600mm, and kerbs for drops less than 150mm. Physical controls must be installed where necessary, and must;

1. not limit the parking areas approved by this permit, and
2. be in accordance with the Australian Standard AS/NZS 2890.1:2004.

Advice:

The wheel stops at right angles within the proposed parking bays shown must be installed at an appropriate distance with respect to Section 2.4.5.4 of AS/NZS 2890.12004.

Reason for condition

To ensure the safety of users of the access driveway and parking module and compliance with the standard.

ENG 3b

Prior to first occupation or commencement of use (whichever occurs first), the parking area (access driveway, circulation roadways, and parking modules/bays) must be constructed in accordance with the detailed designs approved by this Condition (ENG 3b).

Detailed design drawings must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* (including demolition) or commencement of works (whichever occurs first).

The submitted drawings must;

1. be prepared and certified by a suitably qualified engineer,
2. be in general accordance with the Australian Standard AS/NZS 2890.1:2004,
3. where the design deviates from AS/NZS 2890.1:2004 the designer must demonstrate that the design will provide a safe and

efficient access, and enable safe, easy and efficient use, and

4. show typical dimensions, longitudinal sections, cross-sections, levels, gradients and transitions, and other details as Council deem necessary to satisfy the above requirement(s).

All work required by this condition must be undertaken in accordance with the approved detailed design drawings.

Reason for condition

To ensure the safety of users of the parking area, and compliance with the relevant Australian Standard.

ENG 3c

Prior to first occupation or commencement of use (whichever occurs first), a suitably qualified engineer must certify that the parking area has been constructed in accordance with design drawings approved by Condition ENG 3b.

Advice:

We strongly encourage you to speak to your engineer before works begin so that you can discuss the number and nature of the inspections they will need to do during the works in order to provide this certification.

If the parking area is not constructed as it has been approved then this may mean that the driveway will either be unsafe or will not function properly.

An example certificate is available on our website.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

Prior to first occupation or commencement of use (whichever occurs first), the approved parking area (access driveway, circulation roadways, and parking modules/bays) must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers, or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior.

Reason for condition

To ensure the safety of users of the parking area, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

The number of off-street car parking spaces approved for use on site, by this permit, is Eighteen (18).

Prior to first occupation or commencement of use (whichever occurs first), all approved parking spaces must be delineated by means of white or yellow lines 80mm to 100mm wide, or white or yellow pavement markers, in accordance with the Australian Standard AS/NZS 2890.1 2004.

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 5b

The number of bicycle parking spaces approved for use on site, by this permit, is Two (2).

Prior to first occupation or commencement of use (whichever occurs first), the approved bicycle parking facilities must be constructed in general accordance with the Australian Standard AS 2890.3:2015.

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 9

The number of off-street parking for people with disabilities approved for use on site, by this permit, is Two (2).

Prior to first occupation or commencement of use (whichever occurs first), all car parking spaces for people with disabilities must be delineated in accordance with requirements of the Australian Standard AS/NZS AS/NZS 2890.6:2009.

Reason for condition

In the interests of vehicle user safety and the amenity of the development.

ENG 11

Prior to first occupation or commencement of use (whichever occurs first), the redundant crossover along the Patrick Street highway reservation must be reinstated as approved by this permit, in general accordance with;

1. LGAT Standard Drawing - Urban - TSD R14-v3 Type KC vehicular crossing.

Advice:

Local Government Association (LGAT) Tasmanian Standard Drawings (TSD) can be viewed electronically via the LGAT Website.

Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Program Leader Road Services and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

You are likely to require a Permit to Open Up and Temporarily Occupy a Highway (for work within the highway reservation). Click here for more information.

Reason for condition

In the interests of vehicle user safety and the amenity of the development.

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. Be met by the owner by way of reimbursement (cost of repair and

reinstatement to be paid by the owner to the Council); or

2. Be repaired and reinstated by the owner to the satisfaction of the Council.

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council's infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council's infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council's infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG r3

Prior to the commencement of use, the proposed access driveway (crossover) on the Harrington Street highway reservation must be designed and constructed in accordance with;

- Urban - TSD-R09-v3 – Urban Roads Driveways and TSD R14-v3 Type KC vehicular crossing;
- Footpath - Urban Roads Footpaths TSD-R11-v3.

Detailed design drawings must be submitted and approved as a Condition Endorsement prior to the issue of any approval under the *Building Act 2016* (including demolition) or commencement of works (whichever occurs first).

The submitted drawings must:

1. Show the cross and longitudinal section of the access driveway (crossover) within the highway reservation and onto the property;
2. Detail any services or infrastructure (i.e. light poles, pits, awnings)

at or near the proposed access driveway (crossover);

3. Show reinstatement of the entire access driveway (crossover) on the Patrick Street highway reservation in accordance with LGAT standard design(s);
4. Show that vehicular and pedestrian sight distances in general accordance with AS/NZS 2890.1 2004; and
5. Be prepared and certified by a suitable qualified person, to satisfy the above requirements.

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Road Services Engineer and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

Reason for condition

To ensure that works will comply with the Council's standard requirements.

ENV 2

Sediment and erosion control measures, sufficient to prevent sediment leaving the site and in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.

A SWMP must be submitted prior to the issue of any approval under

the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008), available here.

All work required by this condition must be undertaken in accordance with the approved SWMP.

Advice:

Once the SWMP has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Reason for condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

HER 6

All recommendations of the Statement of Archaeological Potential and Archaeological Method Statement specified in HER s1 must be undertaken in accordance with the advice prepared by the suitably qualified archaeologist.

All and any onsite excavation and disturbance must be monitored in accordance with the above reports, and,

1. A qualified archaeologist must be engaged to undertake archaeological excavations and provide advice and assessment of the features and/or deposits discovered and make recommendations on all and further excavation and/or disturbance; and the site and provide advice and assessment of the features and/or deposits discovered and make

recommendations on further excavation and/or disturbance; and

2. All and any recommendations made by the archaeologist engaged in accordance with 1. above must be complied with in full; and
3. All features and/or deposits discovered must be reported to the Council with 1 day of the discovery; and
4. A qualified archaeologist must undertake an audit of bulk archaeological material such as worked sandstone blocks, 19th century bricks or cobblestones suitable for reused. These bulk archaeological materials must be retained on site unless approval for removal to a secure site is given by Council.
5. A copy of the archaeologist's advice, assessment and recommendations obtained in accordance with 1. 2. and 4 above must be provided to Council within 60 days of receipt of the advice, assessment and recommendations.

Excavation and/or disturbance must not recommence unless and until approval is granted from the Council.

Reason for condition

To ensure that work is planned and implemented in a manner that seeks to understand, retain, protect, preserve and manage significant archaeological evidence.

HER 7

All artefacts of high interpretative value and/or rare or otherwise significant as determined by the qualified archaeologist engaged in accordance with Condition HER 6 must be incorporated into an on-site interpretation and history

An interpretation plan must be prepared and submitted and approved by
Council prior to commencement of construction.

The on-site interpretation must be:

- in accordance with the approved interpretation plan, incorporate the artefacts described above;
- located in a publicly accessible space; and

- installed prior to the issue of a certificate of completion.

Reason for condition

To ensure that there is public benefit from archaeological investigations.

HER 8

The audit report prepared in accordance with condition HER 6 must be submitted and approved as a Condition Endorsement prior to the commencement of building work.

The audit report must also demonstrate how the finds described in HER 6 sub- clause 4 are to be incorporated into the development in landscaping, vertical or horizontal surfaces or other designed or decorative features. Revised plans must be submitted and approved as part of the Condition Endorsement process showing the recommendations of the audit report in accordance with the above requirement.

All work required by this condition must be undertaken in accordance with the approved revised plans.

Advice:

This conditions requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that archaeological evidence is retained, protected and preserved or otherwise appropriately managed.

HER s1

Prior to any archaeological works commencing, a full Statement of Archaeological Potential and an Archaeological Method Statement must be prepared by a suitably qualified archaeologist.

Reason for condition

To ensure that work is planned and implemented in a manner that seeks to understand, retain, protect, preserve and manage significant archaeological evidence.

HER s2

Prior to the commencement of archaeological works, an interpretation and historical information panel must be submitted and approved as a Condition Endorsement, describing the physical and social history of the site in words, plans and historical picture/s and provide information on the process and intention of the archaeological works. Copies of the approved panel must be displayed on all boundaries facing onto the public realm on the commencement and for the length of the archaeological works to the satisfaction of the Council

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that there is public benefit from archaeological investigations.

SURV 16

The titles comprising the development site (CT 52394/1, CT 52395/1, CT 232390/1, CT 203787/1, CT 197488/1 and CT 247958/1) are to be adhered in accordance with the provisions of Section 110 of the *Local Government (Building and Miscellaneous Provisions) Act 1993*, to the satisfaction of the Council prior to the issue of any building consent, building permit (including demolition) and/or plumbing permit pursuant to the *Building Act 2016* (if applicable), or the commencement of works on site (whichever occurs first).

Advice:

The application for an adhesion order to the Council has a fee of $300. Evidence will be required that the owners and mortgagees do not object to the adhesion and the condition is considered completed when a copy of the receipt for the Land Titles Office lodgement slip for the adhesion order has been received by the Council.

Reason for condition

To ensure compliance with statutory provisions

ENG 16

Prior to the sealing of the final plan, private sewer, stormwater (including surface drainage) and water services/connections are to be entirely separate to each lot and contained wholly within the lots

served.

Reason for condition

To ensure that each lot is services separately.

ENG 17

Prior to the sealing of the final plan, the developer must verify compliance with condition ENG 16 by supplying the Council with an as-installed services plan clearly indicating the location and details of all relevant services (entirely contained within their respective lots or appropriate easements). The as- installed services plan must be accompanied by certification from a suitably qualified person that all engineering work required by this permit has been completed.

Advice:

Any final plan submitted for sealing will not be processed unless it is accompanied by documentation by a suitably qualified person that clearly certifies that this condition has been satisfied and that all the work required by this condition has been completed. A 'suitably qualified person' must be a professional engineer or professional surveyor or other persons acceptable to Council.

Reason for condition

To ensure that the developer provides the Council with clear written confirmation that the separation of services is complete.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

A fee of 2% of the value of the works for new public assets (stormwater infrastructure, roads and related assets) will apply for the condition endorsement application.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016.* Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require a Permit to Open Up and Temporarily Occupy a Highway (for work in the road reserve). Click here for more information.

PERMIT TO CONSTRUCT PUBLIC INFRASTRUCTURE

You may require a permit to construct public infrastructure, with a 12 month maintenance period and bond (please contact the Hobart City Council's City Enablers Division to initiate the permit process).

NEW SERVICE CONNECTION

Please contact the Hobart City Council's City Life Division to initiate the application process for your new stormwater connection.

STORMWATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

WORK WITHIN THE HIGHWAY RESERVATION

Please note development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

DRIVEWAY SURFACING OVER HIGHWAY RESERVATION

If a coloured or textured surface is used for the driveway access within the Highway Reservation, the Council or other service provider will not match this on any reinstatement of the driveway access within the Highway Reservation required in the future.

REDUNDANT CROSSOVERS

Redundant crossovers are required to be reinstated under the Hobart City Council's Infrastructure By law. Click here for more information.

ACCESS

Designed in accordance with LGAT- IPWEA – Tasmanian standard drawings. Click here for more information.

CROSS OVER CONSTRUCTION

The construction of the crossover can be undertaken by the Council or by a private contractor, subject to Council approval of the design. Click here for more information.

REDUNDANT EASEMENTS

CT 247958/1 is subject to two burdening historic easements that appear to be no longer required. These should be removed by means of an Order under the provisions of section 84C of the *Conveyancing and Law of Property Act 1884*.

WORK PLACE HEALTH AND SAFETY

Appropriate occupational health and safety measures must be employed during the works to minimise direct human exposure to potentially-contaminated soil, water, dust and vapours. Click here for

more information.

PROTECTING THE ENVIRONMENT

In accordance with the *Environmental Management and Pollution Control Act 1994*, local government has an obligation to "use its best endeavours to prevent or control acts or omissions which cause or are capable of causing pollution." Click here for more information.

LEVEL 1 ACTIVITIES

The activity conducted at the property is an environmentally relevant activity and a Level 1 Activity as defined under s.3 of the *Environmental Management and Pollution Control Act 1994*. For further information on what your responsibilities are, click here.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

Attachment A: PLN-20-651 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Planning Committee or Delegated Report ⇩

Attachment B: PLN-20-651 - 209-213 HARRINGTON STREET HOBART TAS 7000 - CPC Agenda Documents ⇩

Attachment C: PLN-20-651 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Planning Referral Officer Cultural Heritage Report ⇩

Attachment D: PLN-20-651 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Planning Referral Officer Development Engineering Report ⇩

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Committee
Council:	14 June 2022
Expiry Date:	14 June 2022
Application No:	PLN-20-651
Address:	209 - 213 HARRINGTON STREET , HOBART 215 - 217 HARRINGTON STREET , HOBART
Applicant:	(6ty Pty Ltd) Tamar Suite 103, The Charles 287 Charles Street
Proposal:	Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works
Representations:	22
Performance criteria:	Use, Commercial Zone Use and Development Standards, Potentially Contaminated Land Code, Road and Railway Assets Code, Parking and Access Code, Stormwater Management Code, Historic Heritage Code, an Signs Code

1. Executive Summary

1.1 Planning approval is sought for Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works at 209 - 217 Harrington Street, Hobart.

1.2 More specifically the proposal includes:

- The proposal is for the demolition of all existing buildings on the combined 1700m2 site to make way for a KFC take away food outlet with drive-through service and associated restaurant. The 265m2 single storey building is to be located in the south-eastern section of the site, fronting the corner of Patrick Street and Harington Street. The building features a concrete architectural feature awning incorporating landscaping, that extends to the frontage and partially encloses the drive-through with glazed elements. The buildings entrance faces the car parking area and is accessed via a walkway off Harrington Street that adjoins the dinning section of the premises. The design of the building features various profiles of compressed sheet cladding in black, white and red, brickwork, perforated metal screen and timber cladding. The drive-through circulates around the building with a speaker box ordering system and menu to the rear of the site, payment window on the Patrick Street side and order collection window on the Harrington Street side.

- The site's separated but adjoining entry and exit is located on the far south-western corner of the site and includes a new widened double width crossover, reinstatement of the existing crossover, and associated infrastructure. The car park includes 20 car parking spaces and delivery bay with access to the drive-through circulating through the car park.

- The proposed signage for the franchise is illuminated and features two logo signs facing each frontage located high on the concrete awning, a street level logo at the pedestrian entrance and illuminated business name on the building on each frontage. The entrance facing the car park includes a logo sign and business name with directional signage included throughout the site.

- The site extends across six existing titles which are to be adhered.

- The proposed hours of operation are 6.00 am to 10.00 pm Mondays to Saturdays inclusive and 7.00 am to 9.00 pm Sundays and Public Holidays.

1.3 The proposal relies on performance criteria to satisfy the following standards and codes:

1.3.1 Commercial Zone - Use, Hours of Operation, Design, Passive Surveillance
1.3.2 Potentially Contaminated Land Code - Excavation
1.3.3 Road and Railway Assets Code - Existing Road Accesses and Junctions

1.3.4 Parking and Access Code - Number of parking spaces, Vehicle Passing Areas, Layout of Parking Areas, Facilities for Commercial Vehicles Stormwater Management Code - Stormwater Drainage and Disposal

1.3.5 Historic Heritage Code - Archaeology

1.3.6 Signs Code - Use and Development Standards

1.4 Twenty Two (22) representations objecting to the proposal were received within the statutory advertising period between 31 March and the 14 April 2022.

1.5 The proposal is recommended for approval subject to conditions.

1.6 The final decision is delegated to the Council, because the application received 22 representations.

2. Site Detail

2.1 The subject site consists of six titles CT52394/1, CT52395/1, CT232390/1, CT203787/1, CT247958/1 and CT197488/1 with a combined total site area of 1700.6m2. It contains a 607m2 commercial building located on the corner of Patrick Street and Harrington with the remainder of the property used as a private car park. The site is located within the Commercial Zone and adjacent in Patrick Street to a restaurant, retail, service industry uses and directly adjoins a Heritage listed residentially occupied property. Adjacent the site on Harrington Street is Inner Residential Zone with a number of dwellings directly opposite. Across the intersection from the corner of the site is St Virgil's Junior School, St Mary's Cathedral and College.

2.2

Figure 1: GIS Map Image 1:1000

2.3

Figure 2: Subject site as viewed from the adjacent corner of Harrington Street and Patrick Street

2.4

Figure 3: Subject site as viewed from Patrick Street

2.5

Figure 4: Subject site as viewed from Harrington Street

3. Proposal

3.1 Planning approval is sought for Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works at 209 - 217 Harrington Street, Hobart.

3.2 More specifically the proposal is for:

- The proposal is for the demolition of all existing buildings on the combined 1700m2 site to make way for a KFC take away food outlet with drive-through service and associated restaurant. The 265m2 single storey building is to be located in the south-eastern section of the site, fronting the corner of Patrick Street and Harington Street. The building features a concrete architectural feature awning incorporating landscaping, that extends to the frontage and partially encloses the drive-through with glazed elements. The buildings entrance faces the car parking area and is accessed via a walkway off Harrington Street that adjoins the dinning section of the premises. The design of the building features various profiles of compressed sheet cladding in black, white and red, brickwork, perforated metal screen and timber cladding. The drive-through circulates around the building with a speaker box ordering system and menu to the rear of the site, payment window on the Patrick Street side and order collection window on the Harrington Street side.

- The site's separated but adjoining entry and exit is located on the far south-western corner of the site and includes a new widened double width crossover reinstatement of the existing and associated infrastructure. The car park includes 20 car parking spaces and delivery bay with access to the drive-through circulating through the car park.

- The proposed signage for the franchise is illuminated and features two logo signs facing each frontage located high on the concrete awning, a street level logo at the pedestrian entrance and illuminated business name on the building on each frontage. The entrance facing the car park includes a logo sign and business name with directional signage included throughout the site.

- The site extends across six existing titles which are to be adhered.

- The proposed hours of operation are 6.00 am to 10.00 pm Mondays to Saturdays inclusive and 7.00 am to 9.00 pm Sundays and Public Holidays.

3.3

Figure 5: Harrington Street Perspective

3.4

Figure 6: Patrick Street Street Perspective

3.5

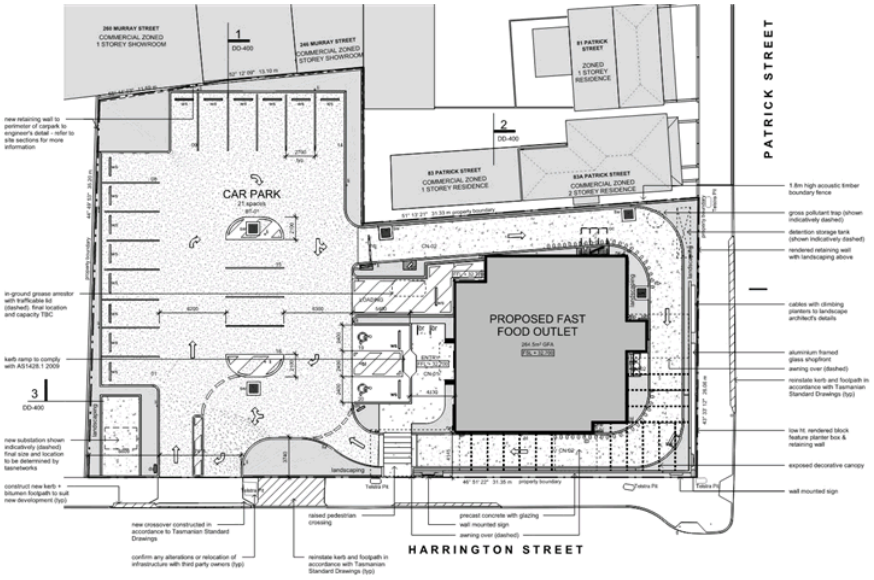


Figure 7: Proposed Site Plan

4. Background

4.1 There was extensive consultation undertaken upon lodgment of the proposal. This related to initial concerns in respect of the circulation of the drive-through dominating both frontages of the site and the emphasis of the Development Standards on the desire for buildings to be built to the frontage with passive surveillance. Also, although acknowledging the specific nature of the type of the use, it was recommended that a design response be undertaken that was more appropriate to the site's urban context. Through an exhaustive process of exploring potential options of relocating the drive-through which included potential alternative orientations of the building and relocated egress points, it was determined that there was no possible alternative arrangement. This was due to a number factors including the required grade of the drive-through and potential access ramps, required delivery truck swept paths and provision of adequate parking. However the predominant issue is the requirement for an arrangement that allows sufficient stacking of vehicles for the drive-through to ensure queuing does not encroach onto Harrington Street. Therefore with no possible variation of the location of the drive-through consideration was directed towards an improved design response more consistent with Development Standards for the zone.

4.2 The initial signage scheme for the site included a large pylon sign and it was advised that it was not appropriate due to the existing signage within the streetscape and consequently was removed from the proposal.

4.3 The proposal includes works within the road reserve, and General Manager Consent for the lodging of the application was obtained on 22 December 2020. While the design of the building has changed since this date as detailed above at 4.1, the works in the Council's road reserve remain the same.

4.2 The site was subject to previous approval under PLN-18-770 for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire. The proposed development was for a 14.2m high building with a floor area of 5804m2.

5. Concerns raised by representors

5.1 Twenty Two (22) representations objecting to the proposal were received within the statutory advertising period between 31 March and the 14 April 2022.

5.2 The following table outlines the concerns raised in the representations received. Those concerns which relate to a discretion invoked by the proposal are addressed in Section 6 of this report.

This location close to schools and a homeless shelter sends the wrong message to the vulnerable in our society. Will just promote obesity and increase traffic issues and anti-social behaviour in this area.
Inappropriate to locate fast food outlet within a school zone with three schools/colleges within the immediate area. This does not help address the obesity issues currently faced by the Hobart community and counters the positive education messages of healthy eating.
Inappropriate location of fast food services within residential area rather than more commercial locations.
Please do not allow this plan to proceed. At a combined student population of more than 2000 local children, there are undeniable risks that this may contribute to future obesity and associated chronic health issues to a majority of that student population. Please take responsibility for the health of your city's young people.
International studies show that students who go to schools in close proximity to fast-food restaurants (such as KFC's proposed store) consumed less fruit and vegetables, more soda, and were more likely to be overweight or obese; and therefore interventions to prevent this happening are recommended.
This development intends to take advantage of susceptible societal groups when the council's focus should be on encouraging lifelong healthy eating choices for all.

A junk food franchise within easy walking distance and on the walking route to and from the College sends a message diametrically opposed to our Health, Wellbeing, Food & Nutrition and Fitness programs by its mere presence.
Likelihood the KFC would lead to anti-social behaviour nearby. There are currently no similar fast food businesses in the area and the KFC would attract a host of late night drunk and disorderly.
The proposal does not align with Council's Hobart City Strategies and Policies.
Traffic issues, especially during school hours, are already an issue. This development does not address this issue and has been noted to increase traffic to and from the site. Provision of drive through and car parking encourages car use rather than active mobility a development without drive through and parking would encourage.
Development does not utilise the site to its maximum with very low density land use. With limited available land for development within the Hobart city area, vacant sites should be developed at higher densities.
Development does not address the acute need for more housing within Hobart. Developments like the previous submission for this site should be encouraged. Being a residential area within close proximity to the town centre it is an ideal site for helping to address both housing needs and reducing commuter traffic.
This place contains significant built heritage from the early colonial history of Hobart. To build a fast food outlet diagonally across from St Marys Cathedral is unacceptable in its impact on heritage values.
The proposal compromises the safe and efficient access to the road network for all users.
The proportion of site allocated to the car park completely contradicts the developer's suggestion that it intends to attract a significant pedestrian clientele.
The safety of the school children attending St Mary's College and St Virgil's College. The traffic congestion is already terrible around the school, particularly in the afternoon. With children and buses and cars in all directions having a fast food outlet with drive in and out and queuing in the road will be extremely dangerous. It will also significantly reduce the amount of safe parking around the school and it will almost certainly result in traffic accidents and injuries. Elizabeth Street is a far better option for a fast food outlet with drive through requirements, as it already accommodates such places.
It would be traffic gridlock between 8-9 o'clock in the morning and 2.45-3.30pm when parents pick up and drop off their children. The proposed development would create a significant danger of children being run over. The increased non-local traffic caused by the proposed development would compound an already dangerous situation.

The car park layout appears confusing, impractical, and unworkable for pedestrians, car park users and waste collection.
Council should obtain an independent car parking and traffic review the information provided meets the Australian Standards.
The traffic report focuses on a peak time of 5pm -8pm however consideration should be given to peak times of 3pm-4pm when children are being collected and combined pedestrian activity.
The car park set up will make it extremely difficult to get in and out when cars are queuing to use the drive-through.
The existing traffic situation causes banking up vehicles in Harrington Street during school children collection.
Lack of parking spaces. KFC envisages its 21-bay car park as a short-term holding bay for drive-through customers. This is insufficient for the site and would compound an existing issue regarding lack of available parking for local residents AND for more essential local visitors to the area.
Noise from KFC air-conditioners, customer traffic, food deliveries and rubbish collection. The noise will turn Harrington Street noise from something that exists predominantly during a typical suburban 8am-6pm day to something that creates all night noise, more raucous crowds, drunk and disorderly late night visitors.
Inappropriate building to develop in an historic precinct.
Negative effect on property prices due to being regarded as a less-desirable residential area.
Confirmation that the titles are up to date.
Confirmation that the works required for the GM consent have not changed since the proposal has been amended.
Application form missing information.
The existing approved development for the site would be a more consistent with the Zone Purpose Statements.
The illuminated signage could be distracting for traffic and nuisance to residents.
No plan of subdivision is provided for the lot consolidation.
The Planning Authority is asked to do their due diligence and review the traffic issues associated with other KFC sites, specifically Devonport and Kings Meadows where the banking occurs out onto the road, causing serious traffic concerns, risk taking, and delays.
Old public notification notice on the site for the previous development causing confusion.

The acoustic assessment given by 6TY is misleading and would likely NOT comply with Acceptable Solutions if done at KFC Kingston not Derwent Park. The report compares noise at KFC Derwent Park, which does NOT use a speaker box. The DA is applying for a speaker box, so why was the comparison not done at KFC Kingston which does have a speaker box. Derwent Park KFC has a residential house sharing a boundary and does not have a speaker box and is able to operate a drive though so please request the same for this application.
The acoustic assessment concludes that the development meets performance criteria P1 and MAY meet the acceptable solution A1 if a solid rather than a perforated fence is built along Harrington Street (at the pickup counter).
I urge that the Hobart council take into consideration the neighbours sharing a boundary, 3 Heritage listed houses on the title next door. Although the Heritage listed houses are zoned commercial which does not give them any protection or consideration for 23.3.2 Noise, the acoustic assessment concludes it may NOT meet code for the houses over the other side of Harrington street and the need to upgrade the fence so it may comply with houses on the other side of the street, let alone the heritage listed houses sharing a boundary. I hope this doesn't make it uninhabitable as these homes were built prior to Hobart city council zoning.
If consideration could be given to keeping the existing vine to the back of the Jackson's building as it would greatly help with the noise and pollution from the drive-through being on the boundary.
The proposal should also comply with the Acceptable Solution Starting time for take away food operating hours which is 7am.
Residential properties nearby would lose considerable value. And nearby businesses are likely to lose custom because of the traffic chaos.
Where commercial buildings exist they are not operating at the extended hours proposed for this development, so it will be a big and unwelcome intrusion into the area, attracting traffic and people from other places at many hours (early and late) who do not have any care for the place that many of us live.

6. Assessment

6.1 The *Hobart Interim Planning Scheme 2015* is a performance based planning scheme. To meet an applicable standard, a proposal must demonstrate compliance with either an acceptable solution or a performance criterion. Where a proposal complies with a standard by relying on one or more performance criteria, the Council may approve or refuse the proposal on that basis. The ability to

approve or refuse the proposal relates only to the performance criteria relied on.

6.2 The site is located within the Commercial Zone of the *Hobart Interim Planning Scheme 2015*.

6.3 The proposed Food Services use in the form of a 'takeaway food premises' is permitted in the zone however the 'restaurant' component of the use is discretionary. It is noted that this is one of the very few zones that does not have the specific qualification that determines that a takeaway food premises with a drive-through facility is discretionary or prohibited.

6.4 The proposal has been assessed against:

6.4.1 Part D - 23 Commercial Zone

6.4.2 E2.0 Potentially Contaminated Land Code

6.4.3 E5.0 Road and Railway Assets Code

6.4.4 E6.0 Parking and Access Code

6.4.5 E7.0 Stormwater Management Code

6.4.6 E13.0 Historic Heritage Code

6.4.7 E17.0 Signs Code

6.5 The proposal relies on the following performance criteria to comply with the applicable standards:

6.5.1 Commercial Zone:

Use - Restaurant
Use Standards Hours of Operation-Take-away Food Shops - Part D 23.3.7 P1
Development Standards - Part D 23.4.3 Design P1 (b) & (c) and 23.4.4 Passive Surveillance P1 (b) & (c)

6.5.2 Potentially Contaminated Land Code:

Use and Development Standards - E2.6.2 P1

6.5.3 Road and Railway Assets Code:

Existing road accesses and junctions Part E5.5.1 P3

6.5.2 Parking and Access Code:

Number of Parking Spaces - E6.6.1 P1
Vehicle passing area E6.7.3 P1
Layout of parking areas E6.7.5 P1
Facilities for commercial vehicles E6.7.13 P1

6.5.3 Stormwater Management Code:

Stormwater Management and Disposal - E7.7.1 P2

6.5.4 Historic Heritage Code:

Archaeology - E 13.10.1 P1

6.5.5 Signs Code:

Use Standards for Signs Part E17.6.1 P4
Standards for Signs Part E17.7.1 P1 & P2

6.6 Each performance criterion is assessed below.

6.7 Use - Restaurant

6.7.1 The proposed Food Services use in the form of a 'takeaway food premises' is permitted in the zone however the 'restaurant' component of the use is discretionary a required to be considered against relevant following Zone Purpose Statements:

23.1.1 Zone Purpose Statements

23.1.1.1 To provide for large floor area retailing and service industries.

23.1.1.2 To provide for development that requires high levels of vehicle access and car parking for customers.

23.1.1.3 To provide for a diversity of generally non-residential uses reflecting the transition between the Central Business Zone and inner residential areas.

23.1.1.4 To allow for uses such as car yards, warehouse and showrooms in the areas of high traffic volume and high passing visibility.

23.1.1.5 To allow good quality building stock to be used for less land extensive central service uses such as offices and specialist wholesaling uses.

23.1.1.6 To allow for service industry uses such as motor repairs which provide a valuable service to users of the central area.

23.1.1.7 To provide for residential use primarily above ground floor level.

6.7.2 A key reason that specifically the ' take away food premises' or 'café' Food Service use types are permitted in the zone is to serve the intended predominate uses of the zone such as large floor area retailing and service industries, car yards, warehouse and showrooms. It is not a zone that places a focus on restaurants and dining experiences as desired uses. The key aspect of the proposal is its take away component and in particular the drive-through takeaway experience with the restaurant aspect a largely secondary function. Although the only discretionary aspect of the use of the site, the restaurant component is considered beneficial to provide activation of the site beyond a takeaway service counter and drive-through. The inclusion of a restaurant use co-existing with the takeaway food premises is not considered to compromise the intent of the Zone Purposes Statements.

6.7.3 The proposal complies with the performance criterion.

6.8 Use Standards Hours of Operation-Take-away Food Shops - Part D 23.3.7 P1

6.8.1 The acceptable solution at clause 23.3.7.1 A1 provides that the operating hours for take away food premises is to be between 7am and 12am midnight seven days a week.

6.8.2 The proposed hours of operation are 6am and 10pm Mondays to Saturdays, and 7am to 9pm Sundays and Public Holidays.

6.8.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.8.4 The performance criterion at clause Part D 23.3.7 P1 provides as follows:

P1

The hours of operation of take-away food premises must not result in

direct or indirect disturbance or unreasonable loss of amenity to the surrounding area or occupiers of nearby property due to noise emissions, movement of vehicles or patrons, level of activity or late night activity.

6.8.5 The proposed use directly adjoins a residential use and in particular the drive-through element with associated ordering speaker box. There undoubtedly will be a direct disturbance to the occupiers of the adjoining property in respect of noise emissions from vehicles and ordering due to the proximity and the low level of background noise between the hours of 6am and 7am. Therefore it is recommended that the use starts no earlier than 7am, 7 days a week.

(It is noted that the proposal complies with the acceptable solution for hours of operation for uses within 50m of a residential zone at clause 23.3.1 A1.)

6.8.6 The proposal complies with the performance criterion.

6.9 Development Standards Part D 23.4.3 Design P1 (b) & (c) and 23.4.4 Passive Surveillance P1 (b) & (c)

6.9.1 The acceptable solution at clause 23.4.3 Design A1 (b) & (c) and 23.4.4 Passive Surveillance A1 (b) & (c) requires that for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the front façade no less than 40% of the surface area of the ground floor level façade and ensure any single expanse of blank wall in the ground level front façade and facades facing other public spaces is not greater than 30% of the length of the façade. It also requires for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the façade of any wall which faces a public space or a car park which amount to no less than 30% of the surface area of the ground floor level façade.

6.9.2 The proposal on the Patrick Street frontage has 33.5% glazing of the ground level façade. Also due to the nature of the concrete architectural feature forming the façade, although containing many protrusions, the single expanse of the structures material is considered to exceed 30%.

6.9.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.9.4 The corresponding performance criterion at clause Part D 23.4.3 Design

P1 and 23.4.4 Passive Surveillance P1 provides as follows:

23.4.3 P1:
Building design must enhance the streetscape by satisfying all of the following:

(a) provide the main access to the building in a way that addresses the street or other public space boundary;

(b) provide windows in the front façade in a way that enhances the streetscape and provides for passive surveillance of public spaces;

(c) treat large expanses of blank wall in the front façade and facing other public space boundaries with architectural detail or public art so as to contribute positively to the streetscape and public space;

(d) ensure the visual impact of mechanical plant and miscellaneous equipment, such as heat pumps, air conditioning units, switchboards, hot water units or similar, is insignificant when viewed from the street;

(e) ensure roof-top service infrastructure, including service plants and lift structures, is screened so as to have insignificant visual impact;

(f) only provide shutters where essential for the security of the premises and other alternatives for ensuring security are not feasible;

(g) be consistent with any Desired Future Character Statements provided for the area.

23.4.4 P1
Building design must provide for passive surveillance of public spaces by satisfying all of the following:

(a) provide the main entrance or entrances to a building so that they are clearly visible from nearby buildings and public spaces;

(b) locate windows to adequately overlook the street and adjoining public spaces;

(c) incorporate shop front windows and doors for ground floor shops and offices, so that pedestrians can see into the building and vice versa;

(d) locate external lighting to illuminate any entrapment spaces around

the building site;

(e) provide external lighting to illuminate car parking areas and pathways;

(f) design and locate public access to provide high visibility for users and provide clear sight lines between the entrance and adjacent properties and public spaces;

(g) provide for sight lines to other buildings and public spaces.

6.9.5 The assessment of the proposal by the consultant planner seeks to rely on the glazed portions within the awning which wraps around the drive through to satisfy these standards. It is considered debatable whether the glazed sections are within the façade of the building as they adjoin the drive-through section. However as a result of the use of the drive-through in combination with the service windows and restaurant windows there is no doubt that there will be a significant level of passive surveillance achieved and overlooking of the street. There will be also substantial increase in the passive surveillance relative to what could be achieved by the existing building on the site.

The proposed use is not for a shop or office so performance criteria (c) is not specifically relevant to the proposal.

The use of the substantial architectural concrete feature on the corner aligned with the drive-through provides a built form that extends to the frontage of the site. This approach is an encouraged and a compliant element within the zone, particularly due to the established building line evident within the streetscape. It also provides a more inner urban response to the preferred drive-through centric layout required by the franchise. It is a deviation away from the common approach of a central building form within the site surrounded by car parking that traditionally does not have a built form reinforcing the street frontage.

The concrete façade structure element includes a section of full-height vegetation on a trellis on Patrick Street, continuing from there is enclosed full-height glazing, which returns along Harrington Street, until the pedestrian entrance. Along its entire length are planters at the base of the structure that have low level planting. Behind this structure, which partially obscures the drive-through from the street, is the minimal building form predominately clad in expressed panels featuring a mix of red, white and black, with sections of black brickwork. The combination of the materials,

although applied to a minimal building form, generates limited areas of homogenous wall. However, it is the concrete structure that provides an additional architectural detail and importantly removes the drive-through from being the dominant element within the street frontage.

The success of this structure is reliant on the incorporated landscaping and the extended repetition of the glazed elements. To provide relief and interest, additional areas of full-height vegetation, similar to what is featured on the Patrick Street frontage, should be included at various points along both frontages. The elements could sit proud of the glazing, so it can be retained to ensure noise attenuation is maintained. There should also be the inclusion of additional full height vegetation screen planting, whether on a trellis or free standing, at the north-east corner section of the Patrick Street frontage, to screen this section of drive-through. Due to the ground level difference the vehicles will be particularly visible within the streetscape and after dark their headlights will impact on pedestrians and the adjacent restaurant use. It is also suggested that the rear wall of the planters along the frontage adjoining the proposed glazed section be increased to a height of 1m above the drive-through driveway level as to provide increased screening of the vehicles, whilst allowing for passive surveillance in combination with the landscaping. Due to the landscaping being a critical element of the proposal contributing to the streetscape it is recommended a detailed landscaping plan be required.

The main entrance to the building, although facing the car park, has a clear pedestrian access leading to it which is defined by a 6m high colour coded architectural feature that houses the main entrance doors. The design of the building also screens and encloses all plant, miscellaneous equipment and service infrastructure with no security shutters proposed. The proposed site, pathways and car parking are proposed to be well lit in accordance with the relative Australian Standards. There is also good visibility of all elevations of the building with no alcoves or areas that could generate entrapment spaces. The open and relatively undeveloped nature of the site allows for sight lines to other buildings and public spaces. There are no Desired Future Character Statements provided for the zone. It is also noted that the proposed design of the building was considered to comply with the Acceptable Solution A1 for clause 23.4.3 Design except subclauses (b) and (c), and similarly for the Acceptable Solution A1 for 23.4.4 Passive Surveillance except subclauses (b) and (c).

Subject to conditions regarding the above mentioned aspects, the proposal is considered to satisfy the relevant performance criteria.

6.9.6 The proposal complies with the performance criterion.

6.10 Potentially Contaminated Land Code - Use and Development Standards - Part E2.6.2 P1

6.10.1 The site is listed as potentially contaminated land. The acceptable solution requires the Director of the Environmental Protection Authority to certify that the land is acceptable for the intended use, or to approve a plan to manage contamination and associated risks to ensure that the land is suitable for the intended use. No such Director's certification or approval has been provided. There is also no acceptable solution for excavation of a potentially contaminated site.

6.10.2 There is no acceptable solution; therefore assessment against the performance criterion is relied on.

6.10.3 The performance criterion at clause Part E2.6.2 P1 provides as follows:

P1

Excavation does not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human health and the environment that includes:

(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before excavation commences; and
(iii) a statement that the excavation does not adversely impact on human health or the environment.

6.10.4 The Council's Environmental Health Officer has provided the following assessment:

The development application is proposed on land that is deemed 'potentially contaminated' as it is listed on Council's 'Potentially Contaminated Land Register' due to its historical use as City Cabs Co-operative Society Ltd which had underground fuel storage on the site.

The development does not include change of use and is remaining a commercial use.

The applicant submitted an 'Environmental Site Assessment' for 209-215 Harrington Street, Hobart dated September 2020. This was revised version of a previous Environmental Site Assessment (dated September 2018) completed for the same site but a different development application.

The Environmental Site Assessment concludes that a risk to potential receptors has not been identified during and after development and there are no particular health and safety issues identified which may originate from onsite contamination activities. As a result of proposed infilling, there is a very low human health risk to future users of the site and during excavation works for site redevelopment, there is a low risk that the site contamination will present an environmental risk, which can be mitigated with a Soil and Water Management Plan (SWMP).

With regards to 'specific remediation and protection measures required to be implemented before excavation commences, the applicant will be required to submit a Soil and Water Management Plan (SWMP) as this will be a condition of the planning permit, as listed in the recommendation of the GES Environmental Site Assessment Report.

The Environmental Health Unit concludes that the development application meets the requirements of the Potentially Contaminated Land Code.

6.10.5 The proposal complies with the performance criterion.

6.11 E5.0 Road and Railway Assets Code

6.11.1 The proposal is discretionary in respect of the Acceptable Solution for Existing road accesses and junctions Part E5.5.1 A3 therefore the Council's Development Engineer in conjunction with Council's Manager Traffic Engineering has provided the following assessment:

The existing road access must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).*

Documentation submitted to date does not satisfy the Acceptable Solution for clause E5.5.1 (A3) and as such, shall be assessed

under Performance Criteria.

Acceptable Solution - A3: - **NON COMPLIANT**
The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.

Performance Criteria - P3: - **COMPLIANT**
Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of 60km/h or less, must be safe and not unreasonably impact on the efficiency of the road, having regard to:

(a) the increase in traffic caused by the use;
- **The increased traffic generated by the proposed development is likely to be 100 vehicles per hour during the restaurant's typical customer peak times (5-8pm most days).**

"The KFC store is expected to generate 100 traffic trips per hour during the typical customer peak times of 5 to 8pm most days. This generation rate is based on recent traffic surveys conducted at two existing KFC stores in greater Hobart. The typical customer peak times occur after the 3pm to 4pm weekday peak traffic flow on Harrington Street, which aligns with student collection at the nearby school. Section 6.3 found the current demand to capacity ratio for the right hand traffic lane in Harrington Street is 48 percent between 5pm and 6pm. This will increase marginally to 56 percent with the additional traffic generation from this store. Traffic analysis found sufficient traffic capacity on Harrington Street to absorb the additional traffic movements generated by this development, without causing any adverse traffic efficiencies or safety issues."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(b) the nature of the traffic generated by the use;
- Traffic generated by the proposed development will be commercial in nature, this is compatible with the existing traffic utilizing Harrington (& Patrick) Street near the subject site.

"Traffic generated will be by light passenger vehicles. This type of vehicle is compatible with the majority of the current traffic flow using the surrounding street network. Some customers will be passing trade,

while most customers will be attracted from nearby streets. Increase in light passenger vehicles on the road networks is not expected to cause an acceleration in road deterioration, or any other adverse impacts."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(c) the nature and efficiency of the access or the junction;
- The access servicing the site will provide a high level of service based on the minor impact due to the traffic generation determined.

"The existing access to the development site will be modified to suit the new development. The increase in traffic movements into and out of the site has been assessed using SIDRA traffic modelling software, which found the access is expected to perform at a high operating performance. The average delay for a vehicle leaving site will be 10.2 seconds and the 95th percentile queue length being one vehicle. The location and arrangement of the drive-thru lane will eliminate any risk of vehicles queuing back beyond the access. The access is expected to operate safely and efficiently."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(d) the nature and category of the road;
- **Harrington Street is a major collector road that has a relatively high traffic volume near the site, however the carriageway has been determined to be operationally stable and under capacity in nature.**

"The existing access to the development site will be modified to suit the new development. The increase in traffic movements into and out of the site has been assessed using SIDRA traffic modelling software, which found the access is expected to perform at a high operating performance. The average delay for a vehicle leaving site will be 10.2 seconds and the 95th percentile queue length being one vehicle. The location and arrangement of the drive-thru lane will eliminate any risk of vehicles queuing back beyond the access. The access is expected to operate safely and efficiently."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(e) the speed limit and traffic flow of the road;
- The general urban speed limit of 50 km/h applies to Harrington (& Patrick) Street, the flow of which is controlled by traffic signals.

"The speed limit along Harrington Street is 50 km/h. All intersections from Sandy Bay Road to Warwick Street are controlled by traffic signals and the route has been designed as a priority route for commuters leaving the city area, avoiding the central business district. The route collects traffic from Sandy Bay Road and the Southern Outlet and delivers it to Brooker Highway via Burnett Street. The signals beyond Collins Street are coordinated to prioritise Harrington Street over the side streets and this creates a green wave for vehicles leaving the city. Consequently, the route operates very efficiently, and this development site will benefit from the passing trade, while not reducing the route efficiency."

Please refer to page 20 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(f) any alternative access to a road;
- No alternative access is proposed, nor considered necessary, to provide a higher level of service for the proposed development.

"The development site is located on the corner of Harrington Street and Patrick Street, therefore the site has an alternative access to Patrick Street. As described above, Harrington Street has been designed to operate as a priority route for outbound traffic flow. The traffic signals along Harrington Street from Collins Street to Brisbane Street are coordinated through SCATTS, but not Patrick Street. Increasing traffic activity on Patrick Street by having the KFC access, will provide higher demand on the signals to give Patrick Street more green time. Any reduction in green time on Harrington Street will disrupt the current traffic efficiency. The development access onto Harrington Street is preferred over Patrick Street, and makes sense from a traffic operation perspective."
Please refer to page 20 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(g) the need for the use;
- Please see the comment provided, below.

"New development delivers employment opportunities, choice

and competition. The existing site access is safe and easy to negotiate and is in a well-established street network. With the development location providing convenience to bypass users"

Please refer to page 20 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(h) any traffic impact assessment; and
- A Traffic Impact Assessment, and it's subsequent Addendum, were both submitted and reviewed extensively.

• *Hubble Traffic Addendum* (dated March 2022), and
• *Hubble Traffic T.I.A* (dated September 2020).

The *Hubble Traffic T.I.A* (dated September 2020) was reviewed, the following conclusions were made;

• An extensive list of literature and resources was sourced and referenced in the report's introduction. (page 2)

• The site's description was stated to be used as a car park, with its proposed sole access to be in an existing access' location, and its zoning being located beyond the CBZ. (page 3)

• The proposed parking area, car parking spaces and 'drive-thru' (internal circulation), were to be operationally contained within the subject site. (page 4)

• *Section 3.7.1 (drive in take-away food outlets)* of the *RTA Guide to Traffic Generating Developments* was referenced, and it explicitly referred to *Kentucky Fried Chicken* (*KFC*). Tasmania's *KFC* state manager had provided an updated COVID-19 data set for the traffic study conducted, and vehicle movement data at *KFC* outlets in Kingston and Rosny were both surveyed. (page 5)

• Design criteria were nominated based on the *RTA* guide's, which did prove consistent with the Kingston and Rosny survey data collected, and further validated the use of the *RTA* guide as an appropriate reference. (page 6)

• Additional design criteria considered took into account parking space quantities and 'drive-thru' length being suffice for the queuing to ensure no disruption of on-site car parking operations.

A minimum of 4 car spaces from the ordering point and a 'drive-thru' car length of 6 was required. 6 car spaces from the ordering point and a 'drive-thru' car length of 12 cars were to be provided (page 7).

• Harrington Street was identified, to be connected from Sandy Bay Road to Burnett Street, performed a one-way 'collector' road function, and provided time restricted parking near the subject site. It was also noted to be a 50km zone, and that there was a signalized intersection immediately upstream from the subject site. (page 8)

• *Department of State Growth* traffic data was presented (*Graph 6.1*), and an average hourly weekday traffic, daily total, >10,000 was shown. (page 8)

• Traffic flow data for a full week (including weekends), was extracted to determine the typical hourly traffic (*Table 6.1*) from 3-8pm. The 'heaviest traffic' flow was stated to occur between 3-4pm, with the typical traffic demand on Harrington Street shown to be, 893 during weekdays, 820 on Fridays, and 551 on Sat. (page 9)

• It was noted that the 'high' flows occurred before the restaurant's peak period of 5-8pm, which was also outside of school pick-up & drop-off times. The hourly lane capacity of a single free flowing lane was stated to be 1800 vehicles, and due the signalized nature of Harrington Street it was stated to not be free flowing, thus the adjusted capacity was determined to be 1200 vehicles. (page 9)

• The right hand lane of Harrington Street was stated to be at 48% capacity. Traffic modelling was performed and indicated a *Degree of Saturation*, below 0.85, at 0.553, which indicated only 50% of the street's right hand lane capacity was being utilized. The *Level of Service* was also stated to be of the highest, *A* out of *A* to *F* (page 10).

• Four (4) crashes were documented to have occurred between Patrick and Warwick Street over the a 5 year period, and all were classified as property damage with no injuries reported. No crashes were reported regarding the site's frontage along Harrington street, or any incidents related to vehicles entering and exiting the subject site. (page 11)

• The proposed *KFC* was estimated to introduce 100 new movements per hour, and while the *RTA* guide stated that 50% of these new movements would be from 'passing trade', all 100 were considered in the impact assessment for a 'worst case' scenario (page 13).

• *SIRDA* modelling conducted took into account vehicles that would come to the subject site via Patrick and Harrington Street. The scenarios modelled presented the highest *Level of Service* and a *Degree of Saturation* below 0.85, and thus not adverse effects to the intersection's performance was concluded. (page 17)

• The 100 new vehicle movements in Harrington Street's right hand lane was expected to increase the lane's capacity by 8%, from 48% to 56%. This was evidently below the lane's total (100%) capacity, and it was stated to be indicative of the infrastructure's capacity to absorb the increase in vehicle movements without causing adverse traffic or operation impacts. (page 17)

(i) any written advice received from the road authority.
- No written advice was provided by the City's relevant authorities.

Based on the above assessment and given the supporting comments referenced from the submitted documentation, the proposed access appears to satisfy the relevant criteria of a performance based solution and therefore may be accepted by the City.

6.11.2 The proposal complies with the performance criterion.

6.12 E6.0 Parking and Access Code

6.12.1 The proposal is discretionary in respect of the Acceptable Solution for Number of Parking Spaces - E6.6.1 P1, Vehicle passing area - E6.7.3 P1, Layout of parking areas - E6.7.5 P1 and Facilities for commercial vehicles - E6.7.13 P1 Council's Development Engineer in conjunction with Council's Manager Traffic Engineering has provided the following assessments:

6.12.2 **Number of parking spaces - E6.6.1 P1**

The parking number assessment must satisfy either Acceptable Solutions

or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).*
Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.6.1 (a) and as such, shall be assessed under Performance Criteria.

Acceptable solution - A1: - **NON COMPLIANT**
The number of on-site car parking spaces must be:
(a) no less than and no greater than the number specified in Table E6.1;
- Submitted documentation does not satisfy this requirement, a deficiency of (nineteen) 19 car parking spaces is proposed, and a provision of 20 car parking spaces (including 2 DDA compliant spaces) is proposed.

The acceptable rate demands 15 spaces provided per 100m2 of floor area or 1 space for each 3 seats (whichever is greater).

At 261 m2 of total gross floor area stated and 36-38 seats shown on plans, the greater requirement is 39 spaces based on the floor area.

Performance Criteria - P1: - **COMPLIANT**
The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following:

(a) car parking demand;
- The empirical parking assessment provided indicates that the provision of 20 on-site car parking spaces will sufficiently meet the likely demands associated with the *KFC* restaurant development.

"Based on the total floor area of the store, 39 on-site parking spaces are required. Based on the floor area for dine-in and take-away collection, 10 on-site parking spaces are required."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(b) the availability of on-street and public car parking in the locality;
- There is a readily available supply of on-street parking in the surrounding road network, much of which is in the form of time-restricted parking. Observations on-site indicate that there will likely be a larger pool of parking that would be available to meet potential demands after relative (e.g., traffic, store) peak hours.

"The development will provide 20 on-site parking spaces. The store is located on the corner of two streets that have parallel parking spaces. A proportion of customers may choose to park on the street rather than enter the development site, reducing the dependence for on-site parking spaces. The number of parallel spaces within 50 metres of the development site is around 30 spaces."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(c) the availability and frequency of public transport within a 400m walking distance of the site;
- Metro Tasmania operate regular bus services along Harrington Street, within 400m of the subject site.

"Public transport is not considered relevant for this development."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(d) the availability and likely use of other modes of transport;
- The subject site is located in a convenient area bordering the City's CBZ, which is able to facilitate pedestrian and micro-mobility modes of transport.

"As discussed in section 6.7, this store is situated in close proximity to a significant residential catchment, and in easy walking distance. It is expected that a large percentage of dine-in patrons will not have a vehicle, reducing the need for on-site parking spaces."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(e) the availability and suitability of alternative arrangements for car parking provision;
- No alternative parking provision has been proposed nor appears available.

"None."

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;
- **N/A**

"The RTA guide for traffic generation developments is a nationally accepted document that provides advice on design criteria for new developments. For on-site parking for KFC stores, the guide recommends 1 parking space per 2 seats. With this development providing a maximum of 30 dine-in seats, the on-site parking requirement is 15 spaces"

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(g) any car parking deficiency or surplus associated with the existing use of the land;
- **No, as a new use class definition is proposed.**

"None. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;
- **N/A**

"None. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;
- **N/A**

"No financial contribution is considered necessary as the level of on-site parking spaces will more than meet the needs of the development,

without any adverse impact to the surrounding road network. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(j) any verified prior payment of a financial contribution in lieu of parking for the land;
- **N/A**

"None required. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(k) any relevant parking plan for the area adopted by Council;
- **N/A**

"Not aware of any. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code; and
- **No apparent impact (e.g., significant highway excavation works) have been identified.**

"None expected."

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code.
- **No impact.**

"None. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

Based on the above assessment and given the supporting

comments referenced from the submitted documentation, the proposed deficiency appears to satisfy the relevant criteria of a performance based solution and therefore may be accepted by the City. This is particularly due to the *RTA Guide to Traffic Generating Developments* requirement of, "1 per 2 seats", being the specific standard for *KFC* stores, and the proposed development having provided 1-2 spaces in excess of the guide's requirement.

6.12.3 **Vehicle passing area - E6.7.3 P1**

Vehicle passing must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).*

Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.3 and as such, shall be assessed under Performance Criteria.

Acceptable solution - A1: - **NON COMPLIANT**
Vehicular passing areas must:
(a) be provided if any of the following applies to an access:
(i) it serves more than 5 car parking spaces; - **YES**
(ii) is more than 30 m long; - **YES**
(iii) it meets a road serving more than 6000 vehicles per day (VPD);
- **YES, estimated at 10,000 VPD based on *Graph 6.1* of *Hubble Traffic T.I.A* (dated September 2020).**
(b) be 6 m long, 5.5 m wide, and taper to the width of the circulation roadway; - **YES**
(c) have the first passing area constructed at the kerb; - **NO**
(d) be at intervals of no more than 30 m along the access. - **NO**

Performance Criteria - P1: - **COMPLIANT**
Vehicular passing areas must be provided in sufficient number, dimension and siting so that the access is safe, efficient and convenient, having regard to all of the following:

(a) avoidance of conflicts between users including vehicles, cyclists and pedestrians;
- **Acceptable, due to the proposed circulation roadway having separated ingress and egress, thus directing vehicle movements to eliminate the need for a 'first passing opportunity' usually required for unseparated access.**

(b) avoidance of unreasonable interference with the flow of traffic on adjoining roads;
- Acceptable, due to a sole single lane exit being dedicated for egress vehicle movements to the adjoining road network from the subject site.

(c) suitability for the type and volume of traffic likely to be generated by the use or development;
- Acceptable, due to the proposed circulation roadway's lane width providing a continuous passing opportunity within the subject site.

(d) ease of accessibility and recognition for users;
- Acceptable, due to the physically separated entry/exit lane and circulation roadway line markings proposed within the subject site.

Based on the above assessment, the proposed provision for passing areas appears to meet the relevant parameters of a performance based solution and therefore may be accepted. This is in principal due to the subject site's separated entry and exit lanes, and the internal circulation roadway's lane width providing a practical opportunity to pass a vehicle and avoid halting of vehicle circulation.

Please refer to *VIOTO Proposed Site Plan DWG 2009-DD-110 REV 9*.

6.12.4 **Layout of parking areas - E6.7.5 P1**

The layout of the parking area must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015).
Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.5 and as such, shall be assessed under Performance Criteria.

Acceptable Solution A1: - **NON COMPLIANT**
The layout of car parking spaces, access aisles, circulation roadways and ramps must be designed and constructed to comply with section 2 "Design of Parking Modules, Circulation Roadways and Ramps" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking and must have sufficient headroom to comply with clause 5.3 "Headroom" of the same Standard.

Performance Criteria - P1: - **COMPLIANT**

The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site.

- Acceptable, submitted documentation appears to satisfy this requirement given the design statements & figures provided within;

• ***Hubble Traffic Addendum* (dated March 2022), and**
• ***Hubble Traffic T.I.A* (dated September 2020).**

• Car Parking Space Dimensions (AS2890.1 Fig 2.2 = 2.7x5.4m Class 3A):
- Submitted documentation appears able to satisfy this requirement, dimensioned bays detailed albeit inconsistent typical dimensions.

• DDA Parking Space Dimensions (AS2890.6 Fig 2.3 = 7.2x5.4m Class 4):
- Submitted documentation appears able to satisfy this requirement, dimensioned bays detailed albeit bollard distance not shown.

• Car Parking Space Design Envelope (AS2890.1 Fig 5.2 300mm clearance on side):
- Submitted documentation appears able to satisfy this requirement, albeit design envelope not detailed.

• Headroom: (AS2890.1 Fig 5.3 = 2.2m clearance):
- Submitted documentation appears able to satisfy this requirement, no apparent overhead obstruction >2.7m above detailed parking area.

• Parking Space Gradient (5%):
- Submitted documentation appears able to satisfy this requirement, <5% (1-4% detailed).

• Aisle Width (AS2890.1 Fig 2.2 = 5.8m Class 1A):
- Submitted documentation appears able to satisfy this requirement, 6.2m min. requirement detailed.

• Garage Door Width & Apron (AS2890.1 Fig 5.4 = 2.4m wide = >7m wide apron):

- N/A

• Parking Module Gradient (5% Acceptable, 10% Performance):
- Submitted documentation appears able to satisfy this requirement, <5% (1-4% detailed).

• Curved Roadway Dimensions (AS2890.1 Section 2.5.2 = 7.6m Ro, 4m Ri, 3.9m Wl):
- Submitted documentation appears unable to satisfy this requirement, Ro = Ri = ≈4.1m (-3.5m) albeit, >3.9m min. trafficable width available, and no apparent high obstructions either side.

• Circulation Roadway Gradient & Width (AS2890.1 Section 2.5.3 = 20% and 3m):
- Submitted documentation appears able to satisfy this requirement, <20% & 3m min. trafficable width shown/detailed.

• Transitions (AS2890.1 Section 2.5.3 = 12.5% summit, 15% sag = >2m transition):
- Submitted documentation appears able to satisfy this requirement, due to relatively minor design surface gradients detailed.

• Physical Controls (AS2890.1 Section 2.4.5.4):
- Submitted documentation appears able to satisfy this requirement, bay wheelstops shown albeit *S* distances not detailed.

• Blind Aisle End Widening (AS2890.1 Fig 2.3 = 1m extra):
- N/A

• "Jockey Parking" (Performance Assessment):
- **N/A**

Submitted documentation appears able to satisfy the relevant parameters of a performance based solution and therefore may be accepted, given the parking area layout design demonstrates a safe and efficient provision, that can facilitate easy access and on-site manoeuvring. This is primarily due to the supporting swept path simulations provided, and a typical layout which is in general accordance with the relevant Australian Standard(s).

6.12.5 **Facilities for commercial vehicles - E6.7.13 P1**

The facilities for commercial vehicles must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015).
Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.13 and as such, shall be assessed under Performance Criteria.

Acceptable Solution A1: - **NON COMPLIANT**
Commercial vehicle facilities for loading, unloading or manoeuvring must be provided on-site in accordance with Australian Standard for Off-street Parking, Part 2 : Commercial. Vehicle Facilities AS 2890.2:2002, unless:
(a) the delivery of all inward bound goods is by a single person from a vehicle parked in a dedicated loading zone within 50 m of the site; and
(b) the use is not primarily dependent on outward delivery of goods from the site.

Performance Criteria - P1: - **COMPLIANT**
Commercial vehicle arrangements for loading, unloading or manoeuvring must not compromise the safety and convenience of vehicular traffic, cyclists, pedestrians and other road users.
- Acceptable, submitted documentation appears to satisfy this requirement given the design statements & figures provided within;

- ***Hubble Traffic Addendum* (dated March 2022), and**
- ***Hubble Traffic T.I.A* (dated September 2020).**

Based on the supporting assessments provided, the proposed commercial vehicle facilities appear to meet the relevant parameters of a performance based solution and therefore may be accepted. This is primarily due to the non-standard SRV commercial vehicle class (2.45x6.7 base design) being identified with *Regular Service*, and the service vehicles simulated circulation demonstrating;

(a) an unobstructed (dedicated) service area/bay within the subject site,
(b) all manoeuvring associated is confined to the service area and circulation roadway (outside of peak demand periods),
(c) forward direction entry and exit at the property boundary,
(d) a circulation roadway connected to the access driveway and service area/bay, and
(e) separate entry and exit access driveway lanes.

6.12.6 The proposal complies with the performance criterion.

6.13 Stormwater Management Code - Part E7.7.1 P2

6.13.1 The proposal includes a new impervious area of more than 600m2 and car parking spaces is provided for more than 6 cars, therefore assessment against the performance criterion is relied on.

6.13.2 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.13.3 The performance criterion at clause Part E7.7.1 P2 provides as follows:

P2

A stormwater system for a new development must incorporate a stormwater drainage system of a size and design sufficient to achieve the stormwater quality and quantity targets in accordance with the State Stormwater Strategy 2010, as detailed in Table E7.1 unless it is not feasible to do so.

6.13.4 The Council's Environmental Engineer is satisfied that the proposed stormwater management subject to conditions will satisfy the Performance Criteria.

6.13.5 The proposal complies with the performance criterion.

6.14 Historic Heritage Code - Archaeology - Part E 13.10.1 P1

6.14.1 The subject site is a Place of Archaeological Potential and therefore assessment against the performance criterion is relied on.

6.14.2 The performance criterion at clause Part E 13.10.1 P1 provides as follows:

P1

Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:

(a) the nature of the archaeological evidence, either known or predicted;

(b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;

(c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;

(d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;

(e) measures proposed to preserve significant archaeological evidence 'in situ'.

6.14.3 The Council's Cultural Heritage Officer has provided the following assessment:

This application is for demolition and construction of a fast food outlet on a corner site.

The site is within a Place of Archaeological Potential. Clause E13.10 applies.

The clause states:

E13.10.1 P1
Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:
(a) the nature of the archaeological evidence, either known or predicted;
(b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;
(c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;
(d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;
(e) measures proposed to preserve significant archaeological evidence 'in situ'

The application is supported by a 'Preliminary Statement of Historic Archaeological Potential' by Praxis Environment

The report states:

"**Preliminary archaeological observations**
Preliminary archaeological observations
As per the limitations above, it would appear that the main areas of archaeological potential are those fronting each street, with a large area at the rear of the site that probably has a lower archaeological potential (although may have remains of features such as wells, cesspits, drains, rubbish pits etc).

Although a comprehensive site history has not been undertaken, the pictorial analysis included here suggests that all buildings were probably domestic – however further research is required to ascertain whether there was any commercial/trade or other activity undertaken on the sites. Further research would be needed to possibly link the sites to prominent persons, or to at least indicate the 'status' of the inhabitants which would be required to pose an archaeological research design and ascertain the potential of these sites to yield information that may be of archaeological value.

Whilst site observations have not been undertaken, and no research has been undertaken thus far on the demolition of those earlier buildings and the construction of the current buildings (and any intermediate generations of buildings – therefore an adequate knowledge of disturbance is not able to influence archaeological judgments at this stage.

At this preliminary stage, I recommend: - That this document accompanies any development application to inform the planning authority that at least parts of the site are likely to have some archaeological potential. - That a more detailed and rigorous SoHAP be formulated if any proposal is approved. - If that SoHAP confirms the preliminary findings here, then an archaeological impact assessment is to be formulated for any development. This will need to consider the possibility of conserving archaeological remains, or if this is not prudent/feasible then the formulation of an archaeological method statement to mitigate impact and to yield archaeological potential and provide a public benefit (e.g. through publication and/or interpretation). - All of the above is expected to form a condition(s) of any approval and be approved by council officers prior to implementation (if necessary)

ahead of the commencement of construction (as further refined by any archaeological method statement).

As with other applications the proposal can satisfy the above provisions based on the inclusion of standard conditions of permit, including requirements to prepare an archaeological impact assessment and archaeological method statement with all work to be completed ahead of construction.

The proposal is acceptable with relevant conditions of permit.

6.14.4 The proposal complies with the performance criterion.

6.15 Signs Code - Use of Signs - Part E 17.6.1 P4

6.15.1 The acceptable solution at clause Part D 17.6.1A4 requires that an illuminated sign must not be located within 30 metres of a residential use.

6.15.2 The proposal includes illuminated signage that is within 30m of 83a Patrick Street, 83 Patrick Street, 206 Harrington and 214 Harrington Street.

6.15.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.15.4 The performance criterion at clause Part E 17.6.1 P4 provides as follows:

P4

An illuminated sign within 30 metres of a residential use must not have an unreasonable impact upon the residential amenity of that use caused by light shining into windows of habitable rooms.

6.15.5 In respect of 83a and 83 Patrick Street there are no windows facing the subject site that would be effected by the illuminated drive-through signage. Also the proposed signage on Patrick Street frontage faces the street as do the street fronting windows of 83a and 83 Patrick Street therefore there will not be light shining into the windows of those residences.

In respect of the 206 Harrington and 214 Harrington Street the proposed illuminated signage is directly adjacent. The signage type is internally illuminated and diffused providing a glowing logo rather than a direct

bright light or neon sign type. Directly adjoining the properties is two street lights which provide significance levels of ambient light from sunset to sunrise, this existing level of lighting will significantly reduce the effective visible glow of the signage and impact on any habitable windows. To ensure the operation of the signage is also appropriate in respect of its timing it is recommended that a condition be included on the permit aligning its usage to the operating hours of 7.00 am to 10.00 pm Mondays to Saturdays inclusive and 7.00 am to 9.00 pm Sundays and Public Holidays.

In the event that illumination of the signage once installed is considered to be intrusive, Council under the Environmental Management and Pollution Control Act 1994 have the ability to determine if there is a negative impact and if considered to be a nuisance the signage can be modified accordingly. However due the nature of the type of lighting, hours of operation and setback of approximately 20m to the adjoining properties it is unlikely to have a negative impact and warrant the removal of illuminated signage from the proposed signage scheme.

6.15.6 The proposal complies with the performance criterion.

6.16 Signs Code - Standards for Signs Part E17.7.1 P1

6.16.1 The acceptable solution at clause Part E17.7.1 A1 requires above awning signs to have a maximum depth of 500mm.

6.16.2 The proposal includes two above awning signs with dimensions of 1200mm x 1200mm and one at 2000mm x 2000mm

6.16.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.16.4 The performance criterion at clause E17.7.1 P1 provides as follows:

P1

A sign not complying with the standards in Table E17.2 or has discretionary status in Table E17.3 must satisfy all of the following:

(a) be integrated into the design of the premises and streetscape so as to be attractive and informative without dominating the building or streetscape;
(b) be of appropriate dimensions so as not to dominate the streetscape

or premises on which it is located;
(c) be constructed of materials which are able to be maintained in a satisfactory manner at all times;
(d) not result in loss of amenity to neighbouring properties;
(e) not involve the repetition of messages or information on the same street frontage;
(f) not contribute to or exacerbate visual clutter;
(g) not cause a safety hazard.

6.16.5 There are three above awning signs proposed, the two corner mounted signs on the concrete awning structure measuring 1200mm x 1200mm and the one above the main entrance facing the car park measuring 2000mm x 2000mm. The signs standards for an above awning sign focus on a horizontal signage allowing a length of 2700mm however the proposed signs are square in form. The location of the corner signs provide one for each frontage and serve the purpose of identifying the business from a distance with the other sign presenting a main feature above the entrance to the building. The signs have been neatly incorporated into the awning structure and design of the entrance as well as being constructed of high quality materials. The corner awning signs are at a scale that is considered appropriate within the streetscape and a scale relevant to the structure they're sited on. The above awning signs are not unnecessarily duplicated and the overall approach to the signage is not considered to result in visual clutter.

6.16.6 The proposal complies with the performance criterion.

6.17 Signs Code - Standards for Signs Part E17.7.1 P2

6.17.1 The acceptable solution at clause Part E17.7.1 A2 requires one sign type per frontage.

6.17.2 The Harrington Street frontage contains two wall signs.

6.17.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.17.4 The performance criterion at clause Part E17.7.1 P2 provides as follows:

P2

The number of signs per business per street frontage must:

(a) minimise any increase in the existing level of visual clutter in the streetscape; and where possible, shall reduce any existing visual clutter in the streetscape by replacing existing signs with fewer, more effective signs;
(b) reduce the existing level of visual clutter in the streetscape by replacing, where practical, existing signs with fewer, more effective signs;
(c) not involve the repetition of messages or information.

6.17.5 The two wall signs are different in design, separated by 13m and are also located on different structures at different heights. The lower wall signs purpose is to identify the business at the pedestrian entrance to the site on the awning structure whereas the other is the business name on the corner of the building. Due to these aspects the use of two wall signs on the one frontage as proposal is not considered to result in visual clutter or unnecessarily duplicate information.

6.17.6 The proposal complies with the performance criterion.

7. Discussion

7.1 Planning approval is sought for Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works at 209 - 217 Harrington Street, Hobart.

7.2 The application was advertised and received twenty two (22) representations. The representations raised concerns including the following:

- A significant concern is the location of fast food outlet in close proximity to schools, susceptible societal groups and the residential zone. Fundamental to this is the contrast to Health, Wellbeing, Food & Nutrition and Fitness programs of the nearby college and contribution to future obesity and associated chronic health issues. Studies were also referenced indicating that students who go to schools in close proximity to fast-food restaurants consumed less fruit and vegetables, more soda, and were more likely to be overweight or obese. The concern of the impact on property values, proximity to the residential zone and antisocial behaviour. Also that the previous development of housing was more suitable for the area and there are other locations more appropriate for the type of development proposed.

The concern relating to these issues is appreciated, noting they relate to broader societal issues of fast food and healthy eating. The planning scheme does not

distinguish the type of takeaway food outlets that are permitted within a zone, products sold at those outlets, or, similarly, the proximity (and appropriateness) of their location to other uses such as schools. The 'takeaway food premises' use is permitted (in other words preferred) in the zone, which is also a zone that specifically permits an associated drive-through facility, whereas in other zones a Use Table qualification determines that it is either prohibited or discretionary. In terms of its proximity to residential zones, the scheme acknowledges the potential impact of commercial uses by applying reduced operating hours which the proposal seeks to comply with. This should also assist in the issue of potential antisocial behaviour as the venue will not be open late at night.

- The other key issue related to traffic concerns including congestion, conflict with traffic from the nearby school particularly during drop off and pick up times, traffic cueing onto to the road, safety and potential for accidents. The data and findings of the submitted Traffic Impact Assessment was questioned, the car parking layout considered impractical and the impact on car parking demand in the area.

The Council's Development Engineer in conjunction with the Manager Traffic Engineering reviewed the car parking layout, proposed number of car parking spaces, traffic generation and access. It was the officers' view that they were satisfied with performance of these elements and supportive of the conclusions within the submitted Traffic Impact Assessment.

- There were queries raised in respect of whether there was sufficient information on the application form and confirmation that the titles are up to date determine. Whether the General Managers Consent was still relevant to the proposal since it has been amended and why there wasn't a plan of subdivision for the lot adhesion. Also an old public notification notice on the site for the previous development causing confusion.

The application form includes the owner and applicant details, description of the existing and proposed use and value of works which is considered sufficient with all other relevant information included in the application documentation. The titles, although searched for some time ago, are still reflective of the current title details. The General Manager's consent related to the widening of the access and drainage infrastructure and was unchanged by the amended design elements. A plan of subdivision is not considered to be required for adhesion of the titles, with applications including development that spans lot boundaries typically subject to a condition on the planning permit requiring the titles to be adhered. The old notice existing on the site would be visibly aged, include older planning number and dates and therefore upon inspection would be clearly identified as not being current.

- There was also concern at noise generated by the development and specifically noise from the proposed speaker box ordering system on the adjoining residential properties in Patrick Street. Also that the proposal should also comply with the Acceptable Solution starting time for take away food premises operating hours which is 7am. It was requested if consideration could be given to keeping the wall containing the existing vine to the back of the Jackson's building on the site as it would greatly help with the noise and pollution from the drive-through being on the boundary.

Although the acoustic report concludes that with fencing that the proposal would satisfy the sound levels referred to within in the Acceptable Solutions. The proposed full height glazing with the concrete structure will undoubtedly provide greater attenuation than a fence. However as pointed out in the submitted representation the levels in respect of ordering were taken at the Glenorchy store which utilises a face to face ordering system rather than speaker box which amplifies the ordering process. However the applicant has stated that they are to comply the Acceptable Solution for Noise 23.3.2 A1, and therefore a condition will be included on the permit requiring compliance with these noise levels.

The noise provisions only consider the adjacent residential zone, because the adjoining residential Patrick Street properties are in the Commercial Zone, they are not afforded the same protection under the scheme. However, the relocation or variation to the proposed ordering set up would likely reduce noise impacts and therefore it is suggested that the franchise give consideration to these options. The marginally later starting of the takeaway food premises use of 7am was assessed as being necessary and is recommended as a condition on the permit. In respect of the existing boundary wall containing the vine, although not a specific consideration under the planning scheme, as the existing wall adjoining the Patrick Street properties provides existing amenity and screening from the proposed development, consideration also could be given to its retention if feasible.

7.3 The proposal has been assessed against the relevant provisions of the planning scheme and is considered to satisfy the Performance Criteria in respect of its discretions under Use, Use Standards, Development Standards, Potentially Contaminated Land Code, Road and Railway Assets Code, Parking and Access Code, Stormwater Management Code, Historic Heritage Code and Signs Code.

In respect of use, the inclusion of the discretionary restaurant use within the takeaway food premise was considered desirable and it was also assessed as appropriate to apply the 7am starting time rather than 6am for the use. The discretions under the Development Standards for Design and Passive Surveillance were considered to be satisfied subject to conditions requiring additional landscaping for screening, and modification of the base of the concrete planter structure. The proposed signage is considered appropriate with the illumination assessed as being acceptable subject to a condition requiring the signage only to be illuminated during operating hours.

The discretions in respect of Potentially Contaminated Land Code, Stormwater Management Code and Places of Potential Archaeological Land under Historic Heritage Code are satisfied with conditions and the requirement of the works to be undertaken in accordance with the submitted reports.

The traffic generation, parking and access was assessed by Council's Development Engineer and Manager Traffic Engineering who were satisfied with the proposals performance. The conclusions of the submitted Traffic Impact Assessment for the development were reviewed and supported by the officers.

7.4 The proposal has been assessed by other Council officers, including the Council's Development Engineer, Cultural Heritage Officer, Environmental Engineers, Environmental Health Officer's, Roads, Surveying and Traffic units. The officers have raised no objection to the proposal, subject to conditions.

7.5 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works at 209 - 217 Harrington Street, Hobart satisfies the relevant provisions of the *Hobart Interim Planning Scheme 2015*, and as such is recommended for approval.

9. Recommendations

That: Pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works at 209 - 217 Harrington Street, Hobart for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-20-651 - 209-213 HARRINGTON STREET & 215 - 217 HARRINGTON STREET HOBART TAS 7000 - Final Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2021/02071-HCC dated 10/12/2021 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

PLN 15

A demolition waste management plan must be implemented throughout demolition.

A demolition waste management plan must be submitted and approved as a Condition Endorsement, prior to commencement of work on the site. The demolition waste management plan must include provisions for the handling, transport and disposal of demolition material, including any contaminated waste and recycling opportunities, to satisfy the above requirement.

All work required by this condition must be undertaken in accordance with the approved demolition waste management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

It is recommended that the developer liaise with the Council's City Resilience Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill. Further information can also be found on the Council's website.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

PLN 10

The signage must only be illuminated during the approved hours of operation.

Advice: Refer to condition PLN 6 for the approved hours of operation.

Reason for condition

To clarity the scope of the permit.

PLN 14

Noise emissions from the use measured at the boundary of a residential zone must not exceed the following:

(a) 55dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm;

(b) 5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 7.00 pm to 7.00 am;

(c) 65dB(A) (LAmax) at any time.

Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.

Noise levels are to be averaged over a 15 minute time interval.

Reason for the condition

To ensure noise emissions stated in the application are not exceeded and do not have an unreasonable impact on residential amenity.

PLN 17

The security lighting must operate in accordance with Australian Standard AS 4282 - Control of the obtrusive effects of outdoor lighting.

Reason for condition

To ensure that the non-residential use does not unreasonably impact residential amenity.

PLN 6

The use must not be open to the public outside of the following hours:

- **7.00 am to 10.00 pm Mondays to Saturdays inclusive**
- **7.00 am to 9.00 pm Sundays and Public Holidays**

Reason for condition

To ensure that non-residential use does not unreasonably impact on residential amenity

PLN s2

A landscape plan must be prepared for the site by a suitably qualified landscape architect. Prior to the issue of any approval (excluding demolition, excavation and works up to the ground floor slab) under the Building Act 2016, the plan must be submitted and approved as a Condition Endorsement with the inclusion of the following specific elements:

1. **Additional sections of vegetation (can be supported by a trellis or similar) adjoining the glazed sections of the awning on both frontages and equal to the full height of the glazing.**
2. **Vegetation screening to a minimum height of 1.8m above the drive-through driveway level at the north-eastern corner of the Patrick Street frontage of the site. The vegetation must be able to adequately diffuse vehicle headlights, provide screening properties and be effective prior**

the use of the drive-through.

Prior to occupancy, the person who prepared the plan, or another suitably qualified person, must confirm that the planting has been installed in accordance with the approved landscaping plan. The landscaping must be maintained for the life of the development.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

In the interest of streetscape

PLN s4

Prior to the issue of any approval under the *Building Act 2016* (excluding demolition, excavation and works up to the ground floor slab), revised plans must be submitted and approved as a Condition Endorsement showing:

1. **The rear wall of the planter adjoining the glazed sections of the awning raised to height of 1m above the drive-through driveway level.**

All work required by this condition must be undertaken in accordance with the approved revised plans.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

In the interest of the streetscape

ENG 12

A Construction Waste Management Plan must be implemented throughout construction.

The Construction Waste Management Plan must be submitted and approved

as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* or commencement of work (whichever occurs first).

The submitted plan must;

1. **Demonstrate how provisions for commercial waste services, to facilitate the handling, storage, transport, and disposal of all construction solid waste and recycle bins from the development, are provided.**

All work required by this condition must be undertaken in accordance with the approved Construction Waste Management Plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG sw1

Prior to first occupation or commencement of use (whichever occurs first), all stormwater from the proposed development (including but not limited to, roofed areas, ag drains, retaining wall ag drains, and impervious surfaces, such as driveways and paved areas) must be drained to the Council's stormwater infrastructure.

Any private or private shared stormwater system passing through third-party land must have sufficient receiving capacity.

Advice: Under section 23 of the Urban Drainage Act 2013 it is an offence for a property owner to direct stormwater onto a neighbouring property.

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

ENG sw6

All stormwater from the proposed development (including roofs, ag drains and hardstand runoff) must be discharged to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first). All costs associated with works required by this condition are to be met by the owner.

Design drawings and calculations of the proposed stormwater drainage and connections to the Council's stormwater infrastructure must be submitted and approved prior to the commencement of work. The design drawings and calculations must:

1. **prepared by a suitably qualified person; and**
2. **include long section(s)/levels and grades to the point of discharge.**
3. **demonstrate as much as practicable is drained via gravity**

All work required by this condition must be undertaken in accordance with the approved design drawings and calculations.

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

SW 7

Prior to occupancy or the commencement of the use (whichever occurs first), any new stormwater connection must be constructed and existing redundant connection(s) be abandoned and sealed at the owner's expense.

Prior to the issuing of any approval under the Building Act 2016 or commencement of works (whichever occurs first), detailed engineering drawings must be submitted via the City of Hobart's online request form which is available on its website and approved. The detailed engineering drawings must include:

1. **the location of the proposed connections and all existing connections / disposal points. The existing shared private stormwater outlet must be abandoned within the site.**
2. **the size and design of the connection such that it is appropriate to service the development to the 5% ARI event;**
3. **long-sections of the proposed connection clearly showing clearances from any nearby services, cover, size, gradient, material, manhole at the junction with the main, and delineation of public and private**

infrastructure;

4. be substantially in accordance with the Local Government Association of Tasmania: Tasmanian Municipal Standard Drawings (May 2020), as varied by the City of Hobart's published departures from those Drawings

All work required by this condition must be undertaken in accordance with the approved detailed engineering drawings. The approved stormwater connection documents must be included in your plumbing permit application document set and listed in accompanying forms.

SW 9

Prior to occupancy or the commencement of the approved use (whichever occurs first), stormwater pre-treatment and detention for stormwater discharges from the development must be installed.

A stormwater management report and design must be submitted and approved, prior to the issue of any approval under the *Building Act 2016* or the commencement of work on the site (whichever occurs first). The stormwater management report and design must be prepared by a suitably qualified engineer and must:

1. include detailed design of the proposed treatment train, including estimations of contaminant removal compared to those in Table E7.1 in HIPS. Treatment from the carpark/ driveway must target gross pollutants, fine sediments and hydrocarbons.

2. include detailed design and supporting calculations of the detention tank showing:
    1. detention tank sizing such that there is no increase in flows from the developed site to the receiving system up to the critical 5% AEP event and no worsening of flooding;
    2. the layout, the inlet and outlet (including long section), outlet size, overflow mechanism and invert level;
    3. the discharge rates and emptying times; and
    4. all assumptions must be clearly stated;

3. include a supporting maintenance plan, which specifies the required maintenance measures to check and ensure the ongoing effective operation of all systems, such as: inspection frequency; cleanout procedures; descriptions and diagrams of how the installed systems

operate; details of the life of assets and replacement requirements.

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

ENG 13

Prior to first occupation or commencement of use (whichever occurs first), an ongoing waste management plan (including storage & removal) for all commercial waste and recycling generated on site must be implemented.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG tr2

A Construction Traffic and Parking Management Plan must be implemented prior to the commencement of any work on site (including demolition).

The Construction Traffic and Parking Management Plan must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* (including demolition) or commencement of work (whichever occurs first).

The submitted plan must;

1. **Be prepared by a suitably qualified person,**
2. **Develop a communications plan to advise the wider community of the traffic and parking impacts during construction,**
3. **Include a start date and finish dates of various stages of works,**
4. **Include times that rigid vehicles, and other commercial traffic associated with the works, will be allowed to operate, and**
5. **Nominate a superintendent (or the like) responsible for the implementation of the approved plan, and must be available as a direct contact to the City of Hobart and/or community members regarding day-to-day operations, including any immediate issues or hazards that may arise.**

All work required by this condition must be undertaken in accordance with the approved Construction Traffic and Parking Management Plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Note the term 'Traffic' includes (but isn't limited to) cars, public transport vehicles, service vehicles, pedestrians, and cyclists, in the context of this condition.

Reason for condition

To ensure the safety of vehicles entering and leaving the development and the safety and access around the development site for the general public and adjacent businesses.

ENG 2a

Prior to first occupation or commencement of use (whichever occurs first), vehicular barriers compliant with the Australian Standard AS/NZS 1170.1:2002 must be installed to prevent vehicles running off the edge of parking areas where the drop from the edge of the trafficable area to a lower level is 600mm or greater, wheel stops must be installed for drops between 150mm and 600mm, and kerbs for drops less than 150mm. Physical controls must be installed where necessary, and must;

1. **not limit the parking areas approved by this permit, and**
2. **be in accordance with the Australian Standard AS/NZS 2890.1:2004.**

Advice: The wheel stops at right angles within the proposed parking bays shown must be installed at an appropriate distance with respect to Section 2.4.5.4 of AS/NZS 2890.12004.

Reason for condition

To ensure the safety of users of the access driveway and parking module and compliance with the standard.

ENG 3b

Prior to first occupation or commencement of use (whichever occurs first), the parking area (access driveway, circulation roadways, and parking modules/bays) must be constructed in accordance with the detailed designs approved by this Condition (ENG 3b).

Detailed design drawings must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* (including demolition) or commencement of works (whichever occurs first).

The submitted drawings must;

1. **be prepared and certified by a suitably qualified engineer,**
2. **be in general accordance with the Australian Standard AS/NZS 2890.1:2004,**
3. **where the design deviates from AS/NZS 2890.1:2004 the designer must demonstrate that the design will provide a safe and efficient access, and enable safe, easy and efficient use, and**
4. **show typical dimensions, longitudinal sections, cross-sections, levels, gradients & transitions, and other details as Council deem necessary to satisfy the above requirement(s).**

All work required by this condition must be undertaken in accordance with the approved detailed design drawings.

Reason for condition

To ensure the safety of users of the parking area, and compliance with the relevant Australian Standard.

ENG 3c

Prior to first occupation or commencement of use (whichever occurs first), a suitably qualified engineer must certify that the parking area has been constructed in accordance with design drawings approved by Condition ENG 3b.

Advice:

We strongly encourage you to speak to your engineer before works begin so that you can discuss the number and nature of the inspections they will need to do during the works in order to provide this certification.

If the parking area is not constructed as it has been approved then this may mean that the driveway will either be unsafe or will not function properly.

An example certificate is available on our website.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

Prior to first occupation or commencement of use (whichever occurs first), the approved parking area (access driveway, circulation roadways, and parking modules/bays) must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers, or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior.

Reason for condition

To ensure the safety of users of the parking area, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

The number of off-street car parking spaces approved for use on site, by this permit, is Eighteen (18).

Prior to first occupation or commencement of use (whichever occurs first), all approved parking spaces must be delineated by means of white or yellow lines 80mm to 100mm wide, or white or yellow pavement markers, in accordance with the Australian Standard AS/NZS 2890.1 2004.

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 5b

The number of bicycle parking spaces approved for use on site, by this permit, is Two (2).

Prior to first occupation or commencement of use (whichever occurs first), the approved bicycle parking facilities must be constructed in general accordance with the Australian Standard AS 2890.3:2015.

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 9

The number of off-street parking for people with disabilities approved for use on site, by this permit, is Two (2).

Prior to first occupation or commencement of use (whichever occurs first), all car parking spaces for people with disabilities must be delineated in accordance with requirements of the Australian Standard AS/NZS AS/NZS 2890.6:2009.

Reason for condition

In the interests of vehicle user safety and the amenity of the development.

ENG 11

Prior to first occupation or commencement of use (whichever occurs first), the redundant crossover along the Patrick Street highway reservation must be reinstated as approved by this permit, in general accordance with;

1. **LGAT Standard Drawing - Urban - TSD R14-v3 Type KC vehicular crossing.**

Advice:

Local Government Association (LGAT) Tasmanian Standard Drawings (TSD) can be viewed electronically via the LGAT Website.

Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Program Leader Road Services and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

You are likely to require a Permit to Open Up and Temporarily Occupy a Highway (for work within the highway reservation). Click here for more information.

Reason for condition

In the interests of vehicle user safety and the amenity of the development.

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. **Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or**
2. **Be repaired and reinstated by the owner to the satisfaction of the Council.**

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council's infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council's infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council's infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG r3

Prior to the commencement of use, the proposed access driveway (crossover) on the Harrington Street highway reservation must be designed and constructed in accordance with;

- **Urban - TSD-R09-v3 – Urban Roads Driveways and TSD R14-v3 Type KC vehicular crossing;**
- **Footpath - Urban Roads Footpaths TSD-R11-v3.**

Detailed design drawings must be submitted and approved as a Condition Endorsement prior to the issue of any approval under the *Building Act 2016* (including demolition) or commencement of works (whichever occurs first).

The submitted drawings must:

1. **Show the cross and longitudinal section of the access driveway (crossover) within the highway reservation and onto the property;**
2. **Detail any services or infrastructure (i.e. light poles, pits, awnings) at or near the proposed access driveway (crossover);**
3. **Show reinstatement of the entire access driveway (crossover) on the Patrick Street highway reservation in accordance with LGAT standard design(s);**
4. **Show that vehicular and pedestrian sight distances in general accordance with AS/NZS 2890.1 2004; and**
5. **Be prepared and certified by a suitable qualified person, to satisfy the above requirements.**

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

- *This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.*
- *Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Road Services Engineer and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.*

Reason for condition

To ensure that works will comply with the Council's standard requirements.

ENV 2

Sediment and erosion control measures, sufficient to prevent sediment leaving the site and in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.

A SWMP must be submitted prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The

SWMP must be prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008), available here.

All work required by this condition must be undertaken in accordance with the approved SWMP.

Advice: Once the SWMP has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Reason for Condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

HER 6

All recommendations of the Statement of Archaeological Potential and Archaeological Method Statement specified in HER s1 must be undertaken in accordance with the advice prepared by the suitably qualified archaeologist.

All and any onsite excavation and disturbance must be monitored in accordance with the above reports, and,

1. **A qualified archaeologist must be engaged to undertake archaeological excavations and provide advice and assessment of the features and/or deposits discovered and make recommendations on all and further excavation and/or disturbance; and the site and provide advice and assessment of the features and/or deposits discovered and make recommendations on further excavation and/or disturbance; and**
2. **All and any recommendations made by the archaeologist engaged in accordance with 1. above must be complied with in full; and**
3. **All features and/or deposits discovered must be reported to the Council with 1 day of the discovery; and**
4. **A qualified archaeologist must undertake an audit of bulk archaeological material such as worked sandstone blocks, 19th century bricks or cobblestones suitable for reused. These bulk archaeological materials must be retained on site unless approval for removal to a secure site is**

given by Council.

5. **A copy of the archaeologist's advice, assessment and recommendations obtained in accordance with 1. 2. and 4 above must be provided to Council within 60 days of receipt of the advice, assessment and recommendations.**

Excavation and/or disturbance must not recommence unless and until approval is granted from the Council.

Reason for condition

To ensure that work is planned and implemented in a manner that seeks to understand, retain, protect, preserve and manage significant archaeological evidence.

HER 7

All artefacts of high interpretative value and/or rare or otherwise significant as determined by the qualified archaeologist engaged in accordance with Condition HER 6 must be incorporated into an on-site interpretation and history

An interpretation plan must be prepared and submitted and approved by Council prior to commencement of construction.

The on-site interpretation must be:

- **in accordance with the approved interpretation plan,**
- **incorporate the artefacts described above,**
- **located in a publicly accessible space,**
- **and installed prior to the issue of a certificate of completion.**

Reason for condition

To ensure that there is public benefit from archaeological investigations.

HER 8

The audit report prepared in accordance with condition HER 6 must be submitted and approved as a Condition Endorsement prior to the commencement of building work.

The audit report must also demonstrate how the finds described in HER 6 sub-clause 4 are to be incorporated into the development in landscaping, vertical or horizontal surfaces or other designed or decorative features. Revised plans

must be submitted and approved as part of the Condition Endorsement process showing the recommendations of the audit report in accordance with a above requirement.

All work required by this condition must be undertaken in accordance with the approved revised plans.

*Advice: This **conditions requires** further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.*

Reason for condition

To ensure that archaeological evidence is **retained**, protected and preserved or otherwise appropriately managed.

HER s1

Prior to any archaeological works commencing, a full Statement of Archaeological Potential and an Archaeological Method Statement must be prepared by a suitably qualified archaeologist.

Reason for condition

To ensure that work is planned and implemented in a manner that seeks to understand, retain, protect, preserve and manage significant archaeological evidence.

HER s2

Prior to the commencement of archaeological works, an interpretation and historical information panel must be submitted and approved as a Condition Endorsement, describing the physical and social history of the site in words, plans and historical picture/s and provide information on the process and intention of the archaeological works. Copies of the approved panel must be displayed on all boundaries facing onto the public realm on the commencement and for the length of the archaeological works to the satisfaction of the Council

Advice: This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that there is public benefit from archaeological investigations.

SURV 16

The titles comprising the development site (CT 52394/1, CT 52395/1, CT 232390/1, CT 203787/1, CT 197488/1 and CT 247958/1) are to be adhered in accordance with the provisions of Section 110 of the Local Government (Building and Miscellaneous Provisions) Act 1993, to the satisfaction of the Council prior to the issue of any building consent, building permit (including demolition) and/or plumbing permit pursuant to the Building Act 2016 (if applicable), or the commencement of works on site (whichever occurs first).

Advice:
The application for an adhesion order to the Council has a fee of $300. Evidence will be required that the owners and mortgagees do not object to the adhesion and the condition is considered completed when a copy of the receipt for the Land Titles Office lodgement slip for the adhesion order has been received by the Council.

Reason for condition

To ensure compliance with statutory provisions

ENG 16

Prior to the sealing of the final plan, private sewer, stormwater (including surface drainage) and water services/connections are to be entirely separate to each lot and contained wholly within the lots served.

Reason for condition

To ensure that each lot is services separately.

ENG 17

Prior to the sealing of the final plan, the developer must verify compliance with condition ENG 16 by supplying the Council with an as-installed services plan clearly indicating the location and details of all relevant services (entirely contained within their respective lots or appropriate easements). The as-installed services plan must be accompanied by certification from a suitably qualified person that all engineering work required by this permit has been completed.

Advice:

Any final plan submitted for sealing will not be processed unless it is

accompanied by documentation by a suitably qualified person that clearly certifies that this condition has been satisfied and that all the work required by this condition has been completed. A 'suitably qualified person' must be a professional engineer or professional surveyor or other persons acceptable to Council.

Reason for condition

To ensure that the developer provides the Council with clear written confirmation that the separation of services is complete.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

A fee of 2% of the value of the works for new public assets (stormwater infrastructure, roads and related assets) will apply for the condition endorsement application.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016*. Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require a Permit to Open Up and Temporarily Occupy a Highway (for work in the road reserve). Click here for more information.

PERMIT TO CONSTRUCT PUBLIC INFRASTRUCTURE

You may require a permit to construct public infrastructure, with a 12 month maintenance period and bond (please contact the Hobart City Council's City Amenity Division to initiate the permit process).

NEW SERVICE CONNECTION

Please contact the Hobart City Council's City Amenity Division to initiate the application process for your new stormwater connection.

STORM WATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

WORK WITHIN THE HIGHWAY RESERVATION

Please note development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

DRIVEWAY SURFACING OVER HIGHWAY RESERVATION

If a coloured or textured surface is used for the driveway access within the Highway Reservation, the Council or other service provider will not match this on any reinstatement of the driveway access within the Highway Reservation required in the future.

REDUNDANT CROSSOVERS

Redundant crossovers are required to be reinstated under the Hobart City Council's Infrastructure By law. Click here for more information.

ACCESS

Designed in accordance with LGAT- IPWEA – Tasmanian standard drawings. Click here for more information.

CROSS OVER CONSTRUCTION

The construction of the crossover can be undertaken by the Council or by a private contractor, subject to Council approval of the design. Click here for more information.

REDUNDANT EASEMENTS

CT 247958/1 is subject to two burdening historic easements that appear to be no longer required. These should be removed by means of an Order under the provisions of section 84C of the Conveyancing and Law of Property Act 1884.

WORK PLACE HEALTH AND SAFETY

Appropriate occupational health and safety measures must be employed during the works to minimise direct human exposure to potentially-contaminated soil, water, dust and vapours. Click here for more information.

PROTECTING THE ENVIRONMENT

In accordance with the *Environmental Management and Pollution Control Act 1994*, local government has an obligation to "use its best endeavours to prevent or control acts or omissions which cause or are capable of causing pollution." Click here for more information.

LEVEL 1 ACTIVITIES

The activity conducted at the property is an environmentally relevant activity and a Level 1 Activity as defined under s.3 of the *Environmental Management and Pollution Control Act 1994*. For further information on what your responsibilities are, click here.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

(Tristan Widdowson)
Development Appraisal Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

(Ben Ikin)
Senior Statutory Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Date of Report: 27 May 2022

Attachment(s):

Attachment B - CPC Agenda Documents
Attachment C - Planning Referral Officer Cultural Heritage Report
Attachment D - Planning Referral Officer Development Engineering Report

GENERAL NOTES

1. These designs, drawings and specifications are the copyright of Vioto Architects. The use, reproduction or modification, wholly or in part, is not permitted unless permission is provided in writing by the architect.

2. Do not scale off documents - use figured dimensions in preference to any scaled reference. Contact the architect if further information is required.

3. Contours shown are existing, unless stated otherwise, and do not represent finished levels.

4. All dimensions must be confirmed on site prior to commencement of the works including construction or manufacture of any item.

5. Refer to, and co-ordinate with, all consultant documentation.

SITE INFORMATION

SITE DETAILS

Address 209-215 Harrington Street
Hobart, Tas 7000

Reference 52394/1 203787/1
52395/1 247958/1
232390/1 197488/1

Site Area 1700.6m²

EXISTING

Gross Floor Area	606.9m² (36%)
Net Letable Area	584.8m² (34%)
Total Site Area	1700.6m²
Total Carparks	37
Landscaping	-

PROPOSED

Gross Floor Area	264.5m² (15.5%)
Net Letable Area	251.4m² (15%)
Total Site Area	1700.6m²
Total Carparks	21
Landscaping	292m² (17%)

LEGENDS

ITEM / FEATURE

bl	bollard
bo	boulders - sandstone
br	bike racks
db	distribution board
dp	downpipe
ds	directional sign
ep	electrical pit
ga	grease arrestor
gl	glazing
gt	gutter
hb	height bar
ls	landscaping
li	lighting - carpark
mb	menuboard
oc	order canopy
pp	power pole
pr	preview board
rb	rumble bars
rw	rainwater head
sb	speaker box
sd	stormwater drain
sm	sewer manhole
sp	sump
sw	stormwater drain
swb	electrical distribution switchboard
msb	main electrical switchboard
ws	wheel stop
wt	water eter

FINISHES

BK-01	Brick Slip - to match col-03
BT-EX	Bitumen - Existing
BT-01	Bitumen - Type 01
CN-EX	Concrete - Existing
CN-01	Concrete - Type 01
CN-02	Concrete - Type 02
CN-03	Precast Concrete - clear finish
FC-01	FC Sheet Flush - col-01 finish
FC-02	FC Sheet Flush - col-02 finish
FC-03	FC Sheet Express Joint - col-03 finish
FC-04	FC Sheet Express Joint - col-04 finish
FC-05	FC Sheet Express Joint - col-03 finish
MC-01	Trimdek Metal Cladding - col-02 finish
MF-01	Metal Flashing - to match MS-01
MP-01	Metal Parapet Capping - col-02 finish
MS-01	Metal Sheet Roof
PL-01	Planterbox - rendered col-04 finish
PS-01	Lockergroup Perforated Powdercoated screen - col-03 finish
PS-02	Lockergroup Perforated Powdercoated screen - col-02 finish
RN-01	Retaining wall - rendered col-04 finish
TB-01	Timber Fence to boundary - col-02 finish
TC-01	Cimentel Woodgrain Cladding - Teak
TI-01	Tiles - Type 01

LEVELS

FRL+00.000	Finished Roof Level to AHD
FPL+00.000	Finished Parapet Level to AHD
FSL+00.000	Finished Slab Level to AHD
FFL+00.000	Finished Floor Level to AHD
RL+00.000	Relative Level to AHD

COLOUR FINISH

01. Dulux "Alabaster" A1016
02. Dulux "Black Caviar" PN2A8
03. Dulux "KFC Red Box" A0639
04. Dulux "Teahouse" SN4G6

WALL TYPE

Demolished scope of works
Existing Wall
Proposed Wall

VIOTO
51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
6	Preliminary issue	AD	27.08.20
7	Preliminary issue	AD	01.09.20
8	DA Submission	AD	08.09.20
9	Revised DA issue	RR	13.10.20
10	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

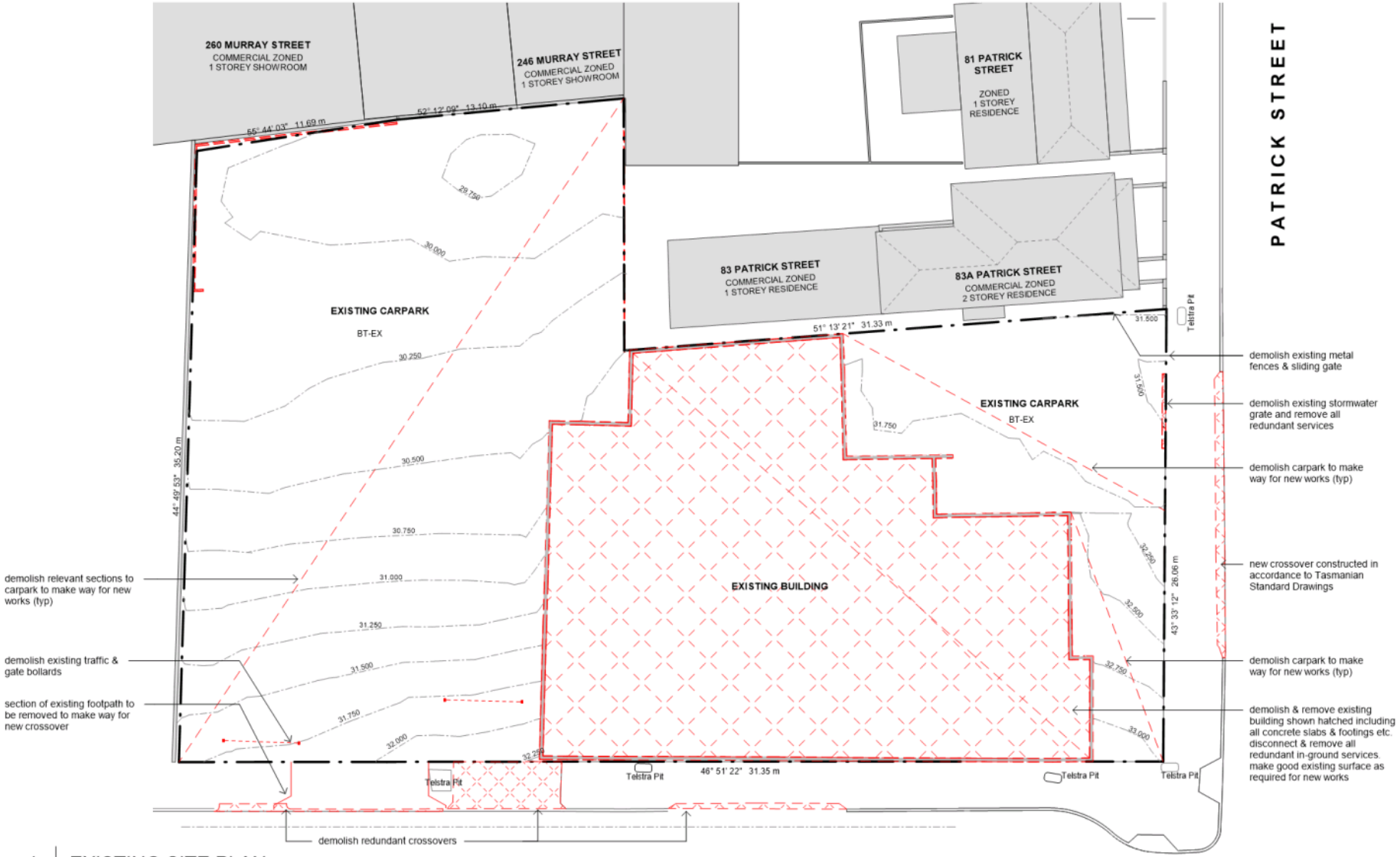
client
JOIANT PROPERTY GROUP

scale
NTS

drawing title
GENERAL INFORMATION

drawing number
2009-DD-000

issue
10



1 EXISTING SITE PLAN
1 : 200

VIOTO
51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
4	Preliminary issue	AD	27.08.20
5	Preliminary issue	AD	01.09.20
6	DA Submission	AD	08.09.20
7	Revised DA issue	RR	13.10.20
8	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

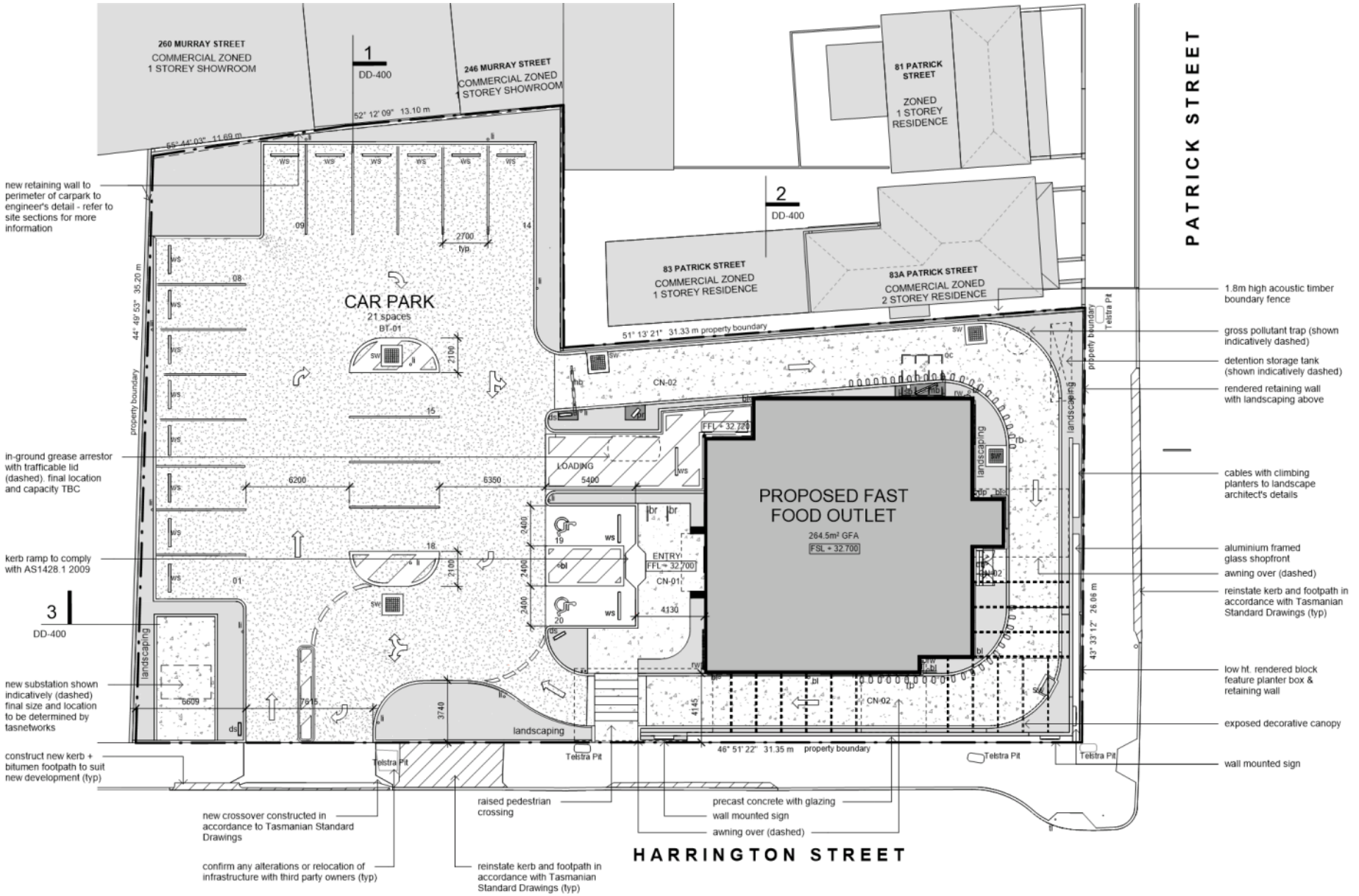
client
JOIANT PROPERTY GROUP

scale
1 : 200 @A3

drawing title
DEMOLITION SITE PLAN

drawing number
2009-DD-100

issue
8



VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
5	Preliminary issue	AD	27.08.20
6	Preliminary issue	AD	01.09.20
7	DA Submission	AD	08.09.20
8	Revised DA issue	RR	13.10.20
9	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

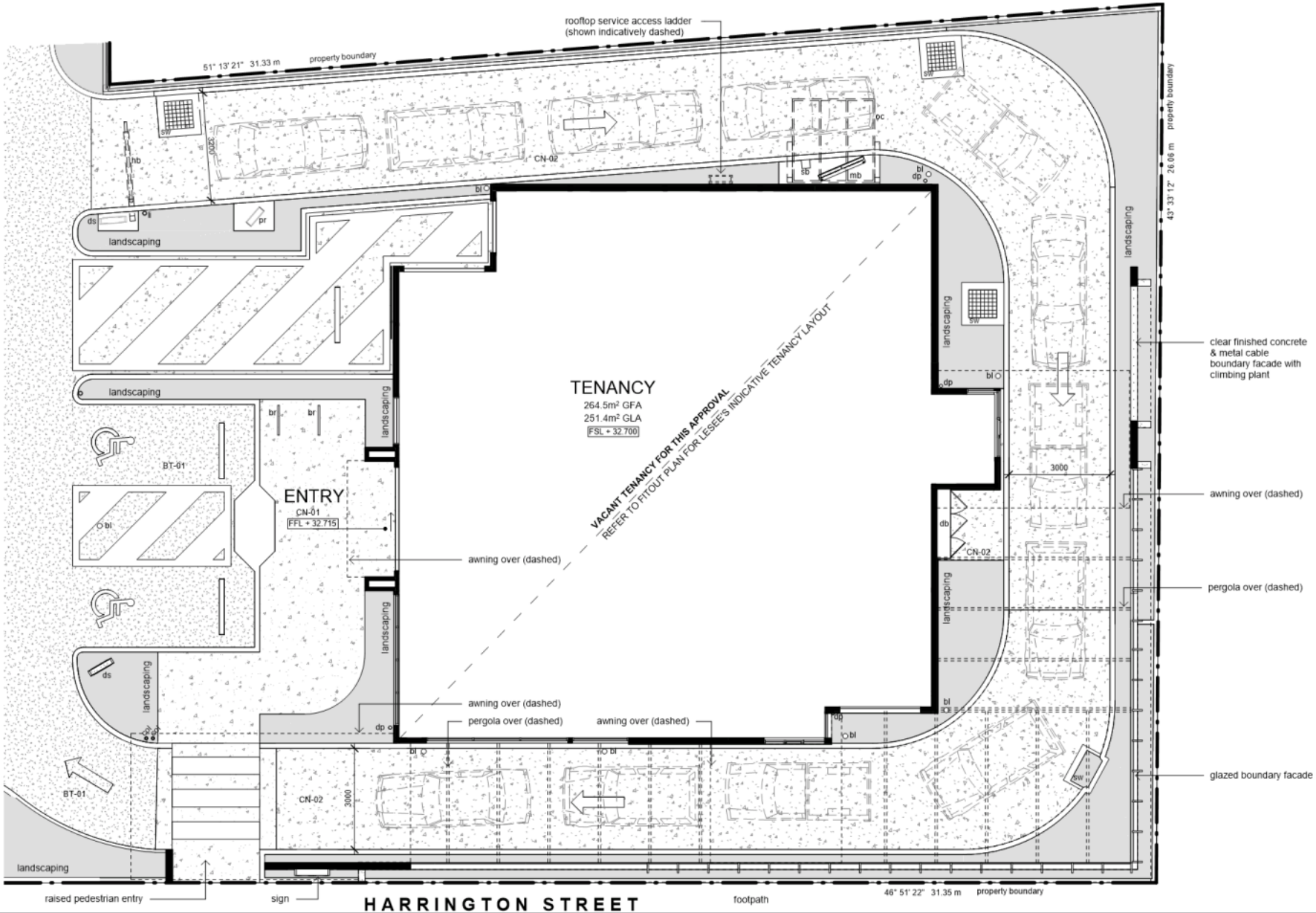
client
JOIANT PROPERTY GROUP

scale
1 : 200 @A3

drawing title
PROPOSED SITE PLAN

drawing number
2009-DD-110

issue
9



VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
5	Preliminary issue	AD	01.09.20
6	DA Submission	AD	08.09.20
7	Revised DA issue	RR	13.10.20
8	CONSULTANT ISSUE	RR	27.10.20
9	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

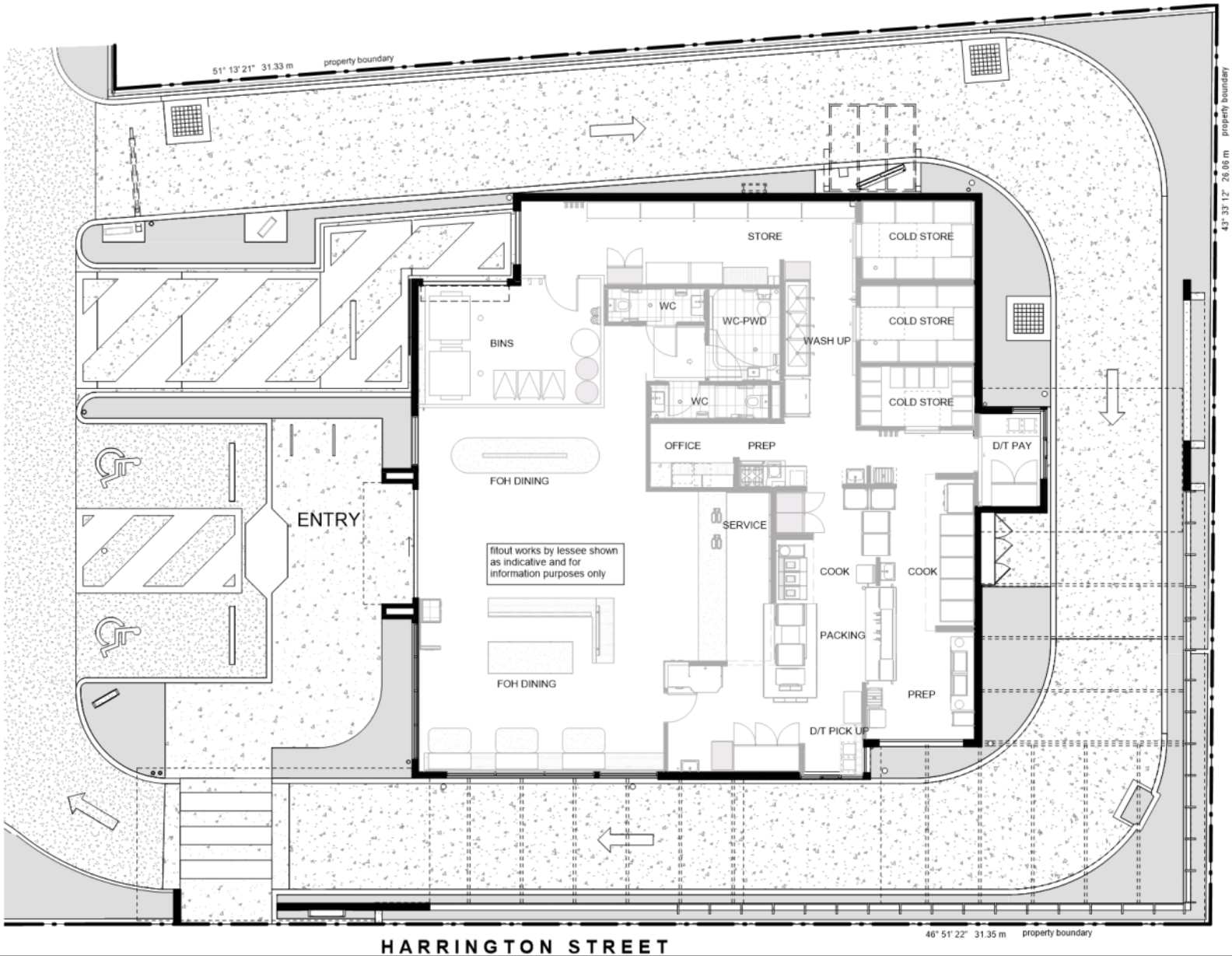
client
JOIANT PROPERTY GROUP

scale
1 : 100 @A3

drawing title
PROPOSED FLOOR PLAN

drawing number
2009-DD-200

issue
9



VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
1	Revised DA Submission	AD	01.11.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

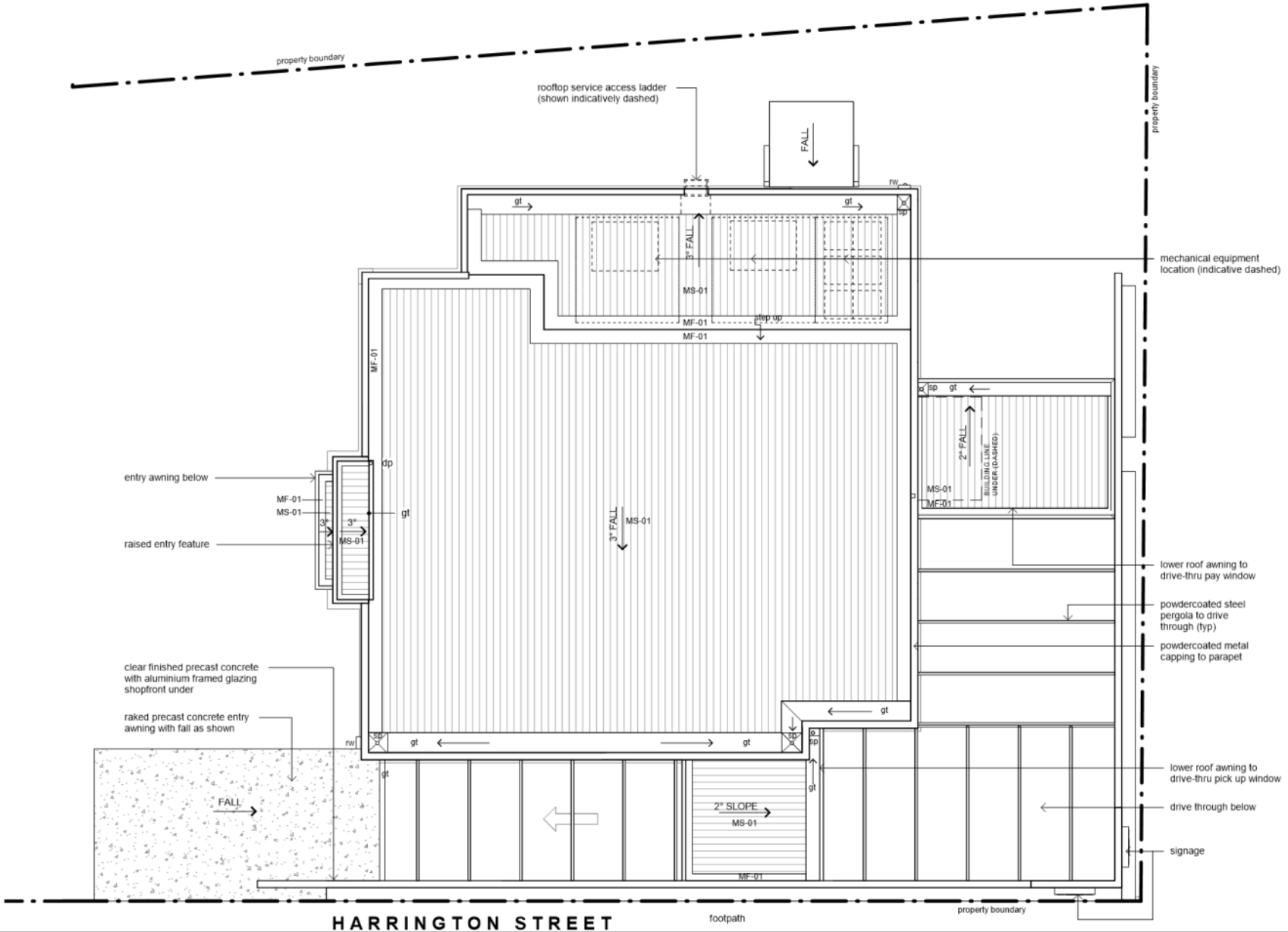
client
JOIANT PROPERTY GROUP

scale
NTS@00 @A3

drawing title
INDICATIVE TENANCY LAYOUT

drawing number
2009-DD-201

issue
1



VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
5	Preliminary issue	AD	01.09.20
6	DA Submission	AD	08.09.20
7	Revised DA issue	RR	13.10.20
8	CONSULTANT ISSUE	RR	27.10.20
9	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

client
JOIANT PROPERTY GROUP

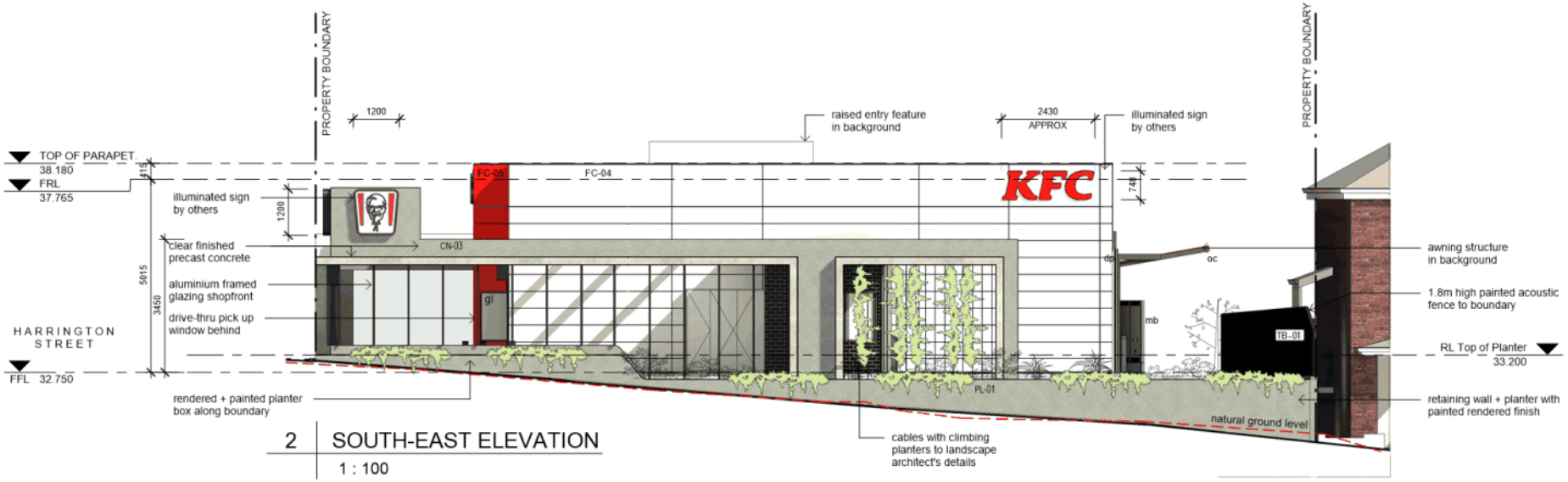
scale
1 : 100 @A3

drawing title
PROPOSED ROOF PLAN

drawing number
2009-DD-220

issue
9

1 SOUTH-WEST ELEVATION
1 : 100



2 SOUTH-EAST ELEVATION
1 : 100

VIOTO
51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifiar site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
7	Preliminary issue	AD	01.09.20
8	DA Submission	AD	08.09.20
9	Revised FAF1	RR	02.10.20
10	Revised DA issue	RR	13.10.20
11	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

client
JOIANT PROPERTY GROUP

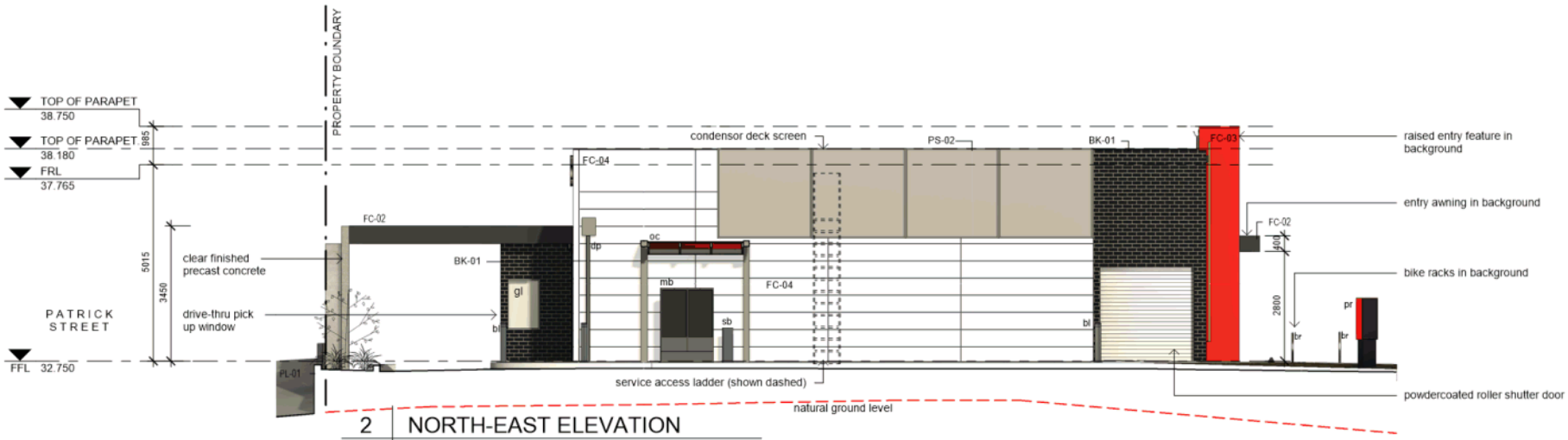
scale
1 : 100 @A3

drawing title
PROPOSED ELEVATIONS

drawing number
2009-DD-300

issue
11

1 NORTH-WEST ELEVATION
1 : 100



2 NORTH-EAST ELEVATION
1 : 100

VIOTO
51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
1	Preliminary issue	AD	27.08.20
2	Preliminary issue	AD	01.09.20
3	DA Submission	AD	08.09.20
4	Revised FAF1	RR	02.10.20
5	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

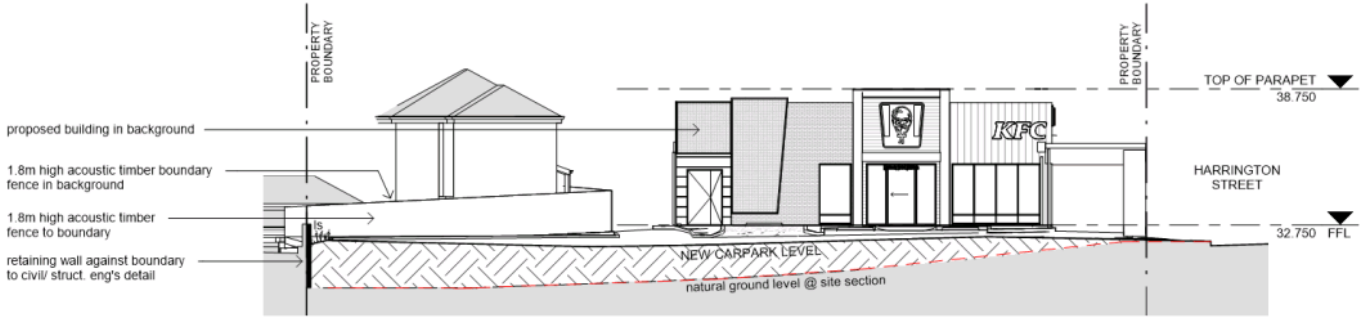
client
JOIANT PROPERTY GROUP

scale
1 : 100 @A3

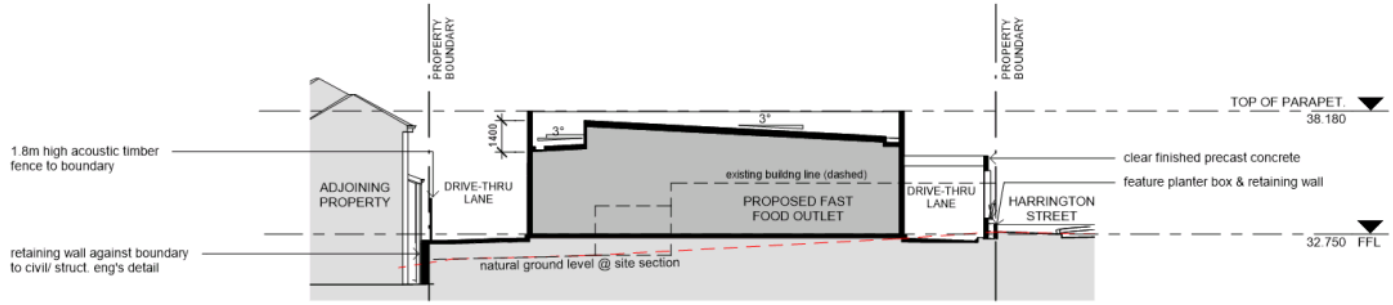
drawing title
PROPOSED ELEVATIONS

drawing number
2009-DD-301

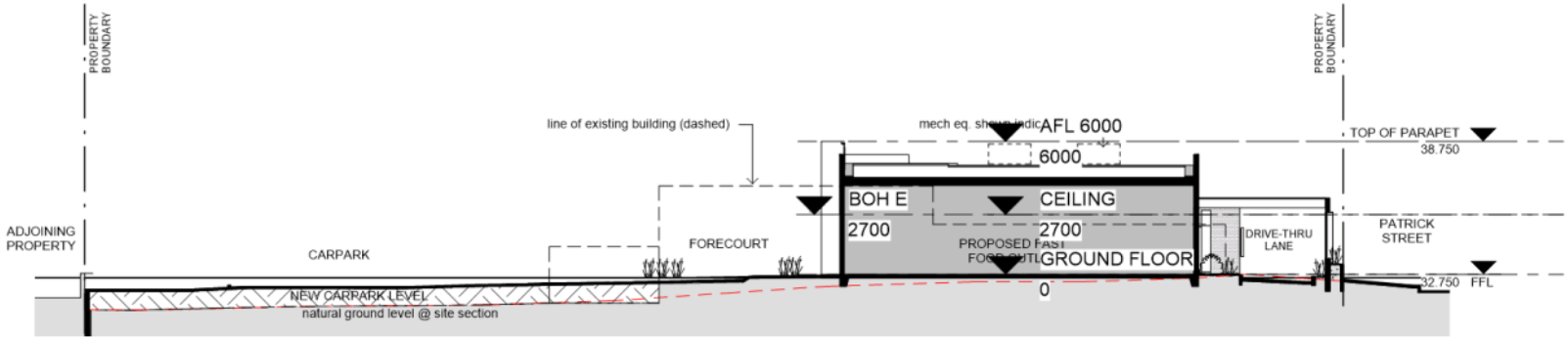
issue
5



1 SITE SECTION 01
1 : 200



2 SITE SECTION 02
1 : 200



3 SITE SECTION 03
1 : 200

VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
3	Preliminary issue	AD	27.08.20
4	Preliminary issue	AD	01.09.20
5	DA Submission	AD	08.09.20
6	CONSULTANT ISSUE	RR	27.10.20
7	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

client
JOIANT PROPERTY GROUP

scale
1 : 200 @A3

drawing title
SITE SECTIONS

drawing number
2009-DD-400

issue
7

PATRICK STREET PERSPECTIVE

VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
6	Preliminary issue	AD	01.09.20
7	DA Submission	AD	08.09.20
8	Revised FAF1	RR	02.10.20
9	Revised DA issue	RR	13.10.20
10	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

client
JOIANT PROPERTY GROUP

scale
NTS

drawing title
ARTIST IMPRESSION

drawing number
2009-DD-500

issue
10

HARRINGTON STREET ENTRY

VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
2	Preliminary issue	AD	01.09.20
3	DA Submission	AD	08.09.20
4	Revised FAFI	RR	02.10.20
5	Revised DA issue	RR	13.10.20
6	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

client
JOIANT PROPERTY GROUP

scale
NTS

drawing title
ARTIST IMPRESSION

drawing number
2009-DD-501

issue
6

HARRINGTON STREET PERSPECTIVE

VIOTO

51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
1	Preliminary issue	AD	27.08.20
2	Preliminary issue	AD	01.09.20
3	DA Submission	AD	08.09.20
4	Revised DA issue	RR	13.10.20
5	Revised DA Submission	AD	20.09.21

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

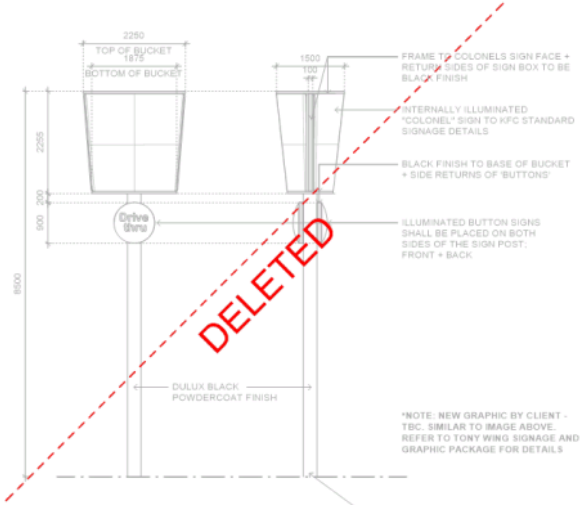
client
JOIANT PROPERTY GROUP

scale
NTS

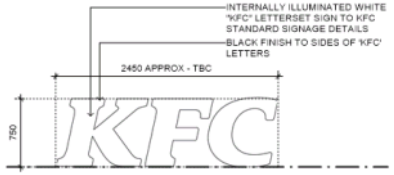
drawing title
ARTIST IMPRESSION

drawing number
2009-DD-502

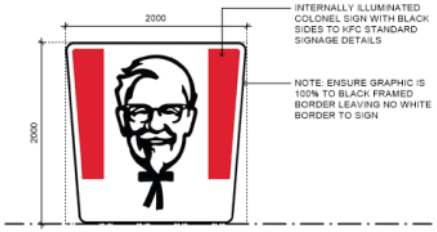
issue
5



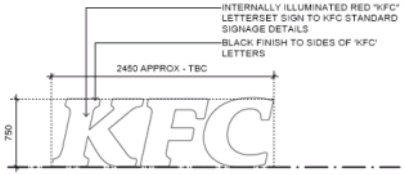
1 S.01 ILLUMINATED KFC PYLON SIGN
1 : 50



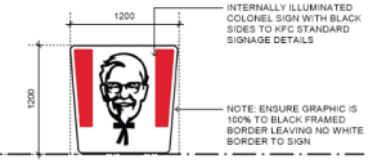
2 S.02 ILLUMINATED "KFC" WHITE LETTERSET
1 : 25



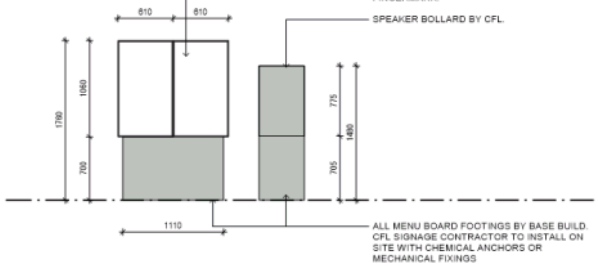
3 S.03 ILLUMINATED COLONEL SIGN
1 : 25



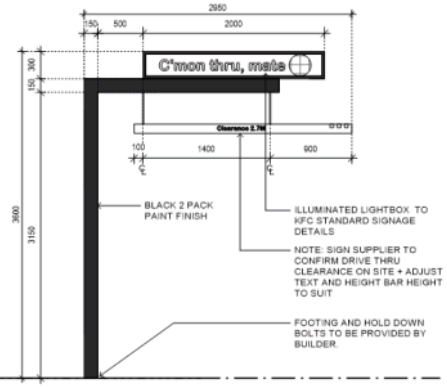
4 S.04 ILLUMINATED "KFC" RED LETTERSET
1 : 25



7 S.07 ILLUMINATED COLONEL SIGN
1 : 25



5 S.05 DIGITAL MENU BOARDS & S.07 DIGITAL PREVIEW BOARD
1 : 25



6 S.06 ILLUMINATED ENTRY HEIGHT BAR
1 : 25

NOTES:

1. ALL POWER SUPPLY + FOOTINGS FOR AWNINGS, MENUBOARDS, GANTRY, PYLON SIGNAGE AND DIRECTIONAL SIGNAGE TO BE PROVIDED INCLUDING HOLD DOWN BOLTS BY THE BASE BUILD
2. AWNINGS, GANTRY, PYLON AND DIRECTION SIGNAGE TO BE SUPPLIED AND INSTALLED BY SIGNAGE CONTRACTOR AS PART OF FITOUT WORKS.
3. HOLD DOWN BOLTS TO BE DESIGNED AND INSTALLED TO SUIT THE BASE PLATES PROVIDED BY SIGNAGE CONTRACTOR

NOT FOR CONSTRUCTION

ISSUE FOR APPROVAL

No.	REVISION	DATE	INIT.
DA2	ISSUE FOR APPROVAL	24/01/22	TR
DA1	NEW DA OPS APPROVAL	16/12/21	TR
FAF2	PRELIMINARY - ISSUE FOR FAF	09/11/20	TR
FAF1	PRELIMINARY - ISSUE FOR FAF	04/09/20	TR

ARCHITECT:

This drawing and design is subject to copyright © and may not be reproduced without prior consent. Contractor to verify all dimensions on site before commencing work. Report all discrepancies to the architect prior to construction. Figured dimensions to be taken in preference to scaled drawings.

inaspace ARCHITECTURE + DESIGN
SRIS: Level 1/92 HYDE RD, YERONGA QLD 4104
MELB: Factory 1, 10-12 MORLAND RD, BRUNSWICK EAST, VIC 3057
(07) 3252 7356 www.inaspace.com.au

CLIENT: COLLINS FOODS LIMITED

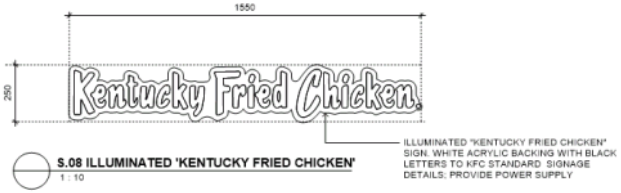
PROJECT: KFC HOBART

LOCATION: 209-215 HARRINGTON STREET HOBART, TAS 7000

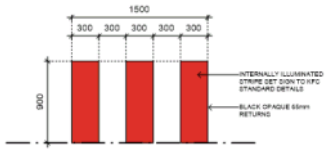
DRAWING: SIGNAGE DETAILS

SCALE:	DATE:	DRAWN BY:	NORTH
As indicated @ A1 @ A3	JULY 2020	JS	

JOB No.:	DWG No.:	REV:
2026	WD-0.03	DA2



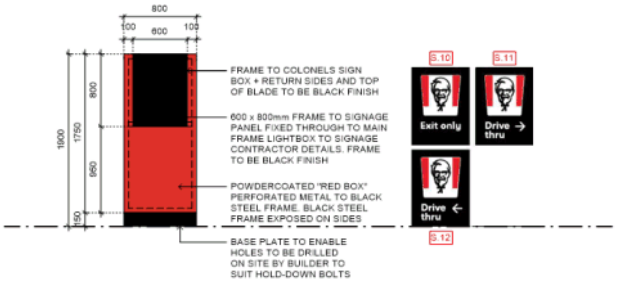
S.08 ILLUMINATED 'KENTUCKY FRIED CHICKEN'
1 : 10



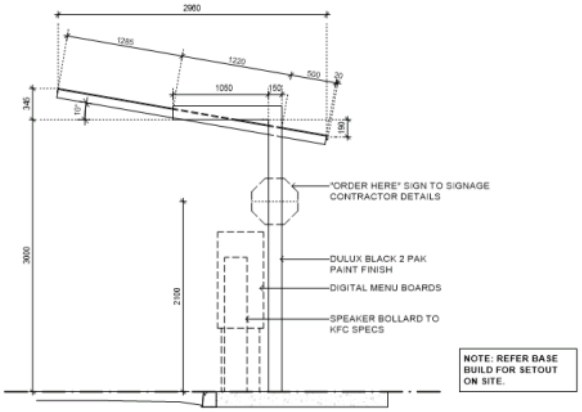
9 S.09 ILLUMINATED RED "STRIPE" SET
1 : 25

PRINCIPAL GUIDANCE NOTES:

- MODIFY THE NUMBER OF DIRECTIONAL SIGNS SHOWN AND THE MESSAGES INDICATED ON THE DIRECTIONAL SIGNS TO REFLECT THE INDIVIDUAL SITE REQUIREMENTS + ENSURE BACK PANEL REFLECTS CORRECT SITE DIRECTION
- UTILIZE THE DIRECTIONAL SIGN ORDER FORM IN THE SPECIFICATION TO ORDER THE SPECIFIC DIRECTIONAL SIGNS REQUIRED



10 ILLUMINATED DIRECTIONAL SITE SIGNAGE
1 : 25



NOTE: REFER BASE BUILD FOR SETOUT ON SITE.

11 S.13 DRIVE THRU CANOPY
1 : 25

NOTES:

1. ALL POWER SUPPLY + FOOTINGS FOR AWNINGS, MENUBOARDS, GANTRY, PYLON SIGNAGE AND DIRECTIONAL SIGNAGE TO BE PROVIDED INCLUDING HOLD DOWN BOLTS BY THE BASE BUILD
2. AWNINGS, GANTRY, PYLON AND DIRECTION SIGNAGE TO BE SUPPLIED AND INSTALLED BY SIGNAGE CONTRACTOR AS PART OF FITOUT WORKS.
3. HOLD DOWN BOLTS TO BE DESIGNED AND INSTALLED TO SUIT THE BASE PLATES PROVIDED BY SIGNAGE CONTRACTOR

NOT FOR CONSTRUCTION

ISSUE FOR APPROVAL

No.	REVISION	DATE	INIT.
DA2	ISSUE FOR APPROVAL	24/01/22	TR
DA1	NEW DA OPS APPROVAL	16/12/21	TR
FAF2	PRELIMINARY - ISSUE FOR FAF	09/11/20	TR
FAF1	PRELIMINARY - ISSUE FOR FAF	04/09/20	TR

ARCHITECT:

This drawing and design is subject to copyright © and may not be reproduced without prior consent. Contractor to verify all dimensions on site before commencing work. Report all discrepancies to the architect prior to construction. Figured dimensions to be taken in preference to scaled drawings.

inaspace ARCHITECTURE + DESIGN

SYD: Level 1/92 HYDE RD, YERONGA QLD 4104
MELB: Factory 1, 10-12 MORLAND RD, BRUNSWICK EAST, VIC 3057
(07) 3252 7356 www.inaspace.com.au

CLIENT:
COLLINS FOODS LIMITED

PROJECT:
KFC HOBART

LOCATION:
209-215 HARRINGTON STREET
HOBART, TAS 7000

DRAWING:
SIGNAGE DETAILS

SCALE:	DATE:	DRAWN BY:	NORTH
As indicated @ A1 @ A3	JULY 2020	JS	

JOB No.:	DWG No.:	REV:
2026	WD-0.04	DA2

Our Ref: 20.008

Measured form and function

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

18 November 2021

Mr Ben Ikin
Senior Statutory Planner
City Planning
City of Hobart
By ePortal

Dear Ben,

PLANNING COMPLIANCE ASSESSMENT - PLN-20-651 - 209-213 HARRINGTON STREET, HOBART

This letter provides an assessment of a new KFC Restaurant proposed at 209-213 Harrington Street, Hobart against the use and building development standards of the Commercial Zone of the *Hobart Interim Planning Scheme 2015* ("the Scheme").

This assessment should be read in conjunction with the following plans:

Table 1 - development plans that are applicable to this assessment.

Drawing No.	Drawing Title	Issue	Revision	Date
2009-DD-000	General Information	10	Revised DA Submission	20.09.21
2009-DD-100	Demolition Site Plan	8	Revised DA Submission	20.09.21
2009-DD-110	Proposed Site Plan	9	Revised DA Submission	20.09.21
2009-DD-200	Proposed Floor Plan	9	Revised DA Submission	20.09.21
2009-DD-201	Indicative Tenancy Layout	1	Revised DA Submission	01.11.21
2009-DD-220	Proposed Roof Plan	9	Revised DA Submission	20.09.21
2009-DD-300	Proposed Elevations	11	Revised DA Submission	20.09.21
2009-DD-301	Proposed Elevations	5	Revised DA Submission	20.09.21
2009-DD-400	Site Sections	7	Revised DA Submission	20.09.21
2009-DD-500	Artist Impression	10	Revised DA Submission	20.09.21
2009-DD-501	Artist Impression	6	Revised DA Submission	20.09.21

1. Use Categorisation

In accordance with clause 8.2.1 of the Scheme, the proposed KFC Restaurant is categorised into the Food Services Use Class which is defined in Table 8.2 as:

> **Food Services**
>
> *use of land for preparing or selling food or drink for consumption on or off the premises. Examples include a cafe, restaurant and take-away food premises.*

The proposed KFC Restaurant will include dine-in and drive-thru (take-away) components. Food Services is identified as a 'Discretionary' use within Table 23.2 of the Commercial zone where it involves dine-in in addition to take-away offerings.

2. Commercial Zone

2.1 Use Standards

23.3	Use Standards		
Clause	**Requirement**	**Assessment**	**Compliance**
23.3.1	Hours of Operation		
A1	Hours of operation of a use within 50m of a residential zone must be within:		
	(a) 6.00am to 10.00pm Mondays to Saturdays inclusive;	It is proposed to operate the KFC Restaurant between 6.00am to 10.00pm Mondays and Saturdays.	Complies with Acceptable Solution.
	(b) 7.00am to 9.00pm Sundays and Public Holidays.	It is proposed to operate the KFC Restaurant between 7.00am to 9.00pm Sundays and Public Holidays.	Complies with Acceptable Solution.
	except for office and administrative tasks.	Office and administrative tasks associated with the proposed KFC Restaurant will occur within the operating hours specified in subclauses A1(a) and A1(b).	
23.3.2	Noise		
A1	Noise emissions measured at the boundary of a residential zone must not exceed the following:	Land opposite the site on the south-western side of Harrington Street is zoned Inner Residential. An acoustic assessment has been prepared to determine likely noise levels.	
	(a) 55dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm;	The assessment determined that the likely noise level for LAeq from the ordering station and pick up station at the adjacent Inner Residential zone will be 42.5 dB(A) and 45.6 dB(A), respectively.	Complies with Acceptable Solution.

	(b) 5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 7.00 pm to 7.00 am;	The assessment determined that the operation of the proposed KFC restaurant will operate below the night time measured ambient noise level for the LA90 noise metric.	Complies with the Acceptable Solution.
	(c) 65dB(A) (LAmax) at any time.	The assessment determined that the likely noise level for LAmax from the ordering station and pick up station at the adjacent Inner Residential zone will be 60.3 dB(A) and 63.4 dB(A), respectively.	Complies with Acceptable Solution.
	Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness. Noise levels are to be averaged over a 15 minute time interval.	It is noted that Item 4 under the heading 'Conclusions' of the noise assessment states that the development meets performance criteria P1 and may meet the acceptable solution A1 if a solid rather than a perforated fence is built along Harrington Street (at the pickup counter). In this instance, the noise assessment was based on a previous design which proposed to have a vertical perforated screen on the Harrington Street side of the pickup counter. The development plans (detailed in Table 1), now include an glazed façade along the full length of the drive-thru lane that is parallel to Harrington Street. It is therefore considered that the proposed KFC Restaurant will be fully compliant with all components of the acceptable solution on the basis that the screen will comprise solid glazing rather than perforated sheeting (and for a greater length along the	

		Harrington Street frontage than originally proposed).	
23.3.3	**External Lighting**		
A1	External lighting within 50 m of a residential zone must comply with all of the following:	The site is within 50m of the Inner Residential zone.	
	(a) be turned off between 11:00 pm and 6:00 am, except for security lighting;	All external lighting and illumination will be turned off when the store closes which will be prior to 11.00pm.	Complies with Acceptable Solution.
	(b) security lighting must be baffled to ensure they do not cause emission of light outside the zone.	All other required security lighting will be baffled so that direct lighting does not escape the boundaries of the site.	Complies with Acceptable Solution.
23.3.4	**Commercial Vehicle Movements**		
A1	Commercial vehicle movements, (including loading and unloading and garbage removal) to or from a site within 50 m of a residential zone must be within the hours of:	The site is located within 50m of the Inner Residential zone. All deliveries and garbage removal associated with the proposed KFC Restaurant will occur:	
	(a) 6.00 am to 10.00 pm Mondays to Saturdays inclusive;	between 6.00am to 10.00pm Mondays and Saturdays; and	Complies with Acceptable Solution.
	(b) 7.00 am to 9.00 pm Sundays and Public Holidays.	between 7.00am to 9.00pm Sundays and Public Holidays.	Complies with Acceptable Solution.
23.3.6	**Adult Entertainment Venues**		
A1	The title boundary of the land on which the use is to occur must be at least 200m (in a straight line distance) from a Residential Zone or the title boundary of land on which there is a use for any of the following: (a) residential; (b) a primary school; (c) a secondary school; (d) a child care centre; (e) a crèche; (f) a place of worship; (g) bed and breakfast accommodation;	The proposal does not involve an Adult Entertainment Venue.	Not Applicable.

	(h) a playground; (i) any other use if it is regularly frequented by children for recreational or cultural purposes.		
A2	The use must not occupy a room or space having ground floor frontage onto a street or be directly visible from the street.	The proposal does not involve an Adult Entertainment Venue.	Not Applicable.
A3	No form of public address or sound amplification should be audible from outside the building.	The proposal does not involve an Adult Entertainment Venue.	Not Applicable.
A4	Any sign must only indicate the name of the business using text. No graphics or images are to be used.	The proposal does not involve an Adult Entertainment Venue.	Not Applicable.
23.3.7	Take-away Food Shops		
A1	Hours of operation must be within 7.00am to 12.00am.	The proposed KFC Restaurant will operate between the hours specified by clause 23.3.1 A1 (a) and (b) which will satisfy clause 23.3.7 (a).	Complies with Acceptable Solution.
23.3.8	Hotel Industries		
A1	Hours of operation must be within 7.00am to 12.00am.	The proposal does not involve Hotel Industry uses.	Not Applicable.
23.3.9	Manufacturing and Processing Uses		
A1	Manufacturing and processing uses must not: (a) entail the storage of goods, materials or waste, other than for retail sale, that are visible from any dwelling, public street or public place; or (b) entail the delivery or removal from the development of goods or materials aggregating 50 tonnes or more weight in any 24 hour period; or (c) entail the manufacture or storage in bulk of explosive, flammable or other dangerous materials.	The proposal does not involve Manufacturing and Processing uses.	Not Applicable.

2.2 Developments Standards for Buildings and Works

23.4	Developments Standards for Buildings and Works		
Clause	**Requirement**	**Assessment**	**Compliance**

23.4.1	Building Height		
A1	Building height must be no more than: (a) 11.5m high and a maximum of 3 storeys; or	The proposed building height will be approximately 7.5m and the building will be single storey.	Complies with Acceptable Solution.
	(b) 15m high and a maximum of 4 storeys, if the development provides at least 50% of the floor space above ground level for residential use.	Relies on subclause A1 (a).	Not Applicable.
A2	Building height within 10m of a residential zone must be no more than 8.5m.	The proposed building will be setback approximately 17m from the nearest residential zoned land (Inner Residential) which is situated to the south-west beyond Harrington Street road reserve.	Not Applicable.
23.4.2	Setback		
A1	Building setback from frontage must be parallel to the frontage and must be no less than: 0m.	The building will be constructed to the Harrington Street and Patrick Street frontages. In this regard, the drive-through lanes along the Harrington Street and Patrick Street frontages will be enclosed by a precast concrete structure with glazing. The structure will be connected to the restaurant by a series of rafters that will form an exposed canopy. The structure will be supported by retaining walls below that will be constructed to the respective frontages.	Complies with Acceptable Solution.
A2	Building setback from the General Residential or Inner Residential Zone must be no less than: (a) 5 m; (b) half the height of the wall, whichever is the greater.	The wall of the proposed building that will be located to the nearest residential zoned land (Inner Residential) which is	Complies with Acceptable Solution.

		situated to the south-west beyond Harrington Street will have a maximum height of approximately 3.5m and the building height will be a maximum of approximately 6.2m (relative to the Harrington Street frontage). The wall and building will be setback approximately 17m from the residential zoned land which is greater than half the height of the wall (~1.75m) and building (~3.1m) and, alternatively, 5m.	
23.4.3	Design		
A1	Building design must comply with all of the following: (a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site;	Given the inclusion of 'or' between the words 'road' and 'publicly' it is considered that only one of the two options are required to be achieved. In this regard, the options are: 1. the main pedestrian entrance to the building is to be clearly visible from the road; or 2. the main pedestrian entrance to the building is to be clearly visible from publicly accessible areas on the site. In this instance, the main entrance to the building is on the north-western elevation and will be clearly visible from the car park located immediately to the north-west of the main entrance. The car park is a publicly accessible area on the site.	Complies with Acceptable Solution.

	(b) for new building or alterations to an existing facade provide windows and door openings at ground floor level in the front façade no less than 40% of the surface area of the ground floor level facade;	In this instance, the façade of the building is considered to be the section of the building that is closest to the Harrington Street and Patrick Street frontages at street level. The surface area (SA) of each façade and the extent of glazing (G) on each façade is as follows: **Harrington Street** • SA: 90.5m^2 • G: 44.95m^2 **Patrick Street** • SA: 83.5m^2 • G: 27.96m^2 The level of glazing in the Harrington Street and Patrick Street facades will therefore be 49.5% and 33.5%, respectively.	Relies on Performance Criteria.
	(c) for new building or alterations to an existing facade ensure any single expanse of blank wall in the ground level front façade and facades facing other public spaces is not greater than 30% of the length of the facade;	With respect to the Harrington Street and Patrick Street facades, single expanse walls are considered the retaining walls on both facades and the timber entry façade on the Harington Street frontage. In this instance, the retaining walls will extend for the length of the façade. With respect to north-west elevation of the building that will form the main entrance to the restaurant and will face the public space within he site, the elevation has a length of 14.15m. It will incorporate three distinct walls which include vertical timber cladding, brick, glazing and the entrance feature. The brick wall and glazing will be blank. These walls	Relies on Performance Criteria.

		will be less than 30% of the total length of the elevation.	
	(d) screen mechanical plant and miscellaneous equipment such as heat pumps, air conditioning units, switchboards, hot water units or similar from view from the street and other public spaces;	All mechanical plant and miscellaneous equipment will be located on the roof and will be screened by a parapet.	Complies with Acceptable Solution.
	(e) incorporate roof-top service infrastructure, including service plants and lift structures, within the design of the roof;	All mechanical plant and equipment will be located on the roof.	Complies with Acceptable Solution.
	(f) provide awnings over the public footpath if existing on the site or on adjoining lots;	The site and adjoining lots do not contain awnings over the public footpaths of Harrington Street and Patrick Street.	Not Applicable.
	(g) not include security shutters over windows or doors with a frontage to a street or public place.	The building will not include security shutters over windows or doors.	Complies with Acceptable Solution.
A2	Walls of a building on land adjoining a residential zone must comply with all of the following: (a) be coloured using colours with a light reflectance value not greater than 40 percent; (b) if within 50 m of a residential zone, must not have openings in walls facing the residential zone, unless the line of sight to the building is blocked by another building.	The site does not adjoin a residential zone.	Not Applicable.
23.4.4	Passive Surveillance		
A1	Building design must comply with all of the following:		
	(a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site;	Refer to the assessment against clause 23.4.3 A1(a).	Complies with Acceptable Solution.
	(b) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the front façade which amount to no less than 40% of the surface area of the ground floor level facade;	Refer to the assessment against clause 23.4.3 A1(b).	Relies on Performance Criteria.

	(c) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the façade of any wall which faces a public space or a car park which amount to no less than 30% of the surface area of the ground floor level facade;	With respect to the Harrington Street and Patrick Street facades, the retaining walls and the timber entrance feature on the Harrington Street façade are considered to be walls for the purposes of this clause. The walls will amount to 24.8% and 26.3% of the surface area of the Patrick Street and Harrington Street facades, respectively. With respect to the north-western elevation that will face the car park, walls (excluding all glazed elements) will amount to 54% of the surface area of the elevation.	Relies on Performance Criteria.
	(d) avoid creating entrapment spaces around the building site, such as concealed alcoves near public spaces;	The building will not include any concealed alcoves.	Complies with Acceptable Solution.
	(e) provide external lighting to illuminate car parking areas and pathways;	The car park will be provided with lighting in accordance with Australian and New Zealand Standard 1158 3.1: 2005.	Complies with Acceptable Solution.
	(f) provide well-lit public access at the ground floor level from any external car park.	The car park will be provided with lighting in accordance with Australian and New Zealand Standard 1158 3.1: 2005.	Complies with Acceptable Solution.
23.4.5	Landscaping		
A1	Landscaping along the frontage of a site is not required if all of the following apply: (a) the building extends across the width of the frontage, (except for vehicular access ways);	Landscaping will be provided within planter boxes along the Harrington Street and Patrick Street frontages. Landscaping will also be provided at the vehicle entrance to the site and within the site.	Complies with Acceptable Solution.

	(b) the building has a setback from the frontage of no more than 1m.		
A2	Along a boundary with a residential zone landscaping must be provided for a depth no less than: 2m.	The site does not adjoin a residential zone.	Not Applicable.
23.4.6	Outdoor Storage Areas		
A1	Outdoor storage areas for non-residential uses must comply with all of the following: (a) be located behind the building line; (b) all goods and materials stored must be screened from public view; (c) not encroach upon car parking areas, driveways or landscaped areas.	The proposal does not include outdoor storage areas.	Not Applicable.
23.4.7	Fencing		
A1	Fencing must comply with all of the following:		
	(a) fences, walls and gates of greater height than 1.5 m must not be erected within 10 m of the frontage;	A portion of the northern end of the retaining wall along the Patrick Street frontage will be located within 10m of the Patrick Street frontage and will have a height greater than 1.5m. However, the retaining wall forms part of the building and is not considered to be a fence.	Not Applicable.
	(b) fences along a frontage must be at least 50% transparent above a height of 1.2 m;	No fences are proposed along a frontage.	Not Applicable.
	(c) height of fences along a common boundary with land in a residential zone must be no more than 2.1 m and must not contain barbed wire.	The site does not adjoin a residential zone.	Not Applicable.
23.4.8	Residential and Visitor Accommodation		
The proposal does not involve Residential or Visitor Accommodation uses.			
23.4.9	Waste Storage and Collection		
A1	Bulk waste bins that are commercially serviced must be provided for sites:		
	(a) with more than one commercial tenancy;	The site will contain a single tenancy.	Not Applicable.

	(b) with one commercial tenancy that is greater than 100m^2; and	Waste storage bins will be provided for the use.	Complies with Acceptable Solution.
	(c) with more than 4 dwellings or visitor accommodation units (or 3 if a mixed use site); unless: (i) there are no more than 4 individual bins for kerbside collection at anyone time per commercial site; (ii) there are no more than 8 individual bins for kerbside collection at any one time per residential or mixed use site; or (iii) individual bins are commercially serviced without being placed on the kerbside for collection.	The proposal does not involve Residential or Visitor Accommodation uses.	Not Applicable.
A2	An on-site storage area, with an impervious surface (unless for compostables), must be provided for bins that:		
	(a) if for separate bins per dwelling, visitor accommodation or commercial tenancy: (i) provides an area for the exclusive use of each dwelling, accommodation unit or tenancy, and is not located between the building and a frontage; (ii) is set back not less than 4.5m from a frontage unless within a fully enclosed building; (iii) is not less than 5.5m horizontally from any dwelling or accommodation unit unless for bins associated with that dwelling, or within a fully enclosed building; and (iv) is screened from the frontage and any dwelling or accommodation unit by	The proposal does not involve Residential or Visitor Accommodation uses.	Not Applicable.

	a wall to a height not less than 1.2m above the finished surface level of the storage area.		
	(b) If for bulk waste bins:		
	(i) is located on common property;	The proposal does not include common property.	Not Applicable.
	(ii) includes dedicated areas for storage and management of recycling and compostables;	The storage area will be located within the building and will provide for the storage and management of recycling and compostables if required.	Complies with Acceptable Solution.
	(iii) is not less than 5.5m from any dwelling or accommodation unit unless within a fully enclosed building;	The proposal does not involve Residential or Visitor Accommodation use.	Not Applicable.
	(iv) is screened from any public road, dwelling or accommodation unit by a wall to a height not less than 1.8m above the finished surface level of the storage area;	The dedicated storage area will be located within the building and will not be visible from Harrington Street or Patrick Street (except for during collection).	Complies with Acceptable Solution.
	(v) is accessible to each dwelling, accommodation unit or tenancy without the requirement to travel off-site; and	The proposal does not involve Residential or Visitor Accommodation use.	Not Applicable.
	(vi) where the development is mixed use, have separate storage spaces for commercial and residential bins with separate access to each.	The proposal involves a single use.	Not Applicable.
A3	Bulk waste bins must be collected on site by private commercial vehicles, and access to storage areas must:		
	(a) in terms of the location, sight distance, geometry and gradient of an access, as well as off-street parking, manoeuvring and service area, be designed and constructed to comply with AS2890.2:2018: *Parking Facilities - Off-Street Commercial Vehicle Facilities*;	The car parking area will be designed and constructed to the requirements of AS2890.2:2018: *Parking Facilities - Off-Street Commercial Vehicle Facilities.*	

	(b) ensure the vehicle is located entirely within the site when collecting bins; and	The collection point is located within the site.	
	(c) include a dedicated pedestrian walkway, alongside or independent of vehicle access ways.	Separate pedestrian access will be provided independent of the vehicle access way.	

2.3 Performance Criteria Assessment

2.3.1 Standard 23.4.3 Design - Performance Criteria P1

The Objective of the Standard is:

To ensure that building design contributes positively to the streetscape, the amenity and safety of the public and adjoining land in a residential zone.

The Performance Criteria states:

Building design must enhance the streetscape by satisfying all of the following:

(a) provide the main access to the building in a way that addresses the street or other public space boundary;

(b) provide windows in the front façade in a way that enhances the streetscape and provides for passive surveillance of public spaces;

(c) treat large expanses of blank wall in the front façade and facing other public space boundaries with architectural detail or public art so as to contribute positively to the streetscape and public space;

(d) ensure the visual impact of mechanical plant and miscellaneous equipment, such as heat pumps, air conditioning units, switchboards, hot water units or similar, is insignificant when viewed from the street;

(e) ensure roof-top service infrastructure, including service plants and lift structures, is screened so as to have insignificant visual impact;

(f) only provide shutters where essential for the security of the premises and other alternatives for ensuring security are not feasible;

(g) be consistent with any Desired Future Character Statements provided for the area.

Response

The term 'enhance' is taken to mean intensification, increase or further improve the quality, value or extent of something. In this instance, the design of the building will enhance the site within the context of the Patrick Street and Harrington Street streetscapes. The site comprises a single building that is setback from the Patrick Street frontage and is built to the Harrington Street frontage. There is hardstand between the building and the Patrick Street frontage which is used for car parking with the north-eastern car parking area being enclosed by solid and transparent fencing. More car parking is located to the north-west of the building. The site does not contain landscaping.

The design of the proposed building will enhance the streetscape of Patrick Street and Harrington Street, having regard to the following:

(a) the main access to the restaurant will address the public car park within the site.

(b) windows will be provided in the front facades of the building that face Harrington Street and Patrick Street. The windows will occupy approximately 49.5% and 33.5% of the Harrington Street and Patrick Street facades, respectively. The level of glazing proposed will result in an increase in the amount of glazing to the existing building on the same facades. The proposed glazing will allow mutual passive surveillance between vehicles within the drive-through lane and the adjacent public roads. Furthermore, the perimeter drive-through lane will provide relatively unobstructed view corridors around the building which will improve visibility between the building and the road.

(c) the level of glazing, modulation and materiality of the building and inclusion of landscaping along each frontage will ensure the building contributes positively to the streetscape. Specifically, the design of the building has increased articulation which will provide visual interest and identity within the streetscape and landscaping will soften the built form including sections of blank walls on each façade.

(d) mechanical plant and miscellaneous equipment will not be visible from Harrington Street or Patrick Street.

(e) all roof-top plant and miscellaneous equipment will be screened from public view by the parapet of the roof.

(f) shutters and other security screens are not proposed.

(g) there are no Desired Future Character Statements for the Commercial zone.

2.3.2 Standard 23.4.4 Passive Surveillance - Performance Criteria P1

The Objective of the Standard is:

To ensure that building design provides for the safety of the public.

The Performance Criteria states:

Building design must provide for passive surveillance of public spaces by satisfying all of the following:

(a) provide the main entrance or entrances to a building so that they are clearly visible from nearby buildings and public spaces;

(b) locate windows to adequately overlook the street and adjoining public spaces;

(c) incorporate shop front windows and doors for ground floor shops and offices, so that pedestrians can see into the building and vice versa;

(d) locate external lighting to illuminate any entrapment spaces around the building site;

(e) provide external lighting to illuminate car parking areas and pathways;

(f) design and locate public access to provide high visibility for users and provide clear sight lines between the entrance and adjacent properties and public spaces;

(g) provide for sight lines to other buildings and public spaces.

Response

The design of the building will provide for passive surveillance between the building and public spaces having regard to the following:

(a) the main access to the restaurant will address the public car park within the site. It will also be identifiable from Harrington Street by the articulated and signed pedestrian entry way which will be distinct from the glazed façade on the same frontage.

(b) windows will be provided along the Harrington Street and Patrick Street facades which will allow mutual passive surveillance between vehicles within the drive-through and the road.

(c) the proposal does not involve a shop or office.

(d) the building will not include any entrapment spaces around its perimeter.

(e) the car park will be provided with lighting in accordance with *Australian and New Zealand Standard 1158 3.1: 2005* which will illuminate the car parking area and associated accessways to the main entrance of the building.

(f) the public access to the site will be from Harrington Street. Pedestrian access will be provided by an articulated and signed entry way and the vehicular access will be distinguished by the appropriate vehicle crossover and signage infrastructure. Public entrances to the site will be clearly visible from Harrington Street and the adjacent properties on the south-western side of Harrington Street.

(g) site lines will be provided between the drive-through lane and adjacent buildings and public spaces including by the provision of glazing on the Harrington Street and Patrick Street facades.

Please do not hesitate to contact me should you have any queries on this application.

Yours faithfully
6ty° Pty Ltd

George Walker
Director/Planning Consultant

Our Ref: 20.008

Measured form and function

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

22 March 2022

Liz Wilson
Acting Senior Statutory Planner
City Planning
By online services development portal

Dear Liz,

RESPONSE TO COUNCIL REQUEST FOR FURTHER INFORMATION - PLN-20-651 - 209-213 HARRINGTON STREET, HOBART

I refer to Council's request for additional information dated 25 November 2021. This letter provides a response to the following item contained within Council's request:

> *Please demonstrate how the proposed illuminated signage will not have an unreasonable impact upon the residential amenity of the adjacent and adjoining residential uses within 30m of the site cause by light shining into windows of habitable rooms.*

6ty° Response

With respect to signage that is proposed to be located on the south-western elevation facing Harrington Street, the illuminated signage will not have an unreasonable impact upon the adjacent residential uses on the opposite side of Harrington Street by shining light into windows of habitable rooms.

In this regard, the proposed signage will be internally lit behind an acrylic cover. The illumination will therefore result in a soft glow rather than bright and direct light that is capable of shining directly into adjoining and adjacent lots.

Harrington Street is an arterial road and the site is located on the corner of Harrington Street and Patrick Street. The street and junction are lit by streetlights. There are four (4) street lamps which are located at the junction with other street lamps located along Harrington Street on the south-western side . Further, the site and neighbouring properties are located at the interface of the Hobart Central Business District and peripheral residential area which contributes to urban skyglow during night-time which occurs above the established built environment. The streetscape and locality is therefore already heavily illuminated during night-time.

Accordingly, the signage will be located within an illuminated environment which will further soften the glow of illumination caused by the proposed signage.

Finally, it is submitted that, more often than not, curtains will be drawn across nearby habitable rooms windows during night-time which will block illuminated objects and areas from habitable rooms.

Please do not hesitate to contact me should you have any queries on this application.

Our Ref: 20.008

Measured form and function 6ty°

Yours faithfully
6ty° Pty Ltd

George Walker
Director/Planning Consultant

PEARU TERTS
BA, Grad. Dip. Env. Stud. (Hons.), MIE Aust., CPENG, MAAS
Consulting Engineer

33 Falcon Rd
Claremont 7011
Tasmania AUSTRALIA

ARCHITECTURAL ACOUSTICS
NOISE CONTROL

Phone 03 6249 7165
Email pearuterts@gmail.com

12/1/2021

PROPOSED KFC DEVELOPMENT -
209 – 215 Harrington Street, Hobart.

S U M M A R Y

Noise climate at proposed site is traffic dominated.
Noise from operations of the proposed Kentucky Fried Chicken Food outlet is unlikely to generate community complaints from the nearby residential zone.

CLIENT:

Mr. George Walker,
6ty, Tamar Suite 103, The Charles,
287 Charles Street, Launceston, Tas. 7250
Telephone 6332300, e-mail: gwalker@6ty.com.au

BRIEF:

Assess the likely noise impact of the proposed development, a food outlet facility, on the adjacent residential zone.

INTRODUCTION:

Noise annoyance depends on various factors, such as the following.

1. The existing noise level,
2. The new noise level,
3. Whether the new noise has tonal components,
4. Whether the new noise has impulsive components,
5. The time of the day the noise occurs,
6. Whether the noise carries unwanted intelligence such as announcements or music,
7. The duration of the noise and for intermittent noise, its 'duty ratio,'
8. Noise annoyance is also dependant on the listener's perception of whether the noise is regretfully caused, imposed in ignorance or inflicted as an act of aggression.

The reaction of people to a noise that emanates from a plant continuously is likely to be different to a noise that occurs from time to time, with quiet periods in between. A noise that is continuous may generate feelings that there is no escape from the noise, that there is no respite. A noise that comes on from time to time and with which the receiver is familiar is likely to be less annoying, than a continuous noise heard through 24 hours. We tolerate the washing machine and the refrigerator but may find the continuous hum of a quieter street electricity distribution transformer annoying.

METHOD:

We measured the day time and night time ambient and background noise levels on a Tuesday, Friday, Saturday and Sunday at the proposed site and at a nearby residential zone. These results are shown in Appendix A.

We also measured noise levels at an existing KFC outlet located at 242 – 246 Main Road, Derwent Park, where the drive through was adjacent to a weatherboard residential building. The noise measurements so obtained were used to calculate the likely noise levels at the residential zone in Harrington Street.

RESULTS:

Pages A1 to A16 give the results, photographs and location of the noise measurements at and near the proposed site.

Page A6 shows the results of the statistical noise analysis around the proposed development. In the table, Ln is the noise level exceeded for n% of the sample time. For example, L_{10} = 49.5 dB(A) means that for 10% of 15 minute sample, that is 1.5 minutes, the noise level was 49.5 dB(A) or more. L_{A10} is a good descriptor of the average of the higher noise levels encountered and it is used in traffic noise analysis. L_{90} is a good descriptor of the base or background noise level. Fore example, L_{A90} = 35.7 dB(A) means that for 90% of the sampling time, that is, 13.5 minutes, the noise level was 35.7 dB(A) or more.

LeqA is the equivalent 'A' weighted noise level. A fluctuating noise having LeqA= 45.5 dB(A) has the same acoustic energy as a steady noise of 45.5 dB(A).

The mean noise levels, in dB(A), from the night time measurements (see page A6) at Loc 2, (residential zone) are as follows:

Lmax= 71.9, L_1 = 67.4, L_{10} = 63.7, L_{90} = 41.9 and L_{Aeq} = 58.7 dB(A).

The noise climate in the area during the day is traffic dominated and the day time results are all higher than the night time results shown above.

At the proposed site (Location 1) the noise levels were lower.

Appendix B gives the results of noise measurements at an existing KFC food outlet facility. This facility was in operation. We initially measured the noise levels on the boundary fence opposite the drive through ordering section, 4.9 m away. See page B5.

The Lmax level was 76.4 dB(A) and L_{10} = 64.6 dB(A). The L_{90} = 49.8 dB(A) and the equivalent noise level Leq = 59.3 dB(A).

We also measured noise levels at a corner location where the ordering and pick up sections were "visible" to the sound level meter microphone about 12.8 m away.

Lmax = 67.6 dB(A), L_{10} = 51.0 dB(A), L_{90} = 48 dB(A) and Leq = 49.8 dB(A).

PREDICTED NOISE LEVELS AT NEAREST RESIDENTIAL ZONE:

From the preliminary issue drawings and locality plans, the distance from the ordering section to across Harrington Street is about 29.7 m and from the pick up section to across Harrington Street is about 20.75 m.

The likely noise level from the ordering section is (geometric spreading of sound):

Lmax = 67.6 – 20 log (29.7/12.8) = 687.6 – 7.3 = 60.3 dB(A) and

Leq = 49.8 – 20 log (29.7/12.8) = 49.8 – 7.3 = 42.5 dB(A).

The likely noise level from the pick up section is:

Lmax = 67.6 – 20 log (20.75/12.8) = 67.6 – 4.2 = 63.4 dB(A) and

Leq = 49.8 – 20 log (20.75/12.8) = 49.8 – 4.2 = 45.6 dB(A).

RECOMMENDATIONS:

1. The plans show a "perforated metal privacy screen" adjacent to Harrington Street. It is recommended that this fence be a double sided fence with the Harrington Street side made of solid material and the inner side made of perforated material both sides sharing a common top cap, that is, a noise barrier fence. There is acoustic benefit in filling the cavity near the pick up section with absorbing material (ex., fibreglass etc.) protected by thin Mylar sheet. This fence is likely to reduce noise levels by a further 5 dB(A) or more.

2. The KFC facility in Glenorchy, where noise measurements were taken at the boundary fence adjacent to a residential building, had not generated noise complaints associated with its operation, according to a Glenorchy City Council environmental health officer. She did say however, that complaints had been received from some unidentified neighbours regarding waste disposal vehicles. There is a hotel, a motel and another nearby food outlet and restaurant with parking at the rear, next to neighbours, that this author thinks, to be more likely the cause of such complaints. It is worth being mindful of noise associated with waste removal and to minimize such noise events.

CONCLUSIONS:

1. Noise complaints from the residential zone are unlikely due to the operation of the food outlet facility. The existing ambient noise during the day will mask the food outlet

facility noise events. Late at night, the ambient noise decreases. However, our measurements and calculations indicate that the various metrics such as Lmax, L_{10}, L_{90} and Leq due to the food outlet facility are still lower than the night time measured ambient noise levels.

2. At present, Tasmania has no government legislation or noise policy that specifically relates to noise emissions from patrons using a food outlet. An Environment Protection Policy (Noise) 2009 has been issued. In that document, on page 11, there is a table (Table 1) showing acoustic environment indicator levels. The levels "… are indicative, not mandatory noise levels" (page 10). The noise level in bedrooms is Leq = 30 dB(A) and outside bedrooms Leq = 45 dB(A), with window open. Note, the document also has Lmax = 60 dB(A) outside bedrooms and Lmax = 45 dB(A) inside bedrooms.

3. The outdoor/ indoor traffic noise attenuation for a weatherboard house with window slightly open, is about 11 dB(A). For a brick house, the outdoor/indoor traffic noise attenuation is about 17 dB(A) with the windows open, increasing to 21.5 dB(A) when the windows are shut.. See Carter N. L. *et al.* "Overnight Traffic Noise measurements in Bedrooms and Outdoors, Pennant Hills…" Acoustics Australia, Vol 20, No 2, page 52.

4. Our analysis and measurements indicate that the noise emissions from the food outlet facility are likely to be sufficiently low that recommended AS/NZS 2107:2016 bed room noise levels are met. The development meets the performance criteria P 1 and may meet acceptable solution A 1 if a solid rather than a perforated fence is built along Harrington Street.

Pearu Terts

[Main report V2 - last revised 13/1/2021]

A1

KFC proposal, 209-215 Harrington St, Hobart
Field report from site visits September-November 2020

Appendix A to be read in conjunction with main report

General

The commercial lots at 209-213 and 215 Harrington St, previously housed Jackson's Security, is the proposed site for a new KFC outlet including dine-in and drive-thru service. It is neighboured by commercial use, and residences at 83 Partick St (in commercial zoning) and residences across Harrington St.
The study site was visited 22:00-22:45, Sunday 27/9/2020, 20:50-21:20, Sunday 8/11/2020, 12:30-13:00 and 15:50-16:20, Tuesday 10/11/2020, 21:30-22:30, Friday 27/11/2020, 12:40-13:40 and 21:50-22:50, Saturday 28/11/2020 and 21:30-22:30, Sunday 29/11/2020 for ambient noise measurements and observations.

Instruments used

- Norsonic Precision Sound Level Meter Nor131, s/n 1312829, Laboratory Certified September 2019;
- Brűel & Kjær Sound Level Calibrator Type 4230 s/n 1169836, Laboratory Certified September 2019;
- Weather Instruments (Aneroid barometer, Zeal Wet/Dry bulb Psychrometer, Suunto KB-14/360R compass, Kaindl Windmaster 2 wind speed meter);
- 100 m fiberglass tape

Location definitions

The locations for measurements were defined as follows:

Location	Definition/comment
Loc 1	In the Patrick St car park of 209 Harrington, beside stairway entrance to 83 Patrick St. Approx 9 m from Patrick St kerb. Microphone at 1.5 m height.
Loc 2	At corner of lawn of St Virgils grounds 180 Harrington St by traffic signal box. 8 m from Harrington St and 6 m from Patrick St. Microphone at 1.3 m height.

Positions plotted on aerial photo and photographs of locations are on the following pages.

Weather observations

Weather conditions were suitable for noise measurements, details are shown below.

Weather observations								
Date	27/09/2020	8/11/2020	10/11/2020		27/11/2020	28/11/2020		29/11/2020
Location	Loc 1	Loc 1	Loc 1	Loc 1	Loc 2	Loc 1	Loc 1	Loc 1
Time	22:35	21:00	12:55	16:15	22:25	13:05	22:40	21:20
Temp °C	8	13	27	24	15	25	15	15
Relative Humidity %	75	84	36	49	85.0	33	80	52
Pressure hPa	1026	1030	1017	1014	1006	1006	1007	1013
Wind speed average m/s	1.5	0.2	0.7	1.3	0.2	1.4	0.5	0.2
Wind speed maximum m/s	3.9	0.8	2.3	3.1	1.1	4.4	2.1	1.1
Wind direction	W	var	var	var	W	NW	SE	SE
Cloud cover x/8	1	1	0	0	4.0	3	8	1

[Last revised 30/11/2020]

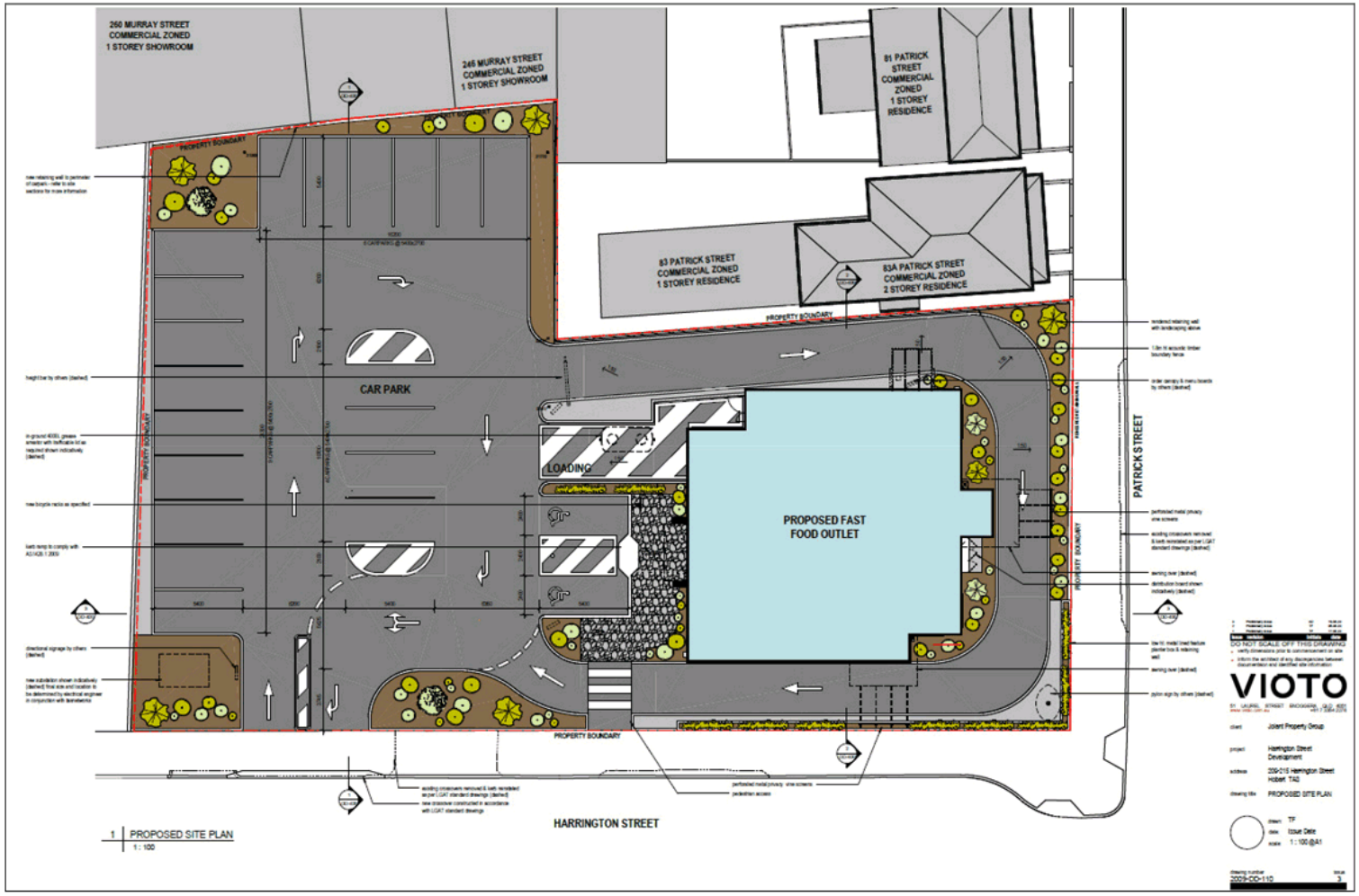
A2

Airphoto showing Locations

Image from TheList 28/9/2020. Note correct compass orientation, 10 m scale bar, tenure boundaries. Image may predate some recent changes.

A3

Proposal: site plan



Extract from client plans supplied 28/7/2020. Not to original scale and skewed compass orientation.

A4

Photographs

Monitoring Location 1, view to Patrick St and "Templo" bar, 10/11/2020

Monitoring Location 1, adjacent to stairway entrance of neighbouring residence, 27/9/2020

A5

Photograph

Monitoring Location 2, view to client site, 27/11/2020

Noise descriptions

For each location, ambient noise by source noted during the site visit is listed (in descending order of significance by loudness, noticeability, duration and incidence):

Location 1

- Traffic dominates, varying in intensity, 50 km/h zone with traffic light controls
- Activity associated with "templo" bar opposite; voices, rubbish handling, clatter, Uber pickups
- Parking events
- Birds mainly during daylight
- Voices
- Hums at times

Location 1

- Traffic dominates, varying in intensity, 50 km/h zone with traffic light controls
- Parking events
- Birds mainly during daylight
- Activity associated with "templo" bar; voices, rubbish handling, clatter, Uber pickups
- Voices
- Hums at times

Comments

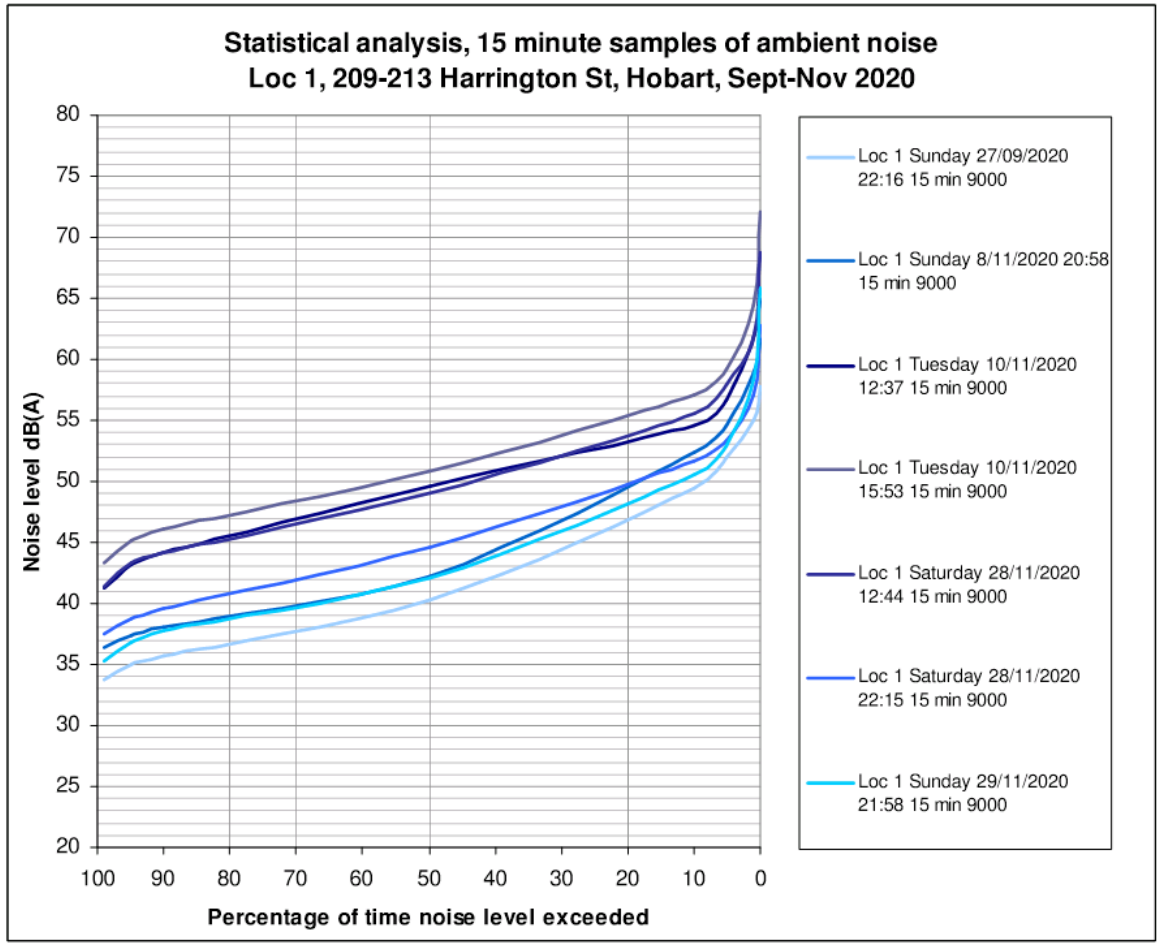
- Day time noise measurements were conducted under suitable conditions.
- Traffic is the main noise feature measured at both locations, lulls being more frequent at later hours.

A6

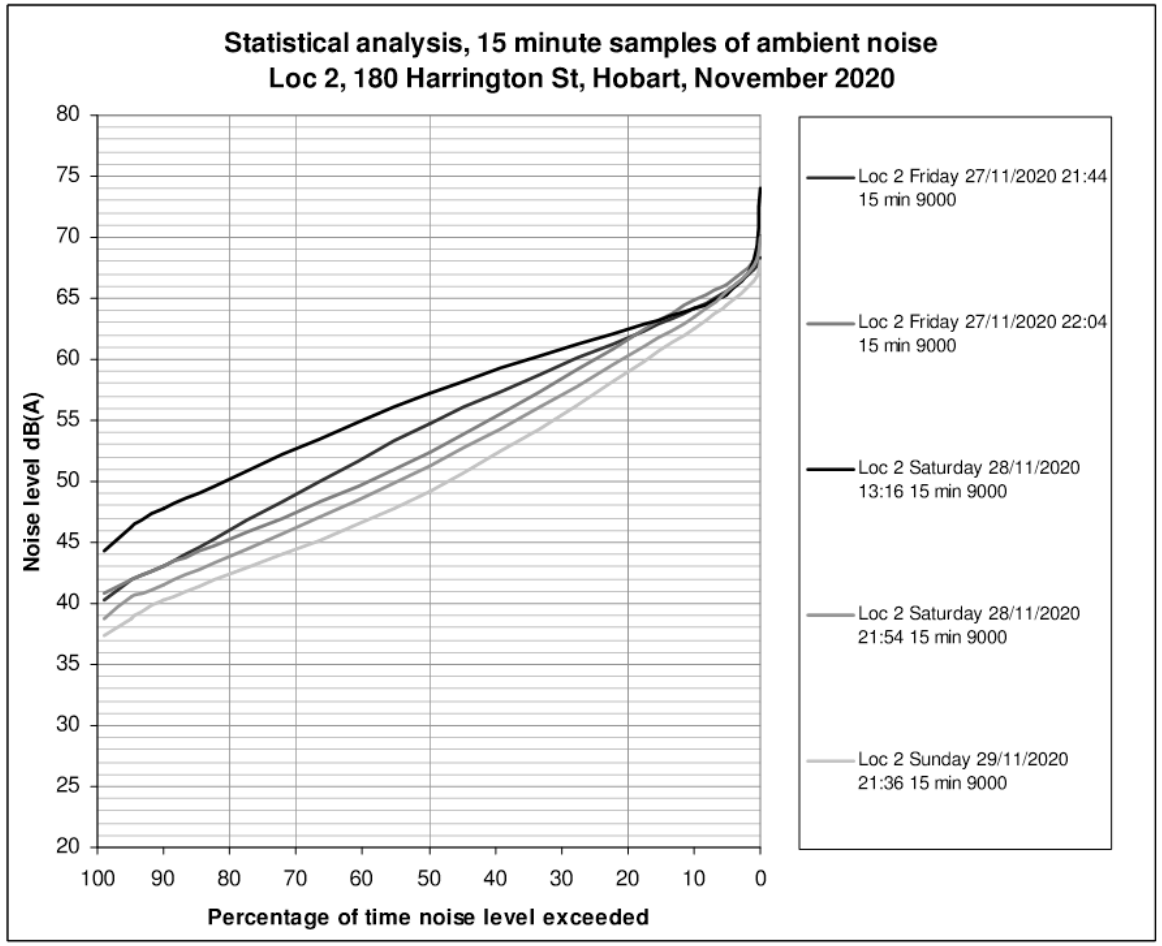
Statistical analysis of ambient noise measurements over 15 minute periods, dB(A)

Location	Loc 1	Loc 1	Loc 1	Loc 1	Loc 2	Loc 2	Loc 1	Loc 2	Loc 2	Loc 1	Loc 2	Loc 1
Day	Sunday	Sunday	Tuesday	Tuesday	Friday	Friday	Saturday	Saturday	Saturday	Saturday	Sunday	Sunday
Date	27/09/2020	8/11/2020	10/11/2020	10/11/2020	27/11/2020	27/11/2020	28/11/2020	28/11/2020	28/11/2020	28/11/2020	29/11/2020	29/11/2020
Time	22:16	20:58	12:37	15:53	21:44	22:04	12:44	13:16	21:54	22:15	21:36	21:58
Duration	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min
Samples	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
Lmax	70.1	63.4	66.4	74.2	70.0	71.6	71.4	75.7	70.9	65.1	75.2	66.6
L0.1	57.8	61.7	64.8	72.1	68.3	70.2	68.8	74.0	70.0	62.8	68.0	65.8
L1	55.0	58.9	61.8	64.5	67.4	68.1	61.8	68.0	67.7	57.1	66.4	58.3
L5	51.9	54.6	56.6	59.1	65.5	66.1	57.9	65.3	65.5	53.4	64.5	52.9
L10	49.5	52.4	54.6	57.1	64.1	64.8	55.6	64.2	63.5	51.7	62.5	50.6
L50	40.3	42.2	49.6	50.8	54.7	52.3	49.0	57.2	51.3	44.6	49.2	42.1
L90	35.7	38.0	44.1	46.1	43.0	43.0	44.2	47.8	41.5	39.6	40.3	37.8
L95	35.0	37.4	43.2	45.2	41.9	42.0	43.3	46.2	40.5	38.7	38.8	36.8
L99	33.8	36.4	41.2	43.3	40.3	40.9	41.4	44.3	38.8	37.5	37.3	35.3
Lmin	32.9	34.7	38.9	41.6	38.3	39.1	39.3	42.5	37.2	35.5	35.8	33.8
Leq A	45.5	48.2	52.0	54.7	59.4	59.6	52.5	60.3	58.6	48.1	57.2	47.6
Traffic counts												
Patrick St	4	4	56	45	11	2	35	17	8	9	8	11
Harrington St	-	-	-	-	94	81	-	166	75	-	48	-

A7


Statistical analysis, 15 minute samples of ambient noise
Loc 1, 209-213 Harrington St, Hobart, Sept-Nov 2020
Noise level dB(A)
80
75
70
65
60
55
50
45
40
35
30
25
20
100
90
80
70
60
50
40
30
20
10
0
Percentage of time noise level exceeded
Loc 1 Sunday 27/09/2020 22:16 15 min 9000
Loc 1 Sunday 8/11/2020 20:58 15 min 9000
Loc 1 Tuesday 10/11/2020 12:37 15 min 9000
Loc 1 Tuesday 10/11/2020 15:53 15 min 9000
Loc 1 Saturday 28/11/2020 12:44 15 min 9000
Loc 1 Saturday 28/11/2020 22:15 15 min 9000
Loc 1 Sunday 29/11/2020 21:58 15 min 9000

A8


Statistical analysis, 15 minute samples of ambient noise
Loc 2, 180 Harrington St, Hobart, November 2020
Noise level dB(A)
80
75
70
65
60
55
50
45
40
35
30
25
20
100
90
80
70
60
50
40
30
20
10
0
Percentage of time noise level exceeded
Loc 2 Friday 27/11/2020 21:44 15 min 9000
Loc 2 Friday 27/11/2020 22:04 15 min 9000
Loc 2 Saturday 28/11/2020 13:16 15 min 9000
Loc 2 Saturday 28/11/2020 21:54 15 min 9000
Loc 2 Sunday 29/11/2020 21:36 15 min 9000

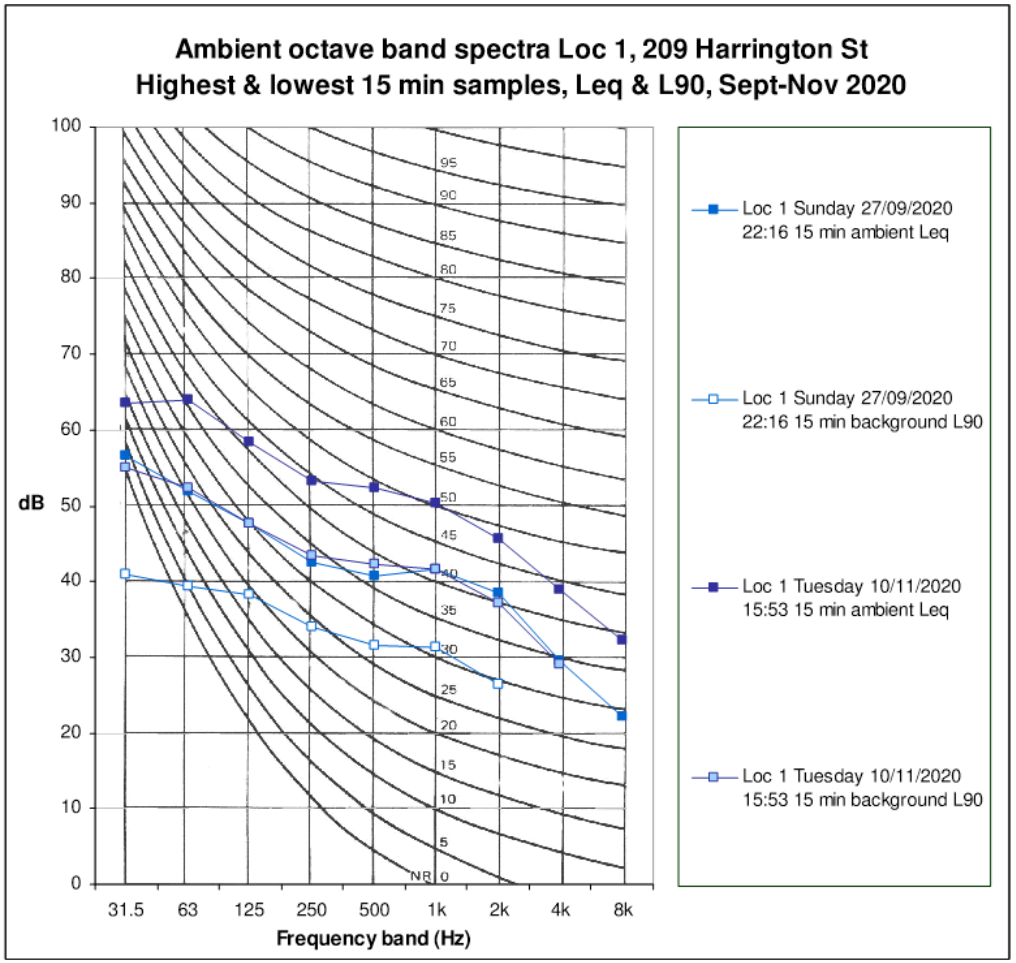
A9

Spectral Analysis of measurements at Location 1 (Octaves)

Location	Loc 1		Loc 1		Loc 1		Loc 1		Loc 1		Loc 1		Loc 1	
Day	Sunday		Sunday		Tuesday		Tuesday		Saturday		Saturday		Sunday	
Date	27/09/2020		8/11/2020		10/11/2020		10/11/2020		28/11/2020		28/11/2020		29/11/2020	
Time	22:16		20:58		12:37		15:53		12:44		22:15		21:58	
Duration	15 min		15 min		15 min		15 min		15 min		15 min		15 min	
Test	ambient	background	ambient	background	ambient	background	ambient	background	ambient	background	ambient	background	ambient	background
Measure	Leq	L90	Leq	L90	Leq	L90	Leq	L90	Leq	L90	Leq	L90	Leq	L90
Overall A	45.5	35.7	48.2	38.0	52.0	44.1	54.7	46.1	52.5	44.2	48.1	39.6	47.6	37.8
C	57.9	46.9	57.1	49.0	66.6	58.7	66.8	59.6	65.6	57.8	60.1	51.1	59.3	49.6
Octave Hz 31.5	56.5	40.8	52.2	41.3	64.2	54.9	63.5	55.1	60.4	51.6	59.4	46.0	57.8	41.8
63	51.8	39.4	52.7	42.0	64.7	51.4	64.0	52.3	62.5	51.3	55.7	43.7	54.9	42.8
125	47.6	38.3	51.8	41.5	57.1	45.9	58.4	47.6	60.4	47.0	49.4	41.6	50.5	40.2
250	42.5	34.1	46.5	37.3	52.7	42.6	53.2	43.5	53.6	42.6	45.4	38.2	47.1	35.9
500	40.7	31.5	42.8	33.5	48.3	40.2	52.3	42.2	48.2	39.1	42.5	35.2	43.7	33.7
1k	41.6	31.4	44.4	33.4	47.1	39.5	50.2	41.7	47.4	39.1	44.6	35.0	43.2	32.4
2k	38.6	26.3	41.7	28.0	43.2	34.7	45.6	37.1	43.8	34.5	41.2	30.8	40.0	28.0
4k	29.6	-	31.4	-	36.0	26.5	39.0	29.0	36.2	26.0	32.1	-	32.4	-
8k	22.1	-	22.2	-	27.3	-	32.1	-	27.4	-	23.6	-	24.2	-

Note: L90 spectral analysis measurement floor is 24.9 (octaves)

A10


Ambient octave band spectra Loc 1, 209 Harrington St
Highest & lowest 15 min samples, Leq & L90, Sept-Nov 2020
dB
100
90
80
70
60
50
40
30
20
10
0
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
NR 0
31.5
63
125
250
500
1k
2k
4k
8k
Frequency band (Hz)
Loc 1 Sunday 27/09/2020 22:16 15 min ambient Leq
Loc 1 Sunday 27/09/2020 22:16 15 min background L90
Loc 1 Tuesday 10/11/2020 15:53 15 min ambient Leq
Loc 1 Tuesday 10/11/2020 15:53 15 min background L90

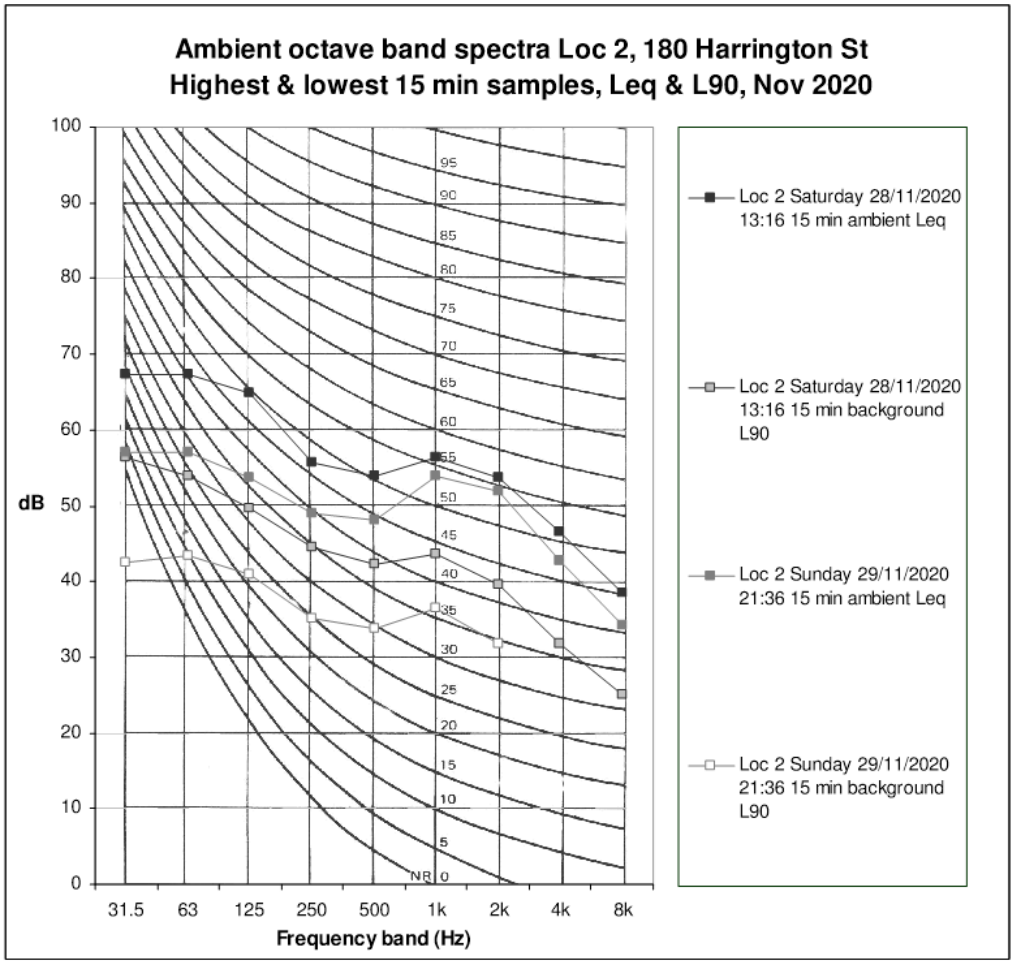
A11

Spectral Analysis of measurements at Location 2 (Octaves)

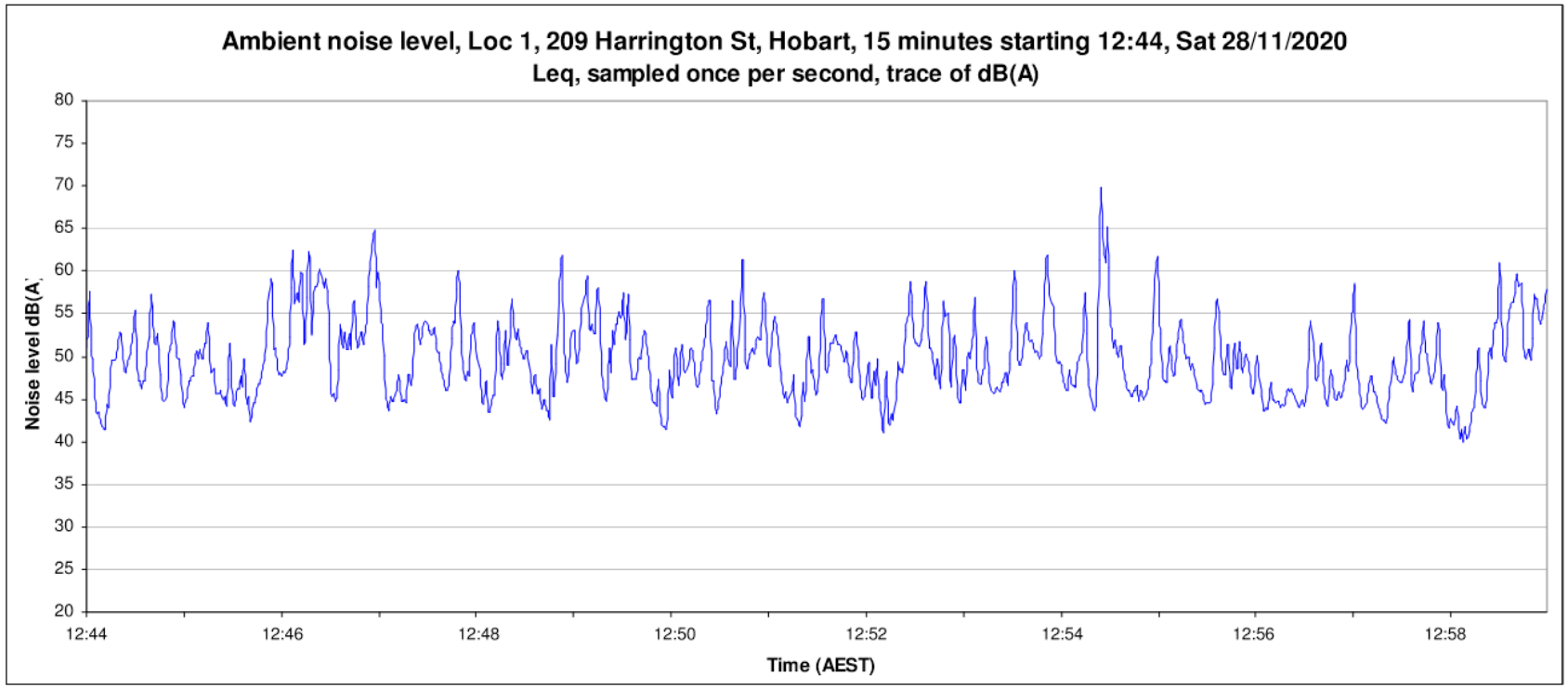
Location	Loc 2		Loc 2		Loc 2		Loc 2		Loc 2	
Day	Friday		Friday		Saturday		Saturday		Sunday	
Date	27/11/2020		27/11/2020		28/11/2020		28/11/2020		29/11/2020	
Time	21:44		22:04		13:16		21:54		21:36	
Duration	15 min		15 min		15 min		15 min		15 min	
Test	ambient	background	ambient	background	ambient	background	ambient	background	ambient	background
Measure	Leq	L90	Leq	L90	Leq	L90	Leq	L90	Leq	L90
Overall A	59.4	43.0	59.6	43.0	60.3	47.8	58.6	41.5	57.2	40.3
C	65.6	53.2	65.8	53.3	71.3	61.5	66.3	52.7	61.7	49.9
Octave Hz 31.5	61.9	45.7	58.9	45.1	67.4	56.4	62.1	45.6	57.0	42.6
63	62.6	48.9	62.3	47.6	67.4	53.9	64.4	46.2	57.0	43.3
125	56.8	44.1	60.0	44.9	64.8	49.7	56.1	43.5	53.6	41.0
250	51.5	38.6	52.1	39.5	55.7	44.6	51.1	37.7	49.0	35.1
500	51.0	37.7	51.7	37.2	53.9	42.3	50.3	35.5	48.0	33.8
1k	56.0	38.9	56.2	38.9	56.4	43.7	55.3	37.3	54.0	36.5
2k	53.9	35.8	54.0	35.2	53.7	39.6	53.1	33.5	51.9	31.7
4k	45.7	26.7	45.3	26.1	46.6	31.7	43.9	24.8	42.7	-
8k	36.9	-	36.1	-	38.5	25.0	36.0	-	34.3	-

Note: L90 spectral analysis measurement floor is 24.9 (octaves)

A12

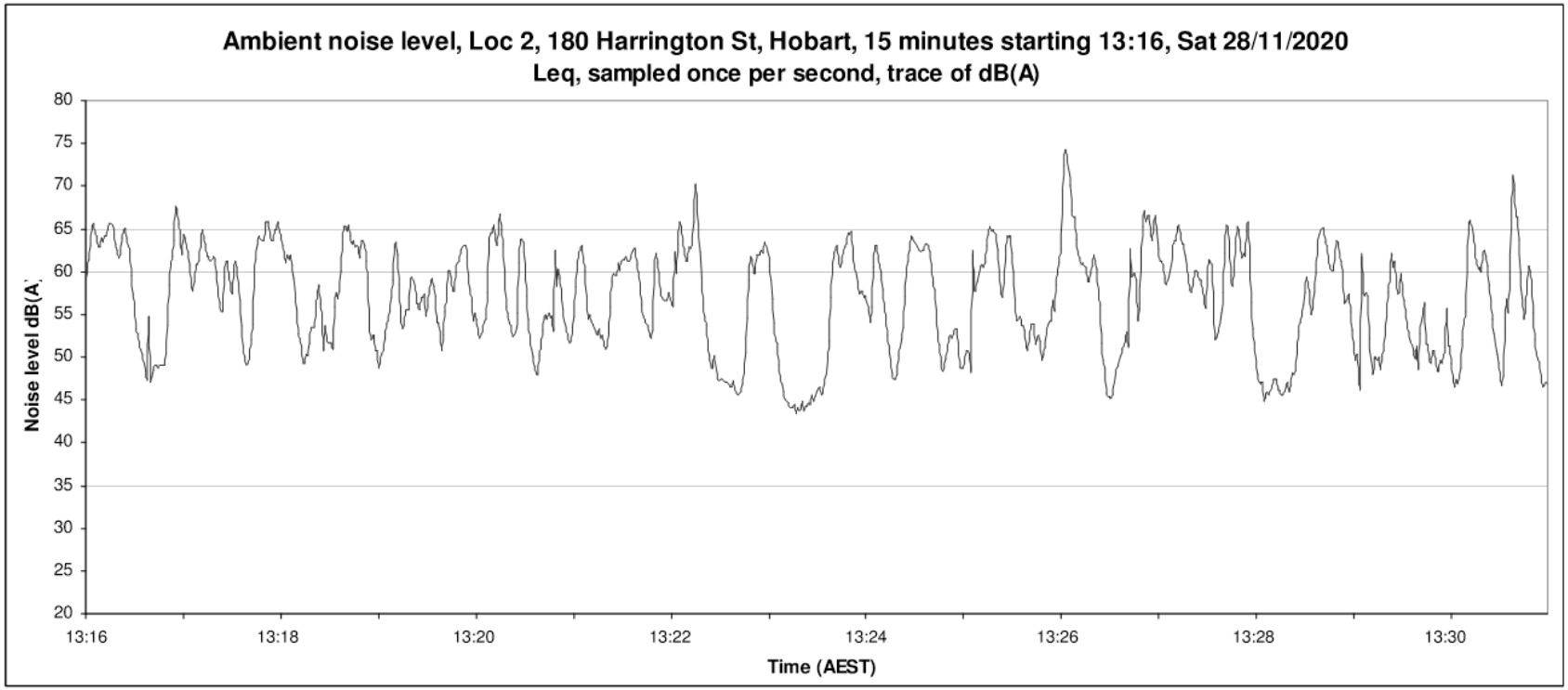

Ambient octave band spectra Loc 2, 180 Harrington St
Highest & lowest 15 min samples, Leq & L90, Nov 2020
dB
100
90
80
70
60
50
40
30
20
10
0
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
NR 0
31.5
63
125
250
500
1k
2k
4k
8k
Frequency band (Hz)
Loc 2 Saturday 28/11/2020 13:16 15 min ambient Leq
Loc 2 Saturday 28/11/2020 13:16 15 min background L90
Loc 2 Sunday 29/11/2020 21:36 15 min ambient Leq
Loc 2 Sunday 29/11/2020 21:36 15 min background L90

Example trace of A weighted daytime noise at Location 1 – 15 minute period



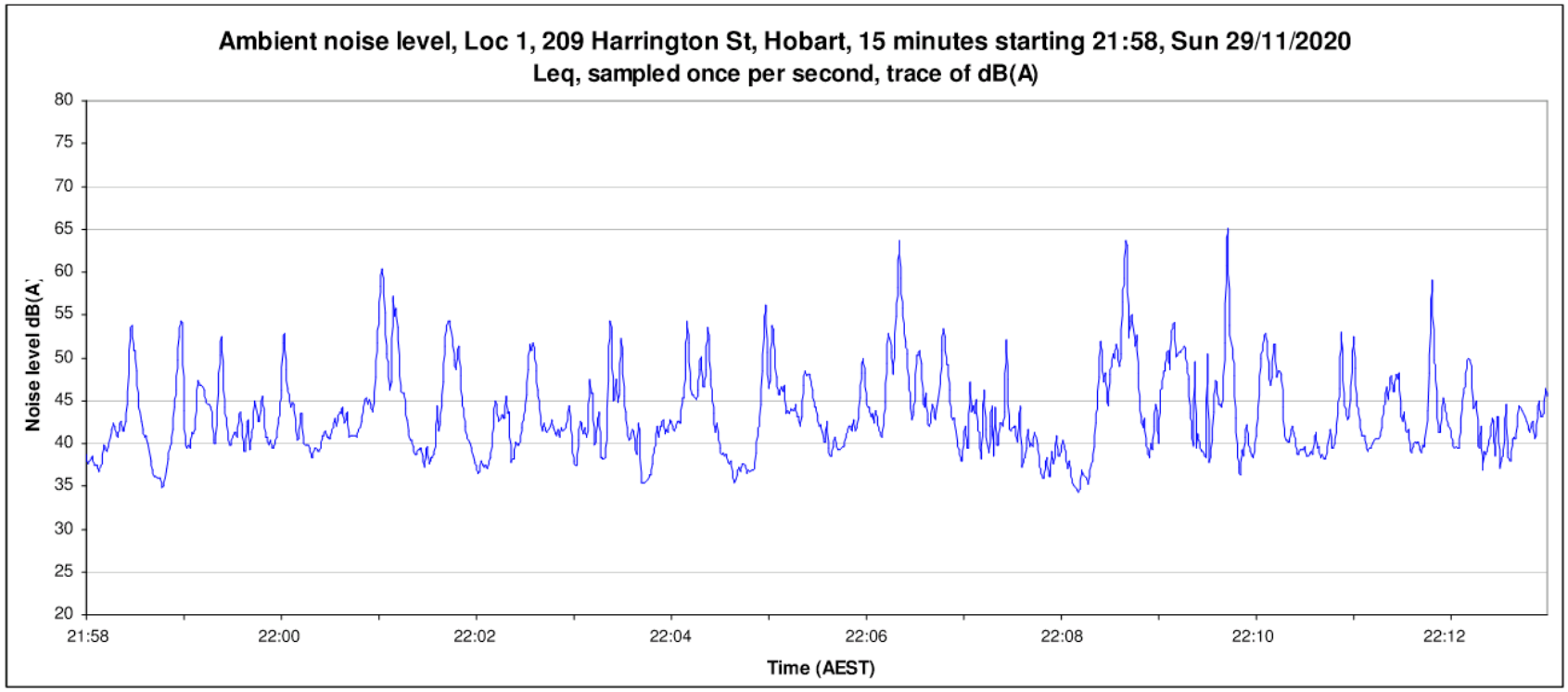
Traffic dominates the soundscape. The louder features were from events passing the gateway and/or louder vehicles.

Example trace of A weighted daytime noise at Location 2 – 15 minute period



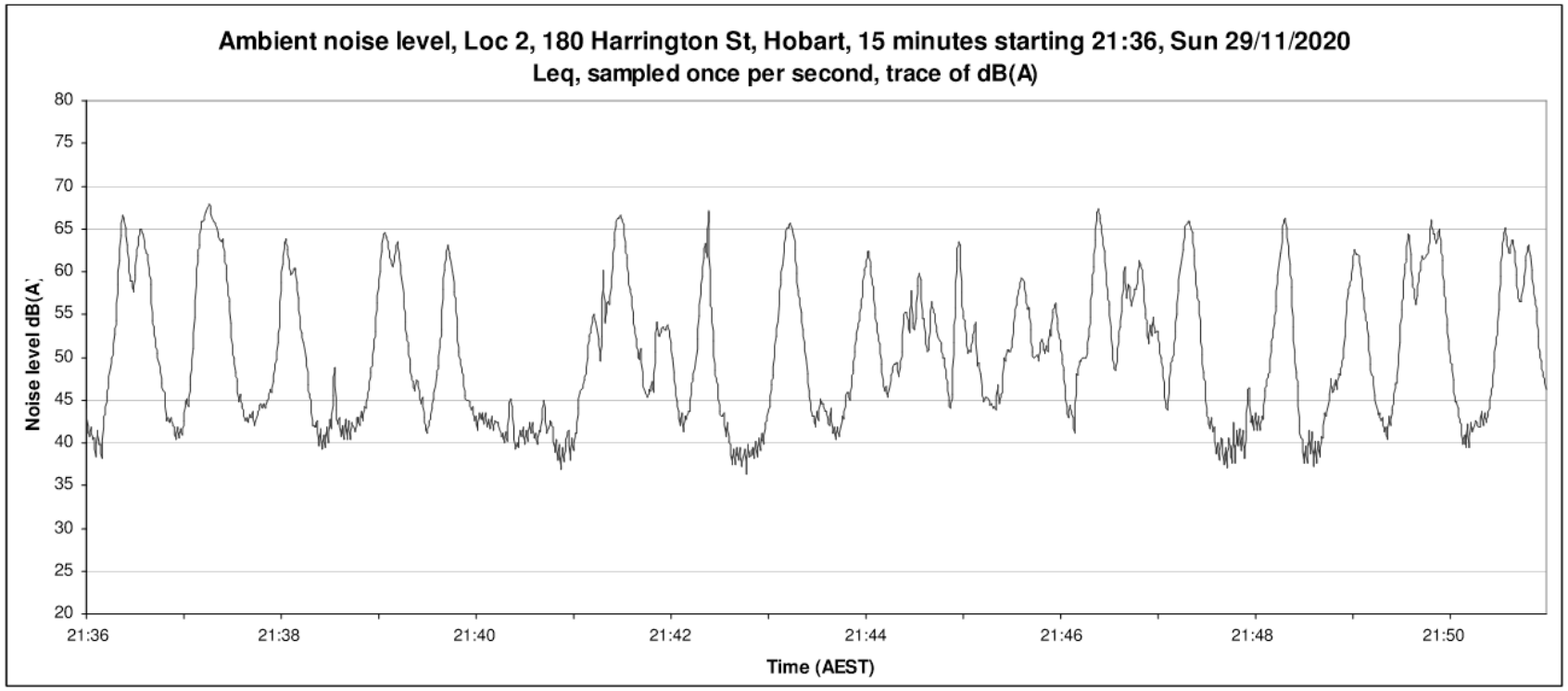
Traffic dominates the soundscape. The louder features were from louder vehicles. Lulls result from traffic regulation.

Example trace of A weighted night time noise at Location 1 – 15 minute period



Traffic dominates the soundscape. The louder features were from events passing the gateway and/or louder vehicles.

Example trace of A weighted night time noise at Location 2 – 15 minute period



Traffic dominates the soundscape. The louder features were from events passing the gateway and/or louder vehicles.

B1

KFC proposal, 209-215 Harrington St, Hobart
Field report from Derwent Park KFC site visit November 2020

Appendix A to be read in conjunction with main report

General

The commercial lots at 209-213 and 215 Harrington St, previously housed Jackson's Security, is the proposed site for a new KFC outlet including dine-in and drive-thru service. It is neighboured by commercial use, and residences at 83 Partick St (in commercial zoning) and residences across Harrington St.
The existing KFC site at 242-246 Main Rd, Derwent Park was visited 21:30-22:45, Tuesday 10/11/2020 for drive thru noise measurements and observations.

Instruments used

- Norsonic Precision Sound Level Meter Nor131, s/n 1312829, Laboratory Certified September 2019;
- Brűel & Kjær Sound Level Calibrator Type 4230 s/n 1169836, Laboratory Certified September 2019;
- Weather Instruments (Aneroid barometer, Zeal Wet/Dry bulb Psychrometer, Suunto KB-14/360R compass, Kaindl Windmaster 2 wind speed meter);
- 100 m fiberglass tape

Location definitions

The locations for measurements were defined as follows:

Location	Definition/comment
Ordering	Drive thru ordering section, at boundary fence common to 2 Johnston St, 0.5 m beyond ordering alcove. Microphone at 0.3 m height above 2.2 m high fence.
Corner	By driveway corner between ordering section and delivery window, at boundary fence common to 2 Johnston St. Microphone at 0.3 m height above 2.2 m high fence.

Positions plotted on aerial photo and photographs of locations are on the following pages.

Weather observations

Weather conditions were suitable for noise measurements, details are shown alongside.

Weather observations	
Date	10/11/2020
Location	Car park
Time	21:30
Temp °C	21
Relative Humidity %	67
Pressure hPa	1017
Wind speed average m/s	0.1
Wind speed maximum m/s	0.9
Wind direction	var
Cloud cover x/8	0

[Last revised 30/11/2020]

B2

Airphoto showing Locations

Image from TheList 30/11/2020. Note correct compass orientation, 10 m scale bar, tenure boundaries. Image may predate some recent changes.

B3

Photographs

Drive thru with car at ordering window, KFC Derwent Park, 10/11/2020

Boundary fence monitoring location at Ordering, 10/11/2020

Noise descriptions

For each location, ambient noise by source noted during the site visit is listed (in descending order of significance by loudness, noticeability, duration and incidence):

Location Ordering

- Customer cars idling and moving through the drive thru dominates, some cars louder than others
- Hums of refrigeration plant, extraction fans etc of the KFC building
- General traffic in the area
- Voices (ordering)

Location Corner

- Customer cars idling and moving through the drive thru dominates, some cars louder than others
- Hums of refrigeration plant, extraction fans etc of the KFC building
- General traffic in the area
- Voices (ordering and delivery)

Comments

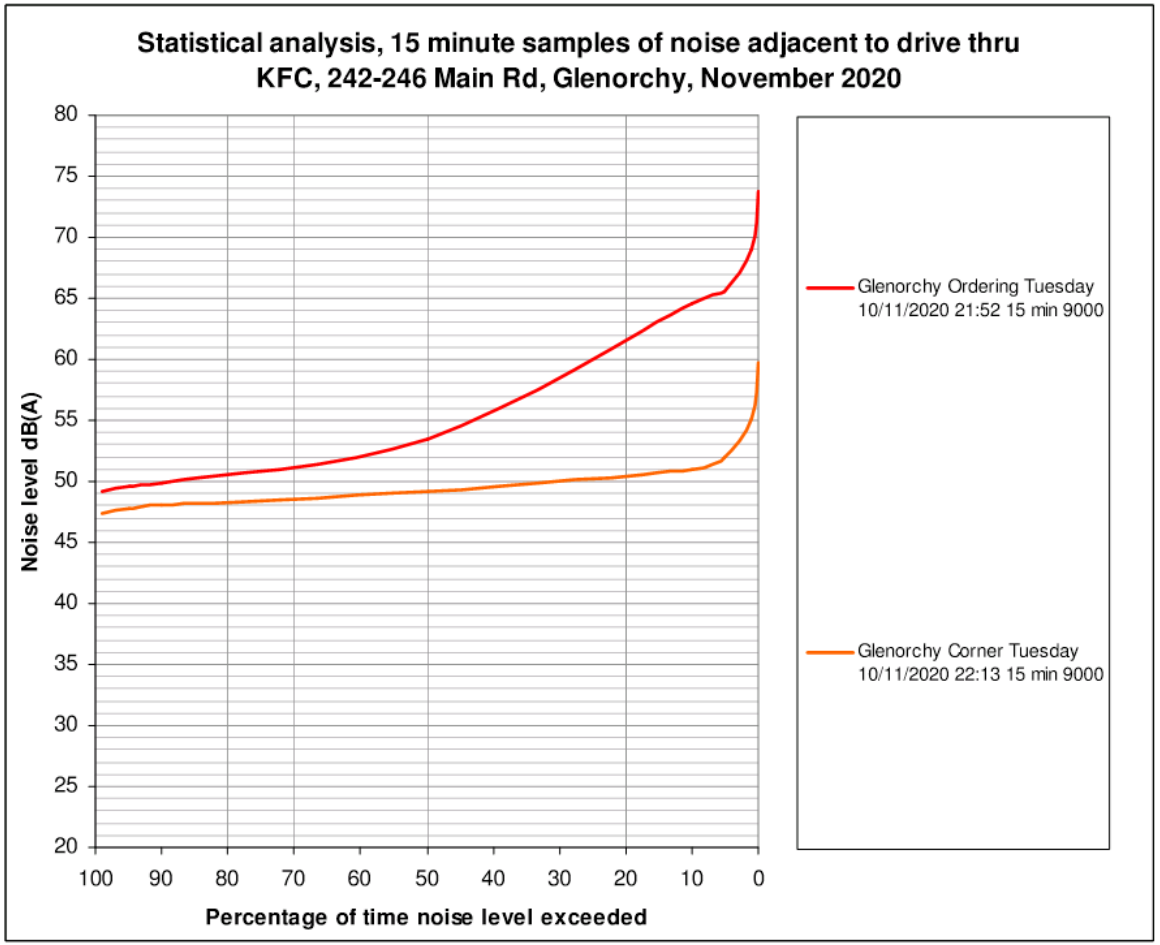
- Evening noise measurements were conducted under suitable conditions.
- Customer cars (moving and idling) and various building plant continuous operation dominated the noise at boundary locations near the drive thru facility.
- Ordering and delivery at the drive thru were performed face-to-face through opening windows (not using intercom/PA system).

B5

Statistical analysis of drive thru noise measurements over 15 minute periods, dB(A)

Location	Ordering	Corner
Day	Tuesday	Tuesday
Date	10/11/2020	10/11/2020
Time	21:52	22:13
Duration	15 min	15 min
Samples	9000	9000
Lmax	76.4	67.6
L0.1	73.7	59.7
L1	69.0	55.1
L5	65.6	52.0
L10	64.6	51.0
L50	53.5	49.1
L90	49.8	48.0
L95	49.6	47.8
L99	49.2	47.4
Lmin	48.5	46.6
Leq A	59.3	49.8
Traffic count		
Drive thru	3	3

B6


Statistical analysis, 15 minute samples of noise adjacent to drive thru
KFC, 242-246 Main Rd, Glenorchy, November 2020
Noise level dB(A)
80
75
70
65
60
55
50
45
40
35
30
25
20
100
90
80
70
60
50
40
30
20
10
0
Percentage of time noise level exceeded
Glenorchy Ordering Tuesday
10/11/2020 21:52 15 min 9000
Glenorchy Corner Tuesday
10/11/2020 22:13 15 min 9000

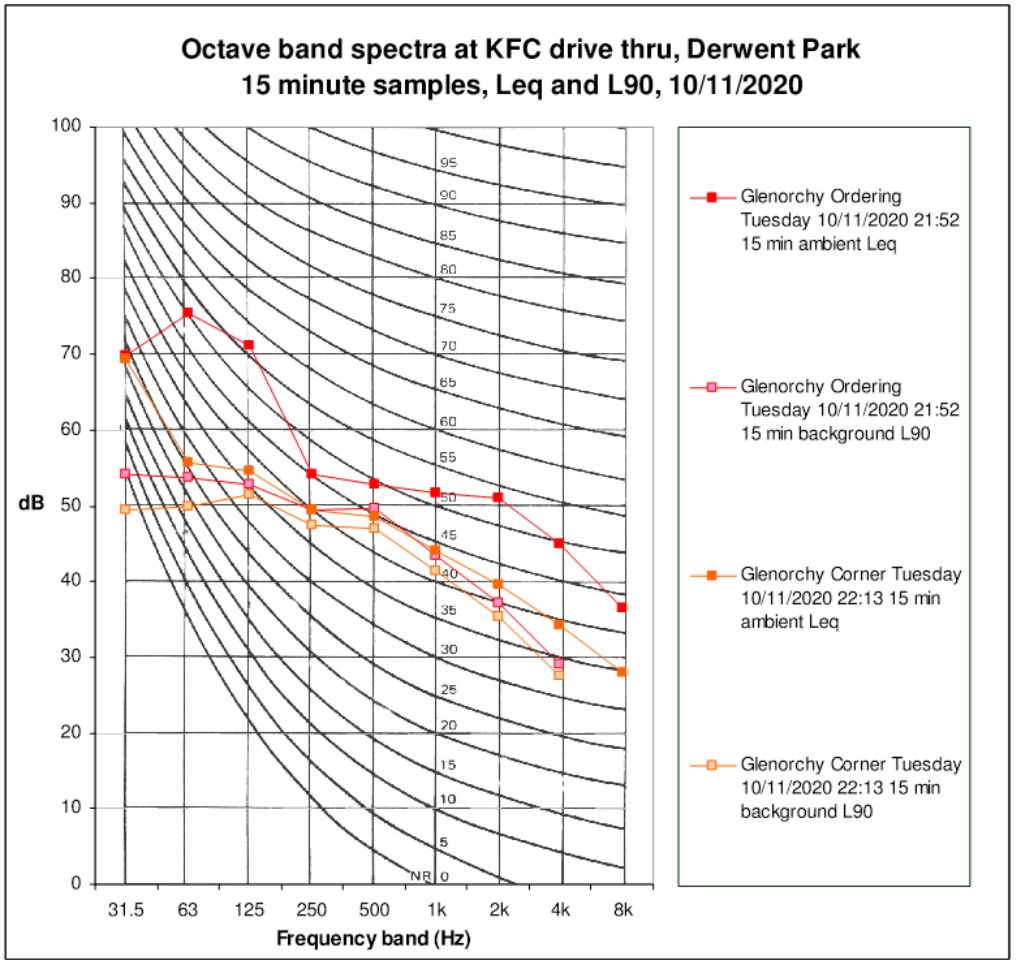
B7

Spectral Analysis of measurements (Octaves)

Location	Ordering		Corner	
Day	Tuesday		Tuesday	
Date	10/11/2020		10/11/2020	
Time	21:52		22:13	
Duration	15 min		15 min	
Test	ambient	background	ambient	background
Measure	Leq	L90	Leq	L90
Overall A	59.3	49.8	49.8	48.0
C	76.7	60.8	66.2	57.7
Octave Hz 31.5	69.9	54.1	69.4	49.4
63	75.4	53.7	55.7	49.9
125	71.2	52.7	54.7	51.5
250	54.1	49.4	49.5	47.5
500	52.9	49.7	48.6	46.9
1k	51.8	43.5	44.0	41.4
2k	51.1	37.1	39.7	35.4
4k	44.9	29.2	34.3	27.6
8k	36.4	-	28.0	-

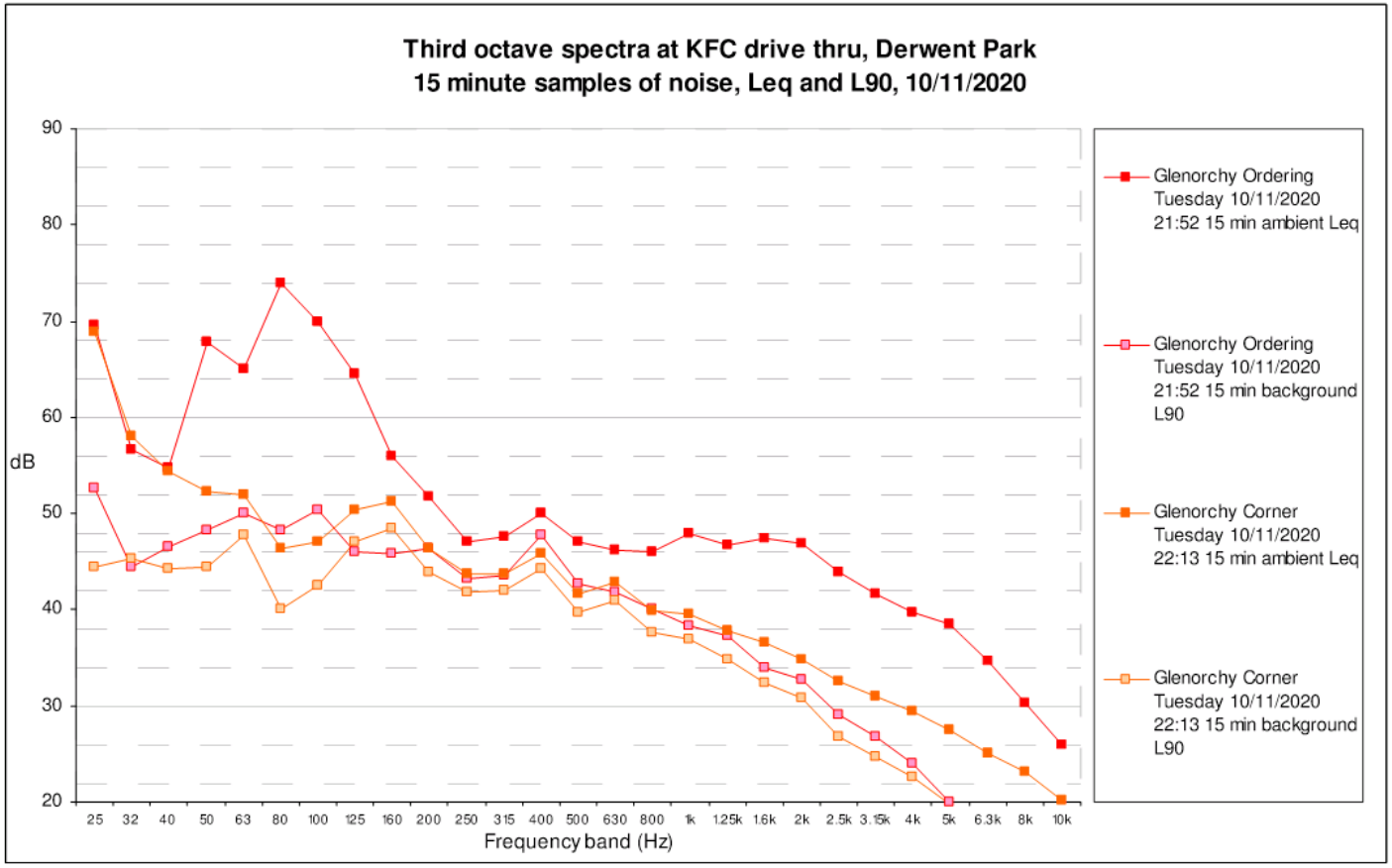
Note: L90 spectral analysis measurement floor is 24.9 (octaves) and 19.8 (third octaves)

B8


Octave band spectra at KFC drive thru, Derwent Park
15 minute samples, Leq and L90, 10/11/2020
dB
100
90
80
70
60
50
40
30
20
10
0
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
NR
31.5
63
125
250
500
1k
2k
4k
8k
Frequency band (Hz)
Glenorchy Ordering Tuesday 10/11/2020 21:52 15 min ambient Leq
Glenorchy Ordering Tuesday 10/11/2020 21:52 15 min background L90
Glenorchy Corner Tuesday 10/11/2020 22:13 15 min ambient Leq
Glenorchy Corner Tuesday 10/11/2020 22:13 15 min background L90

B9

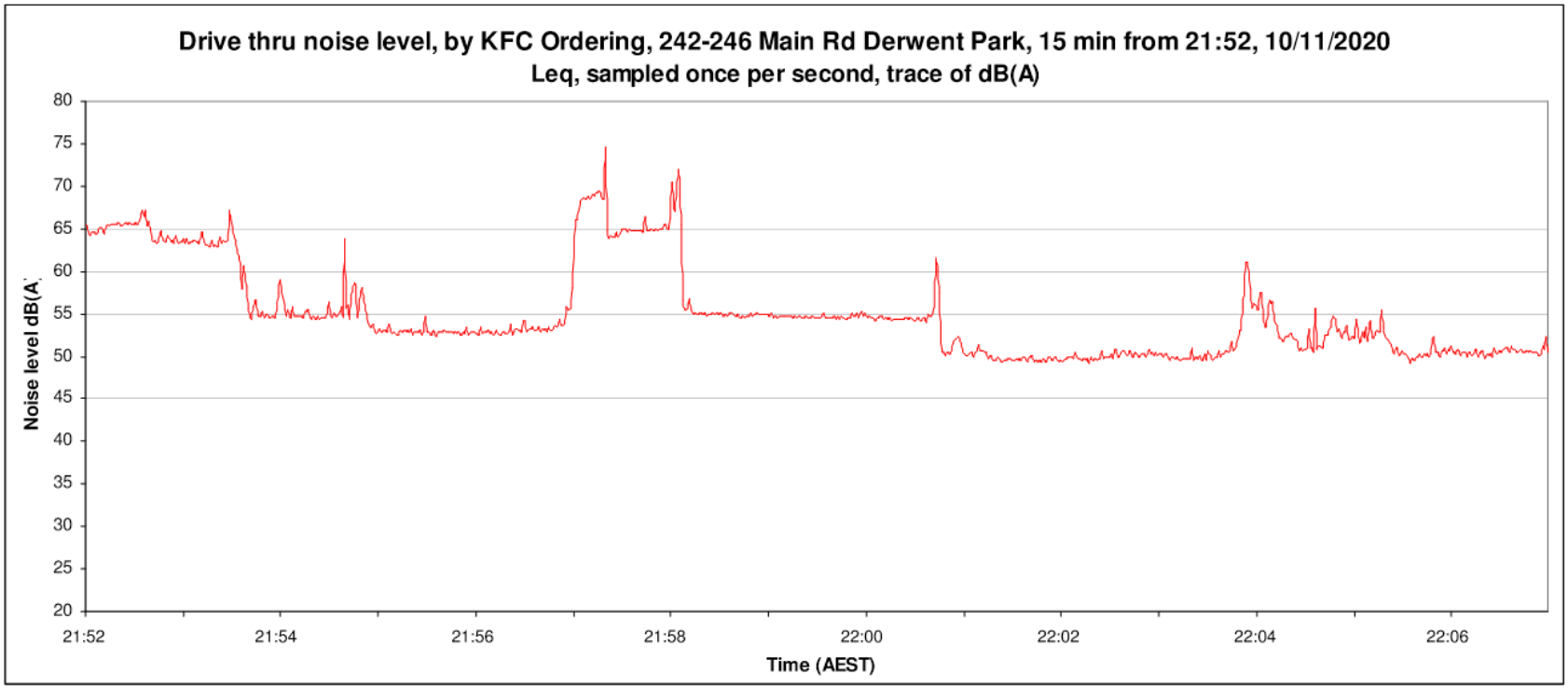
Third octave analysis



Tonal features result from building plant operation. Louder idling cars were present during the first measurement.

B10

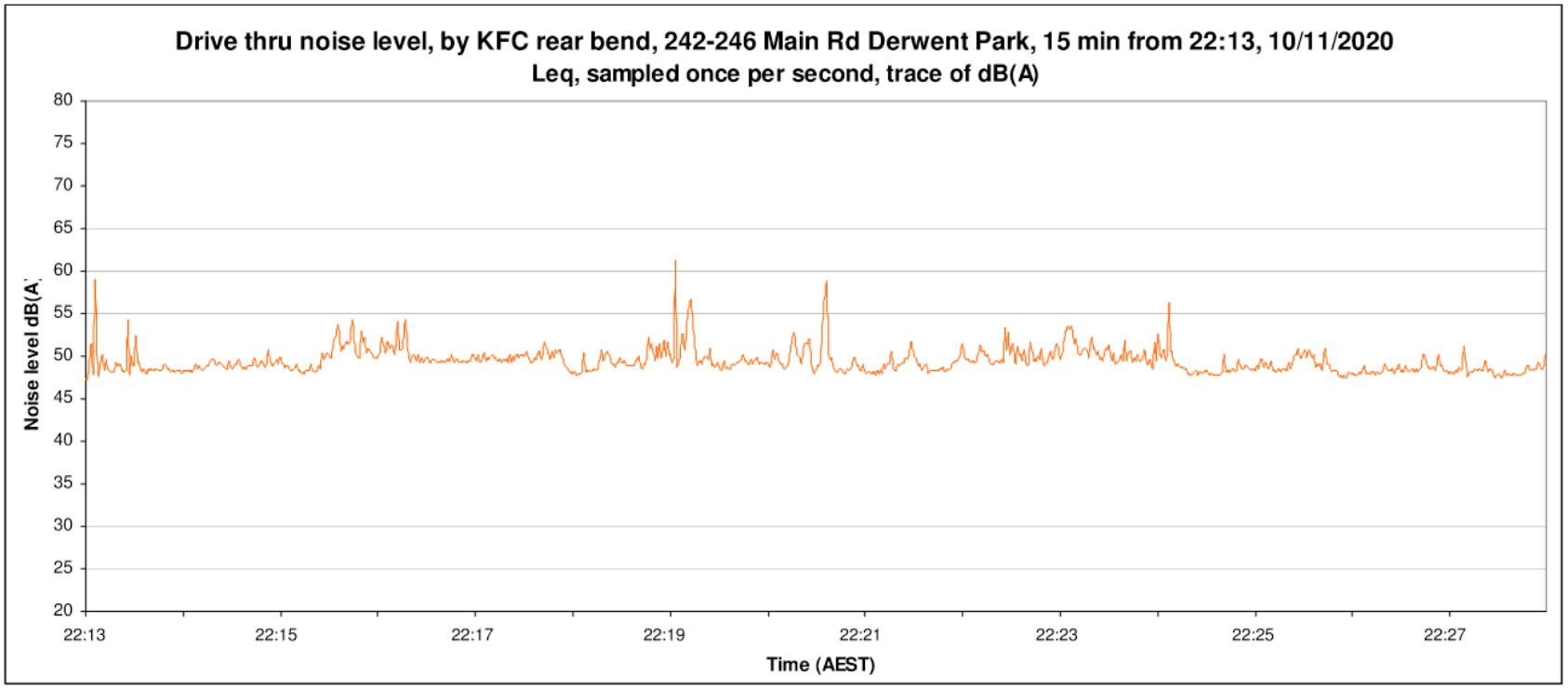
Trace of A weighted noise at Ordering – 15 minute period



Drive thru cars dominate the noise. The 50 dB(A) baseline reflects continuos operation of refrigeration plant and extractor fans.

B11

Trace of A weighted noise at Corner – 15 minute period



The 48 dB(A) baseline reflects continuos operation of refrigeration plant and extractor fans.
Drive thru customer cars were quieter during this measurement period.

KFC STORE

HARRINGTON AND PATRICK STREETS, HOBART

TRAFFIC IMPACT ASSESSMENT

Hubble Traffic

September 2020

Table of Contents

1. Introduction ... 2
2. Site Description ... 3
3. Development proposal ... 4
4. Trip generation by this development ... 5
5. Additional design criteria for a KFC store based on RTA guidelines ... 7
5.1. Parking requirements ... 7
5.2. Drive-thru facility ... 7
6. Existing traffic Conditions ... 8
6.1. Harrington Street traffic flow ... 8
6.2. Lane usage along Harrington Street ... 9
6.3. Traffic capacity of Harrington Street ... 9
6.4. Current intersection performance ... 10
6.5. Sight distance from the current development site access ... 11
6.6. Traffic safety outside the development site ... 11
6.7. Surrounding land-use ... 12
7. Impact from traffic generated by this development ... 13
7.1. Additional traffic movements on the surrounding street network. ... 13
7.2. Traffic leaving the development site ... 13
7.3. Drive-thru lane queuing back onto Harrington Street ... 14
7.4. Sufficient parking spaces to eliminate queueing risk ... 14
7.5. Sensitivity testing ... 16
8. Layout and internal circulation arrangements ... 17
8.1. Delivery vehicles ... 18
9. Planning scheme ... 19
9.1. E5.0 Road and Railway Assets Code ... 19
9.2. E6.0 Parking and Access Code ... 21
10. Conclusions ... 24
11. Appendix B – Traffic Modelling ... 25

1. Introduction

Hubble Traffic has been engaged by Marios Alexandrou of VIOTO on behalf of, Dr Steve Chau of Joiant Property Group, to prepare an independent Traffic Impact Assessment, to consider the traffic impacts from the proposed construction of a KFC store on the corner of Harrington and Patrick Streets, Hobart.

This report has considered the amount of traffic this drive-thru store is likely to generate and how the additional traffic movements will integrate into the surrounding road network, particularly entering and leaving Harrington Street.

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019. This assessment has referred to the following information and resources:

- Hobart City Council interim Planning Scheme
- Road Traffic Authority NSW (RTA) Guide to Traffic Generating Developments
- Australian Standards AS2890 parts 1, 2 and 6
- SIDRA 8 intersection modelling software
- Austroads series of Traffic Management and Road Design
    - Part 4: Intersection and crossings, General
    - Part 4a: Unsignalised and Signalised Intersections
    - Part 12: Traffic Impacts of Development
- Department of State Growth crash database
- Department of State Growth traffic database
- Autoturn swept path software
- Google Earth imagery

.

2. Site Description

The development site is located on the northeast corner of the intersection of Harrington and Patrick Streets in Hobart. The site is currently occupied with a vacant building and an on-site car park. The current access to the site is off Harrington Street.

The site is located on the fringe of the Hobart Central Business District.

Traffic control at the Harrington and Patrick Streets intersection is managed by vehicle actuated traffic signals.

2.0 Map – Extract of Google Earth shows the location of the development site.

3. Development proposal

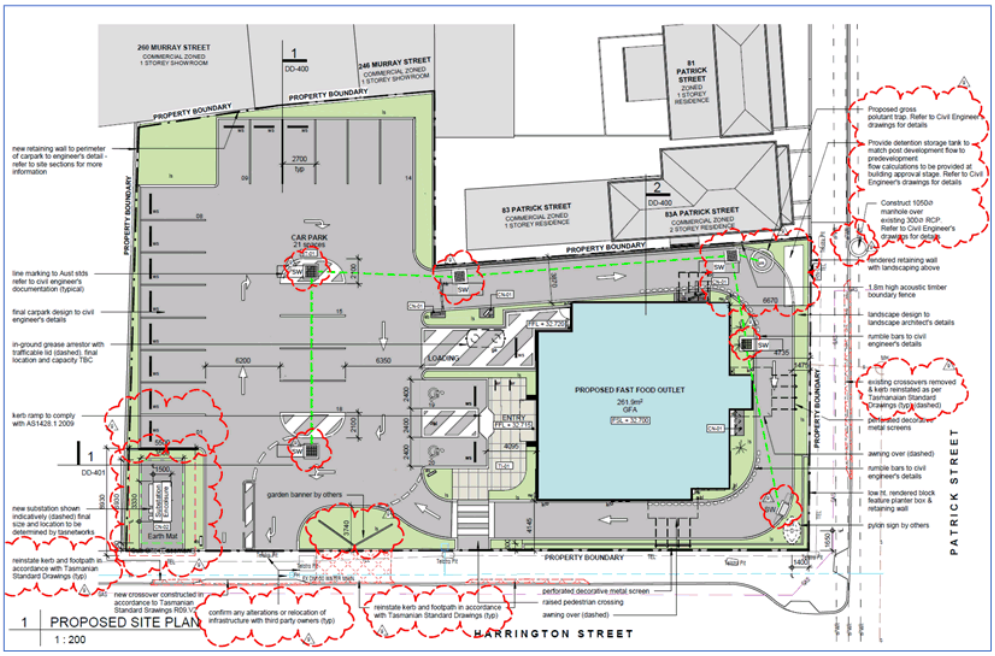
The developer has advised the current building will be demolished, replaced with a single storey building, to provide for a KFC store, with a drive-thru facility. The total gross floor area of the building is expected to be 261 square metres.

The building on the site will be situated close to the intersection, to allow the remaining area to be used for car parking and a drive-thru facility.

The current vehicular access to the site is on Harrington Street, this will be retained and be the only vehicular access to the development site.

The plan is to provide 20 on-site parking spaces, including two accessibility parking spaces.

The store is situated where non-driving customers is likely to be attracted. Pedestrians will be able to access the restaurant without the need to negotiate the car park.



Sketch 3.0 - Proposed layout

4. Trip generation by this development

A trip in this report is defined as a one way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

To determine the number of trips likely to be generated by this development, reference has been taken from the RTA Guide to Traffic Generating Developments, section 3.7.1 for drive-in take away food outlet, in particular KFC, as noted below.

Evening peak hour vehicle trips

- Assume 100 vehicles per hour for average development

- For sensitivity testing, assess effect of 120 vehicles per hour (maximum of survey results)

The proportion of passing trade is typically at least 50%. This discount should be taken into account in assessing external traffic impact.

Due to COVID19 and potential business impacts to store operations Information was requested from the KFC Victoria/Tasmanian State Manager. The following was provided:

- typical peak times 5-8pm every day
- dine-in component (seating area) currently closed
- restaurant operating as drive-thru and take away premises
- some Tasmania stores have seen patronage levels increase by 30%

To better understand the activity at KFC stores, on-site surveys were conducted on two KFC stores located at Kingston and Rosny. The Kingston survey captured the arrival and departure time of each vehicle, and this data will be used to assess this proposed development site.

Table 4.0A – Survey results of the Kingston store

Time period	Number of vehicles arrived	Number of vehicles that used the drive-thru lane	Number of vehicles parked to walk into the store
4.45 to 5.00 pm	14	13	1
5.00 to 5.15 pm	27	24	3
5.15 to 5.30 pm	18	13	5
5.30 to 5.45 pm	28	23	5
5.45 to 6.00 pm	23	21	2
6.00 to 6.15 pm	32	27	5
6.15 to 6.30 pm	26	23	3
Total	**168**	**144**	**24**

Observations from the Kingston survey:

- 168 vehicles arrived in 105 minutes,
- average arrival rate of 1.6 vehicles per minute,
- average arrival rate of 96 vehicles per hour,
- 86 percent of the vehicle used the drive-thru lane,
- 71 percent of the drive-thru customers were on site less than 4 minutes, and
- 84% of the customers were on-site less than 5 minutes.

Table 4.0B – Survey results from the Rosny KFC store

Time period	Number of vehicles arriving	Number of vehicles departing	Arrival rate per 15 minutes
4.30 to 4.45 pm	16	15	1.1
4.45 to 5.00 pm	19	13	1.3
5.00 to 5.15 pm	22	27	1.5
5.15 to 5.30 pm	31	24	2
5.30 to 5.45 pm	39	31	2.6
5.45 to 6.00 pm	21	20	1.4
6.00 to 6.15 pm	36	21	2.4
6.15 to 6.30 pm	21	14	1.4
Total	**205**	**165**	**Average 1.7**

Observations from the survey:

- 205 vehicles arrived in 120 minutes,
- average arrival rate of 1.7 vehicles per minute,
- average arrival rate of 102 vehicles per hour,
- highest arrival rate of 2.6 vehicles per minute, and
- average arrival rate of 1.7 vehicles per minute.

The data obtained from the two on-site surveys were similar and aligned closely with the RTA information. This development will be assessed against the following design criteria:

Design criteria:

1. Arrival of 100 customer vehicles per hour in the peak demand periods (5 to 8pm)
2. Average arrival rate of 1.7 vehicles per minute
3. Average duration of a drive-thru vehicle is less than 5 minutes
4. The length of the drive-thru lane to be 51 metres (5min x1.7v/p/m x 6metre standard vehicle)

Sensitivity testing using 120 vehicles per hour, with arrival rate of 2.4 vehicles per minute.

5. Additional design criteria for a KFC store based on RTA guidelines

In addition to the RTA trip generation information, the guide also provides guidance on the level of on-site parking and details for the drive-thru lane, which are outline below.

5.1. Parking requirements

To define the number of car parking spaces to be provided for dine-in customers, guidance is taken from the RTA guide section 5.8.1 Drive-in take-away food outlet.

The KFC store will have a dine-in seating area where customers park their vehicles on-site and walk to the food store for take-away service, or consume the food on-site.

The RTA guidelines indicates, if the store will also have a drive-thru facility the following number of on-site parking spaces should be provided:

- One space per two seats (internal), or
- One space per three seats (internal and external)

5.2. Drive-thru facility

A drive-thru capacity of six car lengths should be provided. This requirement could be reduced to 5 car length for restaurants with low potential turnover. However, the queue length must be able to extend to eight car lengths without unreasonably disrupting car parking operations or extending onto the street for restaurants with single booths or potential high turnover.

In addition to this, an exclusive area for queuing of cars for a drive-thru facility is required (queue length of 5 to 12 cars measures from the pick-up point. There should also be a minimum of four car spaces for cars queued from the ordering point.

6. Existing traffic Conditions

Harrington Street operates in a one-way direction from south to north, from Sandy Bay Road to Burnett Street. Within the surrounding road network, Harrington Street has an important collector function of carrying significant volume of traffic from Sandy Bay to North Hobart, as well as traffic from the Southern Outlet that avoids travelling through the CBD.

Harrington Street has an urban road standard, concrete kerb and guttering with footpaths on both sides. The street is 11.4 metres wide, with parallel parking occurring along both sides. Along the western kerb the parking is restricted to two hours 8am to 6pm Monday to Friday. Along the eastern kerb outside the development site, the parking is restricted to 15 minutes; further north of the development site the parking restriction is one hour.

The intersection with Patrick Street is controlled by traffic signals, there are two approach lanes to the signals on Harrington Street. Two approach lanes on Patrick Street eastern approach, and a single lane on Patrick Street western approach.

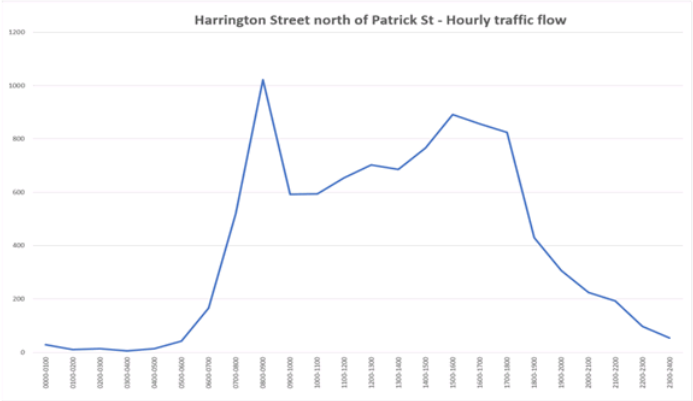
There are kerb outstands on most of the corners to reduce the pedestrian crossing distance. These outstands also provide protection to the parallel parking in Harrington Street.

The speed limit on both Harrington and Patrick Streets are the urban default 50 km/h, and both streets are managed by the Hobart City Council.

6.1. Harrington Street traffic flow

The Department of State Growth (Department) manages all the traffic signals sites in Tasmania. Sites that operate on vehicle demand such as Harrington and Patrick Streets collect live traffic data through the use of vehicle detection loops embedded into the road pavement. This means the amount of traffic flowing through the intersection is captured in a database. Interrogation of this database enabled hourly traffic flow for an average weekday to be extracted and is presented in the graph 6.1.

Graph 6.1 – Average hourly weekday traffic flow



For this assessment it is important to understand the traffic flow during the KFC store peak demand periods of 5pm to 8pm. Traffic flows for a typical Friday and Saturday was also extracted and is presented in Table 6.1, along with the average weekday flows.

Table 6.1 – Typical hourly traffic flow along Harrington Street outside the development site

Hour period	Weekday	Friday	Saturday
3 to 4 pm	893	820	551
4 to 5pm	858	793	522
5 to 6pm	826	766	497
6 to 7pm	430	551	416
7 to 8pm	307	366	323

The above data shows that the heaviest traffic flow along Harrington Street occurs outside the expected KFC peak demand period, as it occurs from 3 to 4pm, and coincides with collection of students from the nearby school.

The average weekday flow is slightly higher than a typical Friday or Saturday.

Within the expected KFC store peak period of 5 to 8pm, the heaviest traffic flow is 826 vehicles, and this flow will be used in the assessment.

6.2. Lane usage along Harrington Street

With two traffic lanes operating along Harrington Street, the split between the lane usage is not always equal. A closer analysis of the traffic signal data found the right hand lane carries 70 percent of the traffic flow. This means of the 826 vehicles detected traveling along Harrington Street, 578 of these vehicles used the right hand lane, the lane nearest to the development side.

6.3. Traffic capacity of Harrington Street

The hourly traffic flow in Table 6.1 provides the average traffic flow along Harrington Street, which is the traffic demand. In this section the capacity of the two traffic lanes along Harrington Street outside the development site will be calculated, to understand the impact of additional traffic generated from the development site.

It is acceptable practice to expect a free flowing traffic lane to carry 1,800 vehicles per lane. With traffic signal control, traffic flow is interrupted which reduces the lane capacity. The number of signal cycles and the length of the green time per hour was extracted from the Department's traffic signal database.

On average the signals changed once every minute, meaning 60 cycles per hour, and during each cycle there is about six seconds where no vehicle moves through the intersection. Due to the vehicle demand, Harrington Street received approximately 75 percent of the green cycle. From this information, it can be established that the lane capacity along Harrington Street outside this development site is 1,200 vehicles per hour per lane.

Based on a lane capacity of 1,200 vehicles per lane and the lane usage of the right hand lane of 578 vehicles per hour, the demand to capacity of the right hand traffic lane is 48 percent.

It has been confirmed with the Department that the signals along Harrington Street, from Collins Street to Brisbane Street are linked together in SCATTS (signal coordination system), to provide an efficient traffic route leaving the CBD. Although the coordination does not include Patrick Street (due to no communication link) the signals operate as though they are linked.

6.4. Current intersection performance

Traffic modelling using SIDRA 8 Intersection software package has been used to determine the current performance of the traffic signals at Harrington and Patrick Streets during 5 to 6 pm on a weekday.

This software reports the performance in the terms of Degree of Saturation, which is the operational level based on the intersection capacity, and it is desirable for the level to be below 85 percent of the capacity or 0.85.

The Level of Service is another term used and defines the overall performance from the expected average delays and expected queues. There are six levels of performance, A to F, where A is the highest level of performance for a signalised intersection.

The traffic modelling of current traffic flows indicates the degree of saturation of the intersection is 0.553, meaning that only 50 percent of the available capacity is being used. The overall intersection is operating at Level of Service A, the highest performance level available for traffic signals. While Patrick Street motorists are receiving a slightly lower Level of Service B, with the average delay of 15 seconds.

The traffic modelling results are available in Appendix A.

6.5. Sight distance from the current development site access

The current access to the development site car park is located 55 metres north of Patrick Street.

The available sight distance at the access was measured on-site. Based on the driver being 1.1 metres above the road surface, with the approaching vehicles being 1.2 metres high. Available sight distance for a driver leaving the site is 150 metres. This exceeds the Hobart City Council Interim Planning Scheme recommended Safe Intersection Sight Distance, of 80 metres for a 50 km/h speed environment.

Photograph 5.3 – Driver's view along Harrington Street

6.6. Traffic safety outside the development site

The Department keeps a database of reported road crashes. A check of this database found four reported crashes occurring on the link between Patrick and Warwick Streets over the last five years.

Two of the crashes involved a parked vehicle, one crash occurred when the vehicle lost control on the roadway. Another involved a rear-end crash due to heavy traffic flow. All crashes resulted in property damage only, with no injuries reported.

There have been no reported crashes involving vehicles entering or emerging from the property accesses.

6.7. Surrounding land-use

Harrington Street is located on the fringe of the central business district and the current land-use includes St Marys Church; St Marys School; a few residential properties; small commercial businesses, and a social housing complex known as Windsor Court. Adjacent to the development property is the car park to Wilson Home builders. Further north is the car park to the former Waratah Hotel, currently being converted to social housing.

Along both Patrick and Warwick Streets west of Harrington Street, the land-use is residential, and this residential land-use continues into West Hobart.

Overall, the development is conveniently located to a significant catchment of residential customers that could walk to the site, rather than drive a motor vehicle.

7. Impact from traffic generated by this development

As determine by section 4 of this report, the KFC store will be designed to accommodate 100 vehicle movements per hour. This section will evaluate and consider the likely traffic impacts.

7.1. Additional traffic movements on the surrounding street network.

Not all the trips generated from this store will be new, some will result from the passing trade, where the vehicle is already travelling past the site. Although the RTA indicates 50 percent of trips could be passing trade, for this assessment purpose all the 100 trips will be considered as new, to represent the worst case possible.

Two scenarios will be modelled in SIDRA, the first being 70 percent of the trips arriving using Harrington Street, with the other 30 percent using Patrick Street east. The second scenario will assume 50 percent arriving on both streets.

Table 7.1 – Modelling of additional traffic generated on the signalised intersection

Condition	Total vehicles	Degree of Saturation	Average delay	Level of Service
Current condition	1018	0.58	9.2 seconds	A
Scenario One	1123	0.627	9.8 seconds	A
Scenario Two	1123	0.514	9.9 seconds	A

The modelling results in table 7.1 clearly demonstrate that additional traffic using the signalised intersection of Harrington and Patrick Streets will not affect the intersection performance.

In respect to lane usage as discussed in section 6.2, an additional 100 vehicle movements within the right hand traffic lane will increase the demand to ratio from 48 to 56 percent.

It is evident that the current road network has sufficient traffic capacity to absorb the additional traffic movements generated from this store, without causing any adverse traffic or operational impacts.

The traffic flow along Harrington Street will remain an efficient traffic route for motorists leaving the CBD.

7.2. Traffic leaving the development site

As established in section 6.2, the right hand traffic lane along Harrington Street is utilised much heavier than the left hand lane. For traffic leaving the development site the number of gaps in the traffic lane is an important consideration when determining the traffic performance of the new development.

For this gap-acceptance analysis, SIDRA traffic modelling was used. The modelling indicates there is sufficient gaps in the Harrington Street to allow for efficient movement of traffic leaving the

development site. For vehicles leaving the development site the expected Level of Service is B, where the average delay is 10.2 seconds and the average 95th percentile queue length is 4.2 metres.

This is a high level of service for customers and indicates that this access should operate safely and effectively.

Based on the modelling predicting the 95th percentile queue of 4.2 metres, or one vehicle, this presents a low risk that exit queuing will create any operational issues inside the development site.

7.3. Drive-thru lane queuing back onto Harrington Street

The length of the drive-thru lane will be about 56 metres in length from the collection point to the start of the lane, this means at least nine vehicles will be accommodated. This length meets the design criteria established in section 4, from recent survey data, where the length should be a minimum of 51 metres.

This drive-thru lane also satisfies the Hobart City Council Interim Planning Scheme which states the queue lane for drive service should accommodate 5 to 12 cars, which is the same as the RTA guidance under section 5.2.

The start of the drive-thru lane is situated on the eastern boundary of the site, and in between, there is at least 40 metres of circulation roadway from the Harrington Street access point.

For vehicles using the drive-thru facility, the risk of the queue extending back beyond onto Harrington Street is insignificant.

The layout of the drive-thru facility is expected to provide a high level of performance for users; and is not expected to create any adverse traffic or safety impact to the public road network; or create any internal operational or safety problems.

7.4. Sufficient parking spaces to eliminate queueing risk

The RTA guide indicates that parking spaces at the rate of one space per two seats is a standard arrangement for KFC stores that offer both drive-thru and dine-in facilities. The development plan indicates that the dine-in facility could seat up to a maximum of 30 customers, and this translates to a requirement for 15 on-site parking spaces.

The proposed development layout includes 20 on-site parking spaces.

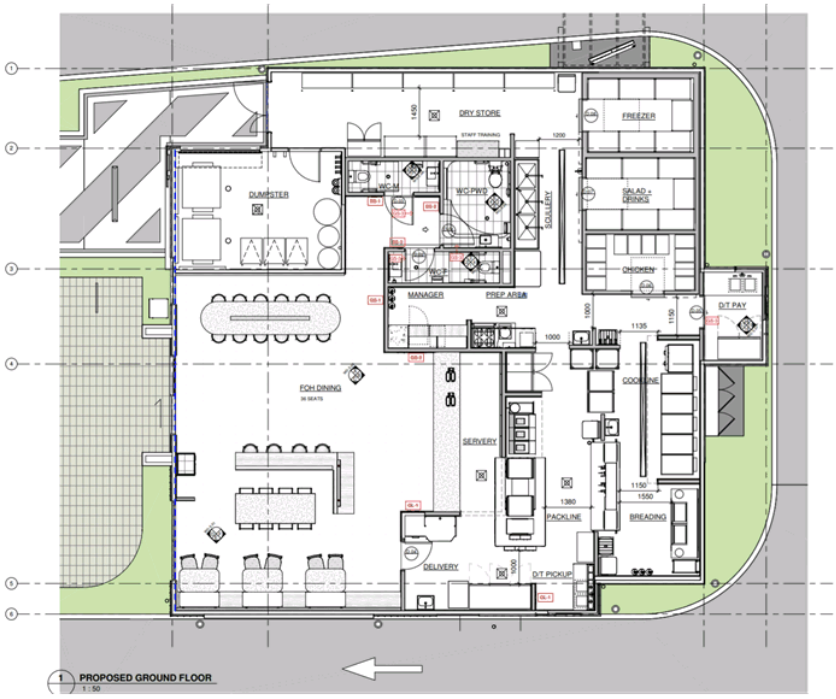
The Hobart City Council Interim Planning Scheme indicates for a take away food premises, 15 parking spaces for each 100 square metres of floor area or 1 space for each 3 seats, whichever is the greater. With the proposed total floor area of 261 square metres, this represents 39 on-site parking spaces.

39 on-site car parking spaces is an extremely high number when the dine-in facility will only have a maximum of 30 seats. The proposed 20 parking spaces is considered to be more than sufficient to cater for the demand for the following reasons:

- As discussed in section 6.7, this store is in close proximity to a significant residential catchment, and in easy walking distance for residents. There is an expectation that a significant part of the dine-in patronage will include customers arriving without a vehicle, this will reduce the dependence on the parking spaces.
- The store is also located on two streets that have parallel parking availability and it is likely that some customers may choose these spaces rather than enter the development site, this occurrence will also reduce the dependence for on-site spaces.
- While the total floor area is 261 square metres, the majority of the floor area is used for preparation of the food, particularly the drive-thru component. The available floor area for dine-in customers is approximately 65 square metres, and this represents the need for 10 parking spaces.

The number of on-site parking spaces is based on sound design principles of seat availability as determine by the RTA guidelines. The risk of the demand exceeding the on-site parking spaces and reducing traffic efficiency along Harrington Street is extremely low.

Figure 7.4 – Internal store layout



7.5. Sensitivity testing

As suggested by the RTA guidelines, the site performance should be tested to accommodate 120 vehicles per hour.

The arrival rate of 120 vehicles per hour was assessed using Sidra traffic modelling and the results is available in figure 11.6 in appendix B. The modelling indicated that with an increase of 20 percent in the arrival rate of customers, the intersection at Harrington and Patrick Street will continue to operate at an efficient level of performance.

8. Layout and internal circulation arrangements

The layout of the on-site parking and circulation aisle has been arranged to avoid conflict between vehicles circulating and parking where possible.

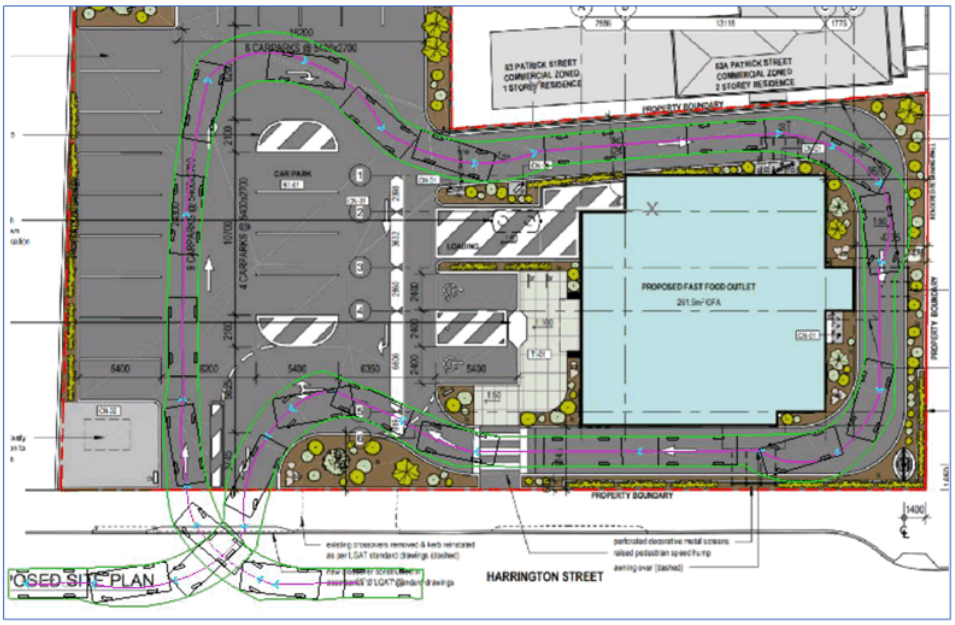
The size of the parking spaces will be user class 3A and be arranged in a 90 degree layout, with the circulating aisle being 6.2 metres wide to facilitate one-way traffic flow. Based on the demand peak arrival rate of 100 vehicles per hour, or on average one vehicle every 36 seconds. While this level of activity will mean a steady flow of traffic, it allows for manoeuvring of vehicles into parking spaces and relatively unrestricted flow to the drive-thru lane. No adverse traffic conditions are expected with the traffic flow or layout arrangement.

The length of the aisle will be less than 30 metres, this will restrict operating speeds to an acceptable level of less than 30 km/h.

The parking spaces and circulation roadway meets the standards as specified in the Australian Standards 2890 part 1: Off street car parking.

Two accessible car parking spaces will be provided in accordance with table B1 in the AS 2890 part 6: Off-street parking for people with disabilities.

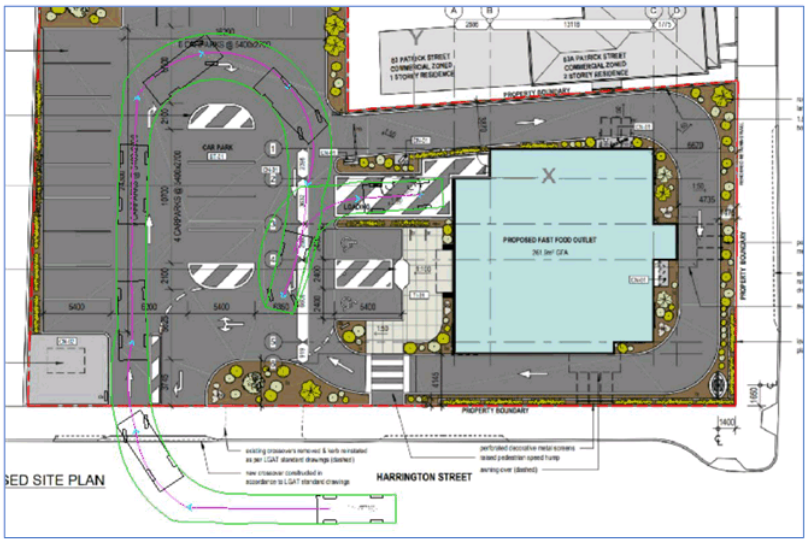
Figure 8.0 - Swept path of a standard 5.2m long car

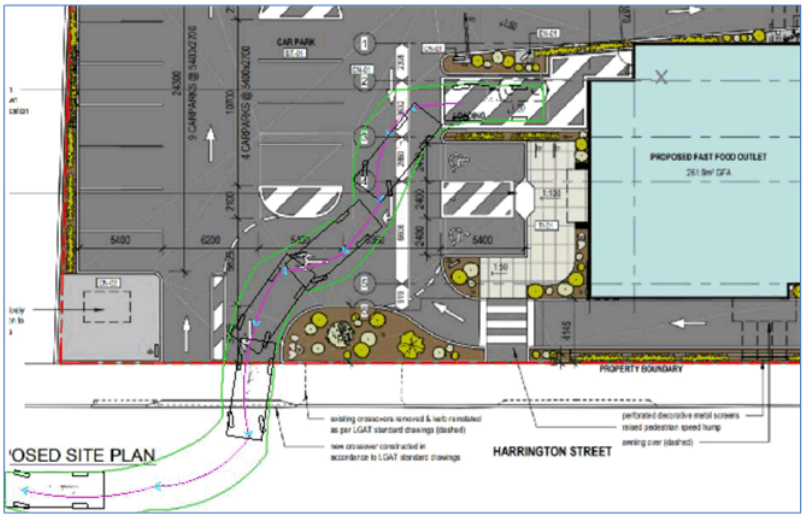


8.1. Delivery vehicles

Deliveries to the store will be scheduled to occur outside of the peak demand period for customers, with a separate area allocated for deliveries and collection of rubbish.

Standard delivery vans for KFC stores are 2.45metre wide and 6.7metre long. The swept path diagrams below demonstrate that delivery vans and rubbish vehicles can easily manoeuvre within the proposed layout.





9. Planning scheme

9.1. E5.0 Road and Railway Assets Code

E5.5.1 Existing access and junctions

The property has an existing access to Harrington Street, leading to a 28 vehicle car park. Harrington Street has a speed limit of 50 km/h and to qualify for the acceptable solution A3 the traffic activity using the access must not increase by more than 20 percent or 40 vehicle movements per day.

With the proposed change of use to a KFC store, the traffic activity will exceed the above tolerance levels and therefore must be consider under the performance criteria P3.

Performance criteria	Assessment
To ensure that the safety and efficiency of roads is not reduced by increased use of existing accesses and junctions.	
a) the increase in traffic caused by the use;	The KFC store is expected to generate 100 traffic trips per hour during the typical customer peak times of 5 to 8pm most days. This generation rate is based on recent traffic surveys conducted at two existing KFC stores in greater Hobart. The typical customer peak times occur after the 3pm to 4pm weekday peak traffic flow on Harrington Street, which aligns with student collection at the nearby school. Section 6.3 found the current demand to capacity ratio for the right hand traffic lane in Harrington Street is 48 percent between 5pm and 6pm. This will increase marginally to 56 percent with the additional traffic generation from this store. Traffic analysis found sufficient traffic capacity on Harrington Street to absorb the additional traffic movements generated by this development, without causing any adverse traffic efficiencies or safety issues.
b) the nature of the traffic generated by the use;	Traffic generated will be by light passenger vehicles. This type of vehicle is compatible with the majority of the current traffic flow using the surrounding street network. Some customers will be passing trade, while most customers will be attracted from nearby streets. Increase in light passenger vehicles on the road networks is not expected to cause an acceleration in road deterioration, or any other adverse impacts.
c) the nature and efficiency of the access or the junction;	The existing access to the development site will be modified to suit the new development. The increase in traffic movements into and out of the site has been assessed using SIDRA traffic modelling software, which found the access is expected to perform at a high operating performance. The average delay for a vehicle leaving site will be 10.2 seconds and the 95th percentile queue length being one vehicle. The location and arrangement of the drive-thru lane will eliminate any risk of vehicles queuing back beyond the access. The access is expected to operate safely and efficiently.
d) the nature and category of the road;	Harrington Street is an important arterial road in the surrounding street network and consists of two traffic lanes in a one-way flow, (south to north) from Sandy Bay Road to Burnett Street in North Hobart. The road is designed to carry a large number of vehicles and as demonstrated

	under section 6.3 there is sufficient capacity to absorb additional traffic movements generated from the use without any adverse impacts. The traffic flow efficiency along Harrington Street is not expected to be impacted and the current level of performance is expected to be maintained.
e) the speed limit and traffic flow of the road;	The speed limit along Harrington Street is 50 km/h. All intersections from Sandy Bay Road to Warwick Street are controlled by traffic signals and the route has been designed as a priority route for commuters leaving the city area, avoiding the central business district. The route collects traffic from Sandy Bay Road and the Southern Outlet and delivers it to Brooker Highway via Burnett Street. The signals beyond Collins Street are coordinated to prioritise Harrington Street over the side streets and this creates a green wave for vehicles leaving the city. Consequently, the route operates very efficiently, and this development site will benefit from the passing trade, while not reducing the route efficiency.
f) any alternative access to a road;	The development site is located on the corner of Harrington Street and Patrick Street, therefore the site has an alternative access to Patrick Street. As described above, Harrington Street has been designed to operate as a priority route for outbound traffic flow. The traffic signals along Harrington Street from Collins Street to Brisbane Street are coordinated through SCATTS, but not Patrick Street. Increasing traffic activity on Patrick Street by having the KFC access, will provide higher demand on the signals to give Patrick Street more green time. Any reduction in green time on Harrington Street will disrupt the current traffic efficiency. The development access onto Harrington Street is preferred over Patrick Street, and makes sense from a traffic operation perspective.
g) the need for the use	New development delivers employment opportunities, choice and competition. The existing site access is safe and easy to negotiate and is in a well-established street network. With the development location providing convenience to bypass users
h) any traffic impact assessment; and	An independent Traffic Impact Assessment has found no reason for this development not to proceed.
i) any written advice received from the road authority.	None

E5.6.4 Sight distance at accesses, junction and level crossings

As described in section 6.2 of this report, the available sight distance for this new junction will exceed the Safe Intersection Sight Distance as prescribed in the planning scheme and meets the acceptable solution A1.

9.2. E6.0 Parking and Access Code

E6.6.1 Number of parking spaces

The development will provide 20 on-site parking spaces.

The Interim Planning Scheme indicates for a take away food premises, 15 spaces for each 100 square metres of floor area or 1 space for each 3 seats, whichever is the greater. With the proposed total floor area of 261 square metres, this represents 39 on-site parking spaces.

Unfortunately, the planning scheme does not clarify whether the floor area calculation method, only needs to cover the floor area set-aside for dine-in and take away collection or total floor area of the building. It is important to recognise with this development two thirds of the floor area is assigned to food preparation, for efficient drive-thru service, as this is the main way customers use a KFC store.

The number of on-site parking spaces is based on sound design principles of seat availability as determine by the RTA guidelines. The risk of the demand exceeding the on-site parking spaces and reducing traffic efficiency along Harrington Street is extremely low.

Due to the uncertainty on the floor area calculation method, performance criteria have been provided.

Performance criteria	Assessment
To ensure there is enough car parking to meet the reasonable needs of all users of a development, taking into account the level of parking available on or outside of the land and the access afforded of users by other modes of transport. The use or development does not detract from the amenity of users or the locality by preventing regular parking overspill and minimising the impact of car parking on heritage and local character.	
a) car parking demand	Based on the total floor area of the store, 39 on-site parking spaces are required. Based on the floor area for dine-in and take-away collection, 10 on-site parking spaces are required.
b) The availability of on-street and public car parking in the locality;	The development will provide 20 on-site parking spaces. The store is located on the corner of two streets that have parallel parking spaces. A proportion of customers may choose to park on the street rather than enter the development site, reducing the dependence for on-site parking spaces. The number of parallel spaces within 50 metres of the development site is around 30 spaces.
c) The availability and frequency of public transport within 400m walking distance of the site;	Public transport is not considered relevant for this development.
d) the availability and likely use of other modes of transport;	As discussed in section 6.7, this store is situated in close proximity to a significant residential catchment, and in easy walking distance. It is expected that a large percentage of

	dine-in patrons will not have a vehicle, reducing the need for on-site parking spaces.
e) the availability and suitability of alternative arrangements for car parking provisions;	None.
f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;	The RTA guide for traffic generation developments is a nationally accepted document that provides advice on design criteria for new developments. For on-site parking for KFC stores, the guide recommends 1 parking space per 2 seats. With this development providing a maximum of 30 dine-in seats, the on-site parking requirement is 15 spaces.
g) Any car parking deficiencies or surplus associated with the existing use of the land;	None.
h) Any credit which should be allowed for a car parking demand deemed to have been provided in associated with a use which existed before the change of parking requirements, except in the case of substantial redevelopment of a site;	None.
i) The appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;	No financial contribution is considered necessary as the level of on-site parking spaces will more than meet the needs of the development, without any adverse impact to the surrounding road network.
j) Any verified prior payment of a financial contribution in lieu of parking for the land;	None required.
k) Any relevant parking plan for the are adopted by Council;	Not aware of any.
l) The impact on the historic cultural heritage significant of the site if subject to the Local Heritage Code;	None expected.
m) Whether the provision of the parking would result in the loss, directly or indirectly of one or more significant trees listed in the Significant Trees Code.	None.

E6.7 Development standards

Development standards	Comment
6.7.1 number of vehicular access;	This development site will have a single two-way access.
6.7.2 design of vehicular access;	The vehicular accesses will be designed to conform with the Australian Standards 2890 part 1.
6.7.3 vehicular passing areas along an access;	The internal roadway will facilitate a one-way circulating traffic flow and a passing bay will not be necessary.
6.7.4 On-site turning;	All vehicles will be able to enter and leave the development site in a forward driving direction.
6.7.5 Layout of parking areas;	Designed to conform with AS 2890 part 1.
6.7.6 Surface treatment of parking areas;	Designed to meet the acceptable solution.
6.7.7 Lighting of parking areas;	Lighting will be provided to satisfy the acceptable solution.
6.7.8 Landscaping of parking areas;	A landscaping plan will be part of the Development Application.
6.7.9 Design of Motorcycle parking areas;	No dedicated motorcycle parking is considered necessary, they can occupy a standard parking space.
6.7.10 Design of Bicycle Parking facilities;	Bicycle parking will be provided on-site and constitute a bicycle frame where wheels can be locked.
6.7.11 Bicycle end of trip facilities;	Bicycle parking for employees is under the requirement to provide end of bicycle trip facilities.
6.7.12 Siting of car parking;	The new car park will replace a current on-site parking spaces and no adverse impact is expected.
6.7.13 Facilities for commercial vehicles;	A separate area is being provided away from customers, for deliveries and collection of rubbish. The swept path for standard KFC commercial vehicles entering and leaving has been provided in section 8.1.
6.7.14 Access to road.	The access to Harrington Street will operate safely and provide users with an efficient way to leave and enter the development site.

10. Conclusions

The Harrington Street proposed site is an excellent location to optimise the passing trade, be accessible to a range of local residential areas, be compatible with the surrounding land-use and make use of the established road network.

From a traffic engineering and road safety perspective, additional traffic generated from this development site is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:

- there is sufficient capacity within the current road network to absorb the extra traffic movements,
- there is sufficient Safe Intersection Sight Distance that exceeds the planning scheme requirements for sight distance, and this will ensure safe traffic movements,
- there will be sufficient on-site parking spaces to accommodate the demand without causing overspill to the adjacent street network,
- the drive thru facility will operate efficiently, there will be sufficient capacity to accommodate the demand without any queueing extending outside of the development site,
- the extra traffic movements to and from Harrington Street will not create any traffic efficiency or amenity issues, and
- the Harrington and Patrick Streets intersection is covered by a 50 km/h speed zone and is currently performing at the highest level of service and the additional traffic movements is not expected to create any transport efficiency issues, or reduce the level of service.

An examination of the geometric layout of the subdivision found compliance with the planning scheme and the Australian Standards 2890.

This Traffic Impact Assessment found no reason for this development not to proceed.

11. Appendix B – Traffic Modelling

Figure 11.1 - Existing conditions at Harrington and Patrick Streets intersection

LANE SUMMARY

Site: 101 [Harrington & Patrick 5-6pm]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service
South: Patrick East							
Lane 1	11	5.0	378	0.030	20[6]	11.0	LOS B
Lane 2	50	5.0	328	0.151	100	15.1	LOS B
Approach	61	5.0		0.151		14.3	LOS B
North: Patrick west							
Lane 1	57	0.0	380	0.149	100	14.2	LOS B
Approach	57	0.0		0.149		14.2	LOS B
West: Harrington south							
Lane 1	451	0.0	778	0.580	100	8.3	LOS A
Lane 2	449	0.0	775	0.580	100	8.7	LOS A
Approach	900	0.0		0.580		8.5	LOS A
Intersection	1018	0.3		0.580		9.2	LOS A

Figure 11.2 – Scenario One, additional 100 traffic movements, 70% on Harrington St

LANE SUMMARY

Site: 101 [Harrington & Patrick 5-6pm - Scenario one - 70% arrival on Harrington street]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service
South: Patrick East							
Lane 1	15	5.0	378	0.041	20[6]	11.0	LOS B
Lane 2	67	5.0	329	0.203	100	16.2	LOS B
Approach	82	5.0		0.203		15.2	LOS B
North: Patrick west							
Lane 1	67	0.0	382	0.176	100	13.9	LOS B
Approach	67	0.0		0.176		13.9	LOS B
West: Harrington south							
Lane 1	488	0.0	778	0.627	100	8.8	LOS A
Lane 2	486	0.0	775	0.627	100	9.2	LOS A
Approach	974	0.0		0.627		9.0	LOS A
Intersection	1123	0.4		0.627		9.8	LOS A

Figure 11.3 – Scenario two – additional 100 traffic movements, 50% on Harrington St

LANE SUMMARY

Site: 101 [Harrington & Patrick 5-6pm - Scenario two 50% arrival on Harrington Street]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service
South: Patrick East							
Lane 1	18	5.0	378	0.048	20[6]	11.1	LOS B
Lane 2	80	5.0	334	0.239	100	16.7	LOS B
Approach	98	5.0		0.239		15.7	LOS B
North: Patrick west							
Lane 1	77	0.0	379	0.203	100	15.0	LOS B
Approach	77	0.0		0.203		15.0	LOS B
West: Harrington south							
Lane 1	477	0.0	778	0.614	100	8.7	LOS A
Lane 2	476	0.0	775	0.614	100	9.1	LOS A
Approach	953	0.0		0.614		8.9	LOS A
Intersection	1127	0.4		0.614		9.9	LOS A

Figure 11.4 – KFC access on Patrick Street

LANE SUMMARY

Site: 101 [Harrington & Patrick 5-6pm - patrick access]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service
South: Patrick East							
Lane 1	26	5.0	378	0.068	20[6]	11.2	LOS B
Lane 2	119	5.0	350	0.341	100	17.7	LOS B
Approach	145	5.0		0.341		16.5	LOS B
North: Patrick west							
Lane 1	57	5.0	368	0.154	100	14.3	LOS B
Approach	57	5.0		0.154		14.3	LOS B
West: Harrington south							
Lane 1	490	10.0	730	0.671	100	9.6	LOS A
Lane 2	484	10.0	721	0.671	100	10.8	LOS B
Approach	974	10.0		0.671		10.2	LOS B
Intersection	1176	9.1		0.671		11.2	LOS B

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Figure 11.5 – Harrington Street access

LANE SUMMARY

Site: 101 [KFC access - single lane on harrington]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m
South: KFC store									
Lane 1	105	0.0	525	0.200	100	11.1	LOS B	0.6	4.4
Approach	105	0.0		0.200		11.1	LOS B	0.6	4.4
West: Harrington south									
Lane 1	916	0.0	1939	0.472	100	0.7	LOS A	0.0	0.0
Approach	916	0.0		0.472		0.7	NA	0.0	0.0
Intersection	1021	0.0		0.472		1.8	NA	0.6	4.4

Figure 11.6 – Sensitivity testing of 120 vehicles per hour with 70% arriving on Harrington Street

LANE SUMMARY

Site: 101 [Harrington & Patrick 5-6pm - sensitivity testing using 120 vehicles with 70% on Harrington]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service
South: Patrick East							
Lane 1	17	5.0	378	0.046	20[6]	11.1	LOS B
Lane 2	76	5.0	332	0.230	100	16.6	LOS B
Approach	94	5.0		0.230		15.6	LOS B
North: Patrick west							
Lane 1	78	0.0	378	0.206	100	15.0	LOS B
Approach	78	0.0		0.206		15.0	LOS B
West: Harrington south							
Lane 1	506	0.0	778	0.650	100	9.1	LOS A
Lane 2	504	0.0	775	0.650	100	9.5	LOS A
Approach	1009	0.0		0.650		9.3	LOS A
Intersection	1181	0.4		0.650		10.2	LOS B

Addendum to Traffic Impact Assessment for a new KFC Store, Harrington Street, Hobart

Planning application No. PLN-20-651

Hubble Traffic

March 2022

Introduction

Hubble Traffic Consulting prepared an independent Traffic Impact Assessment for a new KFC store, to be located on the southeast corner of the intersection of Harrington and Patrick Streets, Hobart.

In considering the application the City of Hobart Council (council) has requested additional information, and this addendum provides clarity on the relevant parking and access matters raised. The internal carparking layout has been slightly modified to ensure compliance with AS/NZS 2890.1:2004, and the interim planning scheme.

Within this addendum the Australian Standard for off-street car parking AS/NZS 2890.1:2004 will be referred to as The Standard.

PA 2.2

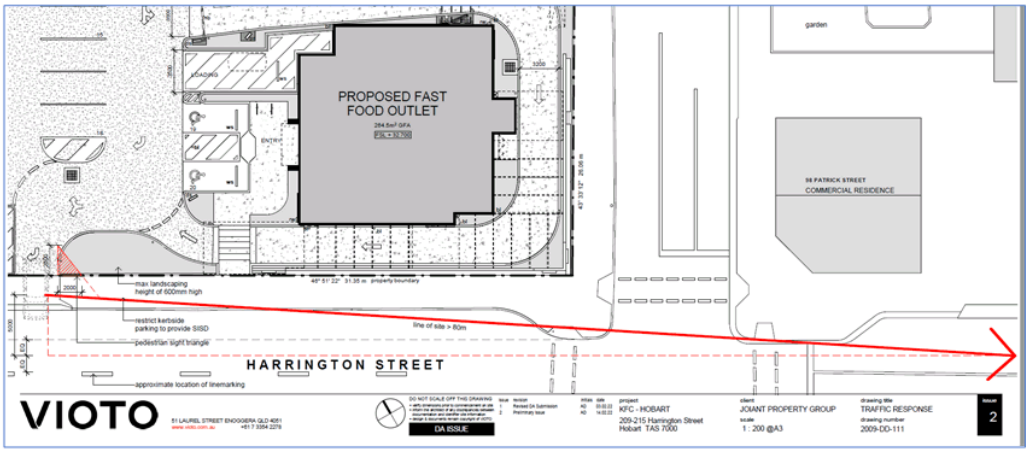
E6.7.2 Design of Vehicular Accesses and E5.6.4 Sight Distance at accesses

Request for additional information to verify drivers leaving the development site will have sufficient sight distance and provide a plan of driver's sight distance in accordance with The Standard Section 3.2.4.

The development will operate with a single access onto Harrington Street, with the access to commence approximately 45 metres north of Patrick Street. Harrington Street has a one-way traffic flow operating in a south to north orientation with two traffic lanes, with parallel parking along the development frontage, which is indented and clear of the through lanes by kerb outstands at the Patrick Street Intersection.

In compliance with The Standard Section 3.2.4, a driver positioned 2.5 metres from the kerb face of Harrington Street, will have available sight distance that exceeds 80 metres of a vehicle approaching in the left-hand traffic lane along Harrington Street, as demonstrated in the plan view below.

Diagram – Available sight distance for vehicle leaving the development site



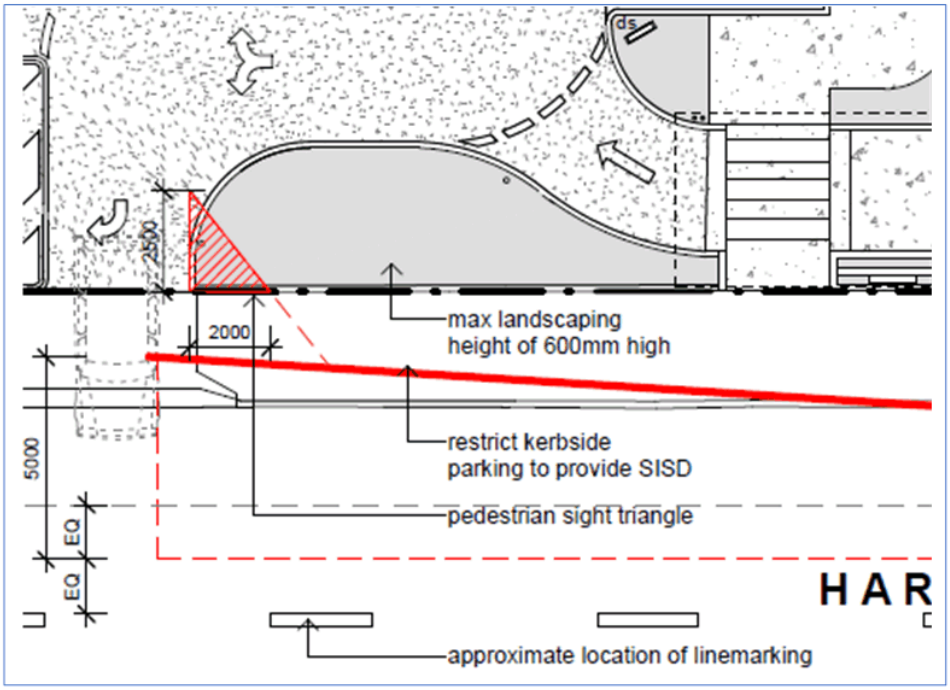
The sight line suggests parallel parking along the development frontage could be restricted. It is important to acknowledge that on-street parallel parking leading up to the access, can allow for the driver to be positioned closer towards the through lane, protected by the parallel parking lane. This assessment has determined there will be available sight distance for a driver leaving the development, and management of kerb-side parking is a matter for the road manager.

Request for additional information to ensure there is no conflict with vehicles leaving the development site and pedestrians operating on the current Harrington Street footpath.

Pedestrian sight triangle

The Standard Section 3.2.4 specifies clear sight lines are required at the property line, to ensure adequate visibility between vehicles leaving the development and pedestrians on the frontage road footpath.

The diagram below demonstrates the development site will have an adequate pedestrian sight triangle to comply with The Standard and reduce conflict between vehicles leaving and pedestrians using the footpath. Landscaping within the development site adjacent to Harrington Street access will be maintained to not exceed 600mm in height, to provide clear sight lines between activity within the development site and pedestrians using the Harrington Street footpath.



Service vehicle

Request to demonstrate that the swept path of a SMV vehicle (including 300mm manoeuvring) can adequately manoeuvre within the development site.

KFC are one of the largest food chains in Australia, operating more than 650 stores, with a comprehensive understanding of their business model and type of vehicles that service their stores. The developer has advised that all bulk deliveries and waste collection will be undertaken by small commercial vehicles, with an overall dimension of 2.45 metres wide and 6.7 metres long. These vehicle dimensions closely replicate a Small Rigid Vehicle (SRV), rather than a medium rigid vehicle.

Under AS/NZS 2890.2:2018, SRV represents light trucks to a maximum load capacity of 4 tonnes and typically have a single rear axle, and either single or dual tyres. The SRV is the design vehicle which should be adopted, where the service area is to be used by small commercial vehicles only.

Based on the available advice from the developer, a SRV would be an appropriate Design Vehicle to be used for this development.

The access, circulating carriageway, and loading bay has been designed to accommodate a SRV vehicle, and the two diagrams below demonstrate a SRV can easily enter, reverse into the loading bay, and leave the site without encroaching on any parking space. The combined entry and exit access incorporates a painted median island to separate opposing vehicles, and also provides additional width to assist with delivery vehicles.

Diagram of swept path of SRV vehicle entering the loading bay

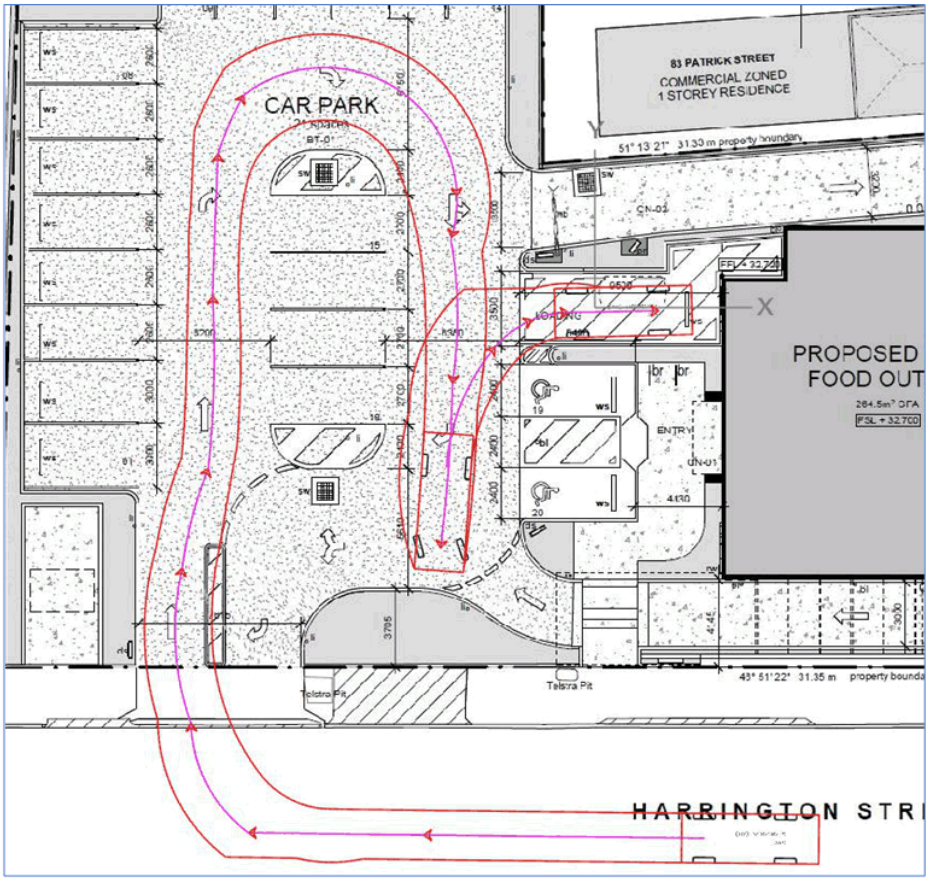
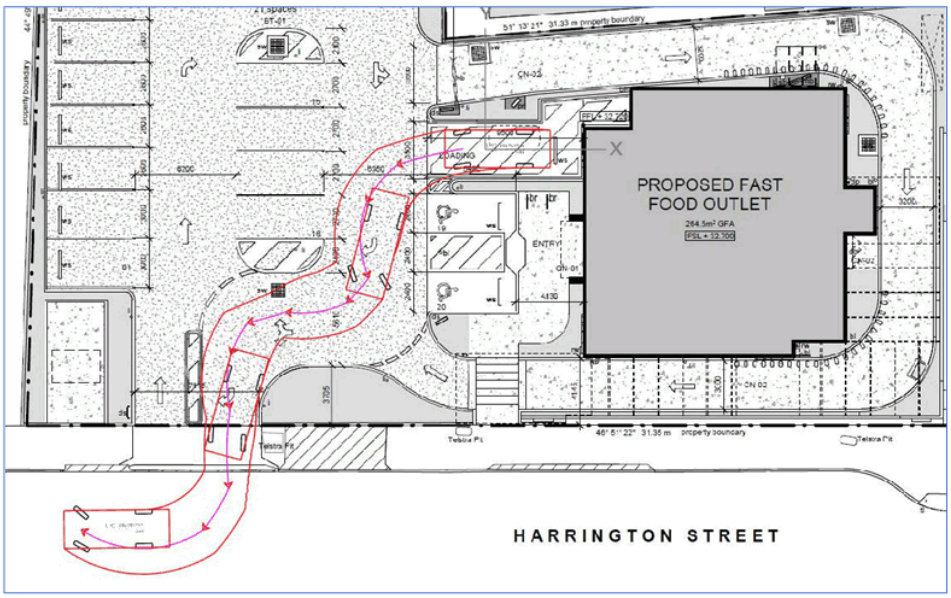


Diagram of swept path of SRV leaving the loading bay and entering Harrington Street



PA 5.1

Clause E6.7.5 Layout of parking areas

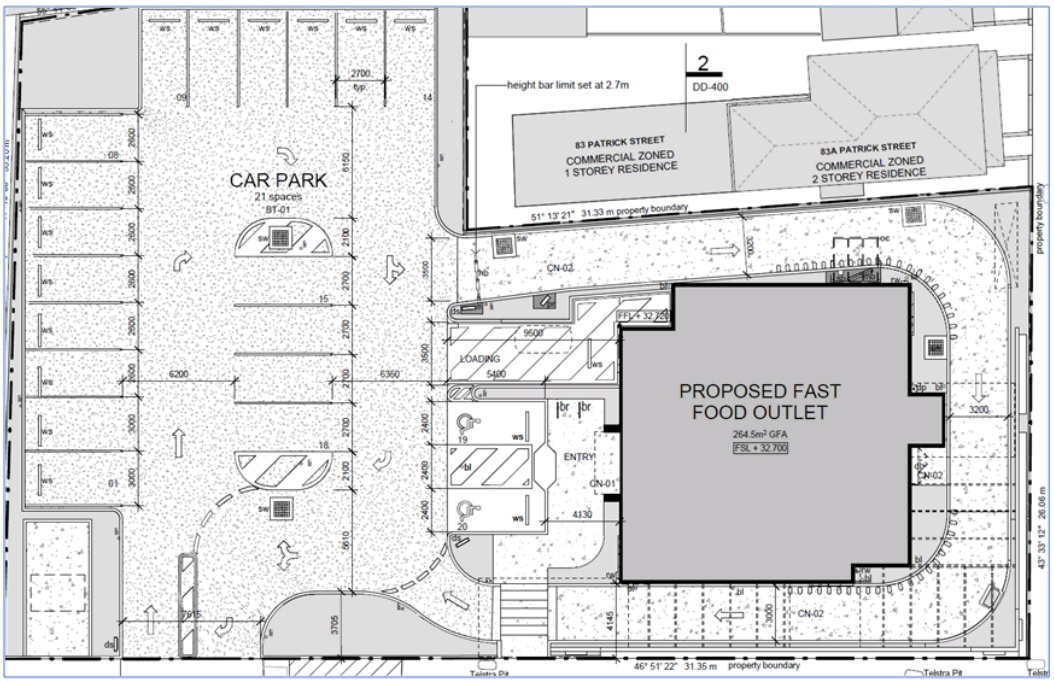
Using table 1.1 of The Standard, the user class 3 is suitable for short-term city and town parking, parking stations, hospital, and medical centres.

Figure 2.2 of The Standard provides layout for parking modules; for ninety-degree parking spaces the minimum parking space dimension for user class 3 is 2.6 metres wide, 5.4 metres long, with a minimum parking aisle of 5.8 metres wide.

The development will provide all parking bays to be 5.4 metres long, with six parking bays at 2.6 metres wide, 10 parking spaces at 2.7 metres wide, and two parking bays at three metres wide. The minimum parking aisle width will be 6.2 metres wide. These dimensions are compliant with The Standard and ensures safe, easy, and efficient use.

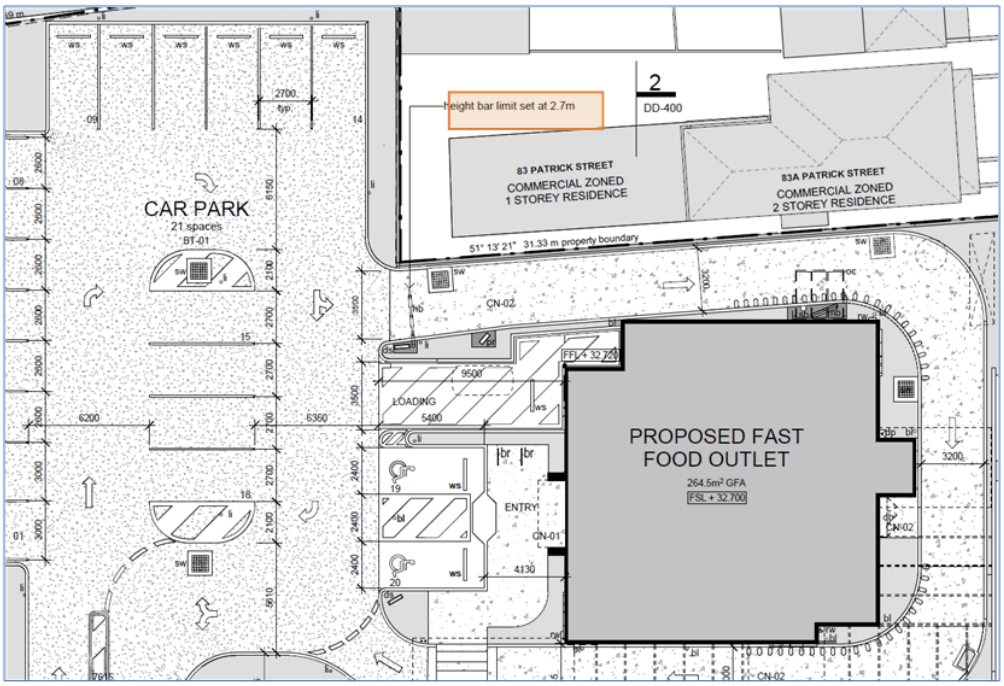
The two accessible parking spaces will include a shared zone in between the spaces, to allow for safe entry and exit; both the accessible parking spaces and shared zone will be 2.4 metres wide, which complies with AS/NZS 2890.6: 2009.

Diagram – Dimensioned plan of parking spaces, parking aisle and circulating carriageway



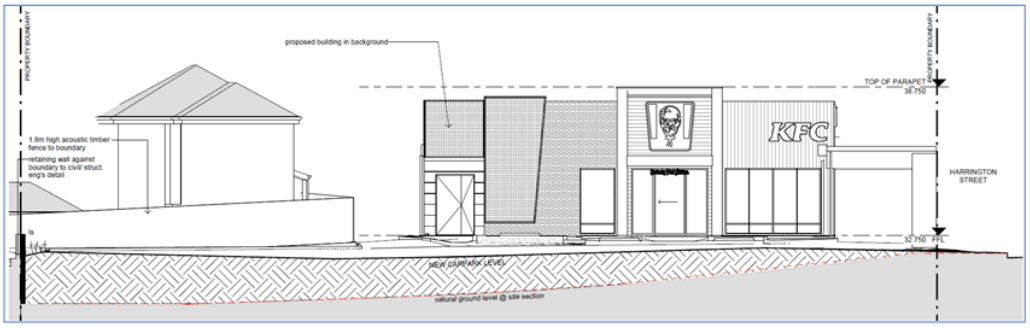
Headroom

The Standard Section 5.3 specifies the headroom for both cars and light vans (height between the floor and an overhead obstruction) shall be a minimum of 2.2 metres. The developer has advised the minimum headroom within the car park, access, and circulating carriageway will be 2.7 metres.

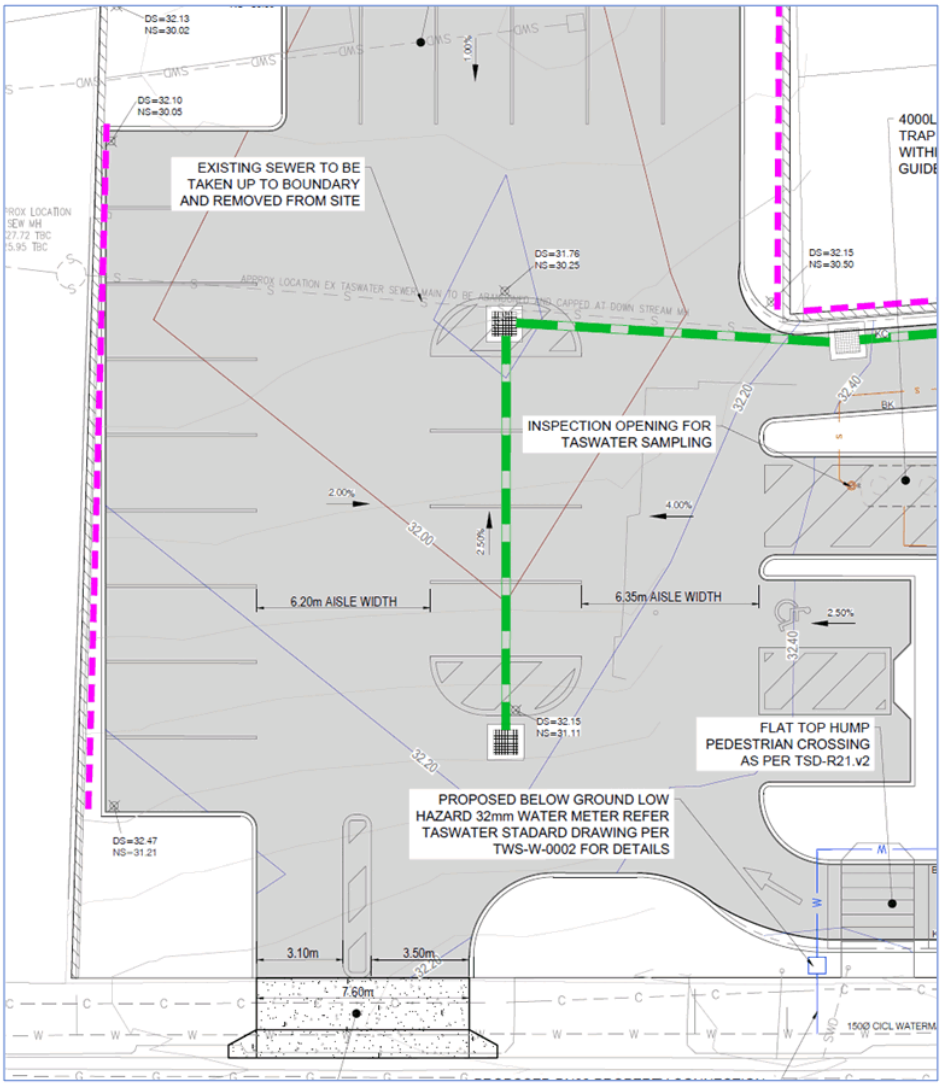


Longitudinal gradients

The level of the new car park will be raised above the natural ground surface, so the gradients through the car park and the transition to Harrington Street will be relatively flat.



The gradients through the car park are shown on the plan below, and these relatively flat gradients of 2.5 percent will not cause any adverse impact to vehicles accessing and using the site.



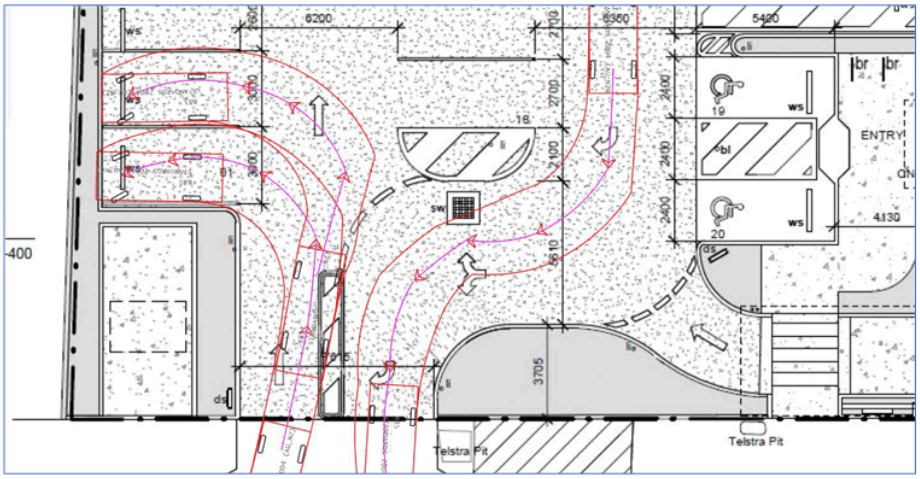
Safety barriers

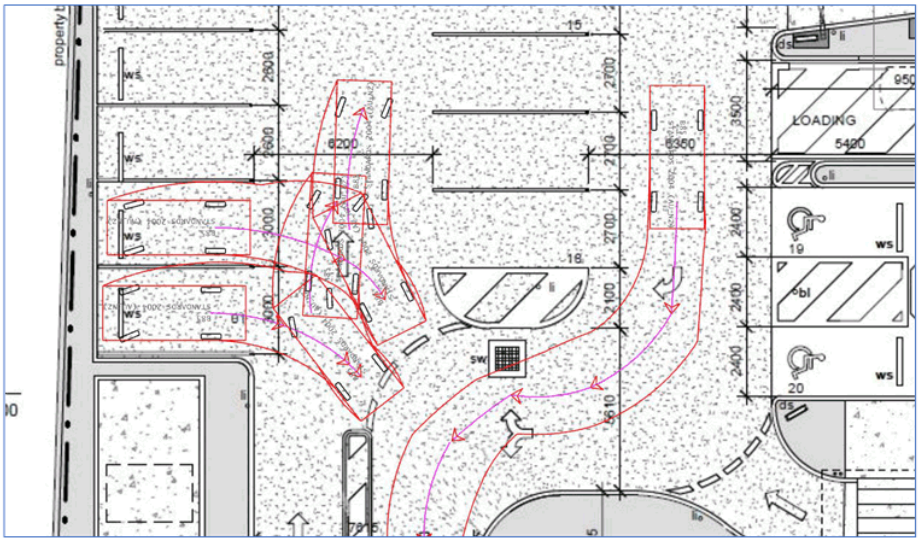
All parking spaces, parking aisles and circulating carriageway are supported with concrete kerbing. While the height difference between the finished level and natural surface is not expected to exceed 600 mm, at locations where 600 mm is exceeded, and there is potential for a vehicle to run over the edge of a raised deck, an appropriate safety barrier will be provided. All perimeter parking spaces will be supported with wheel stops.

PA 5.2

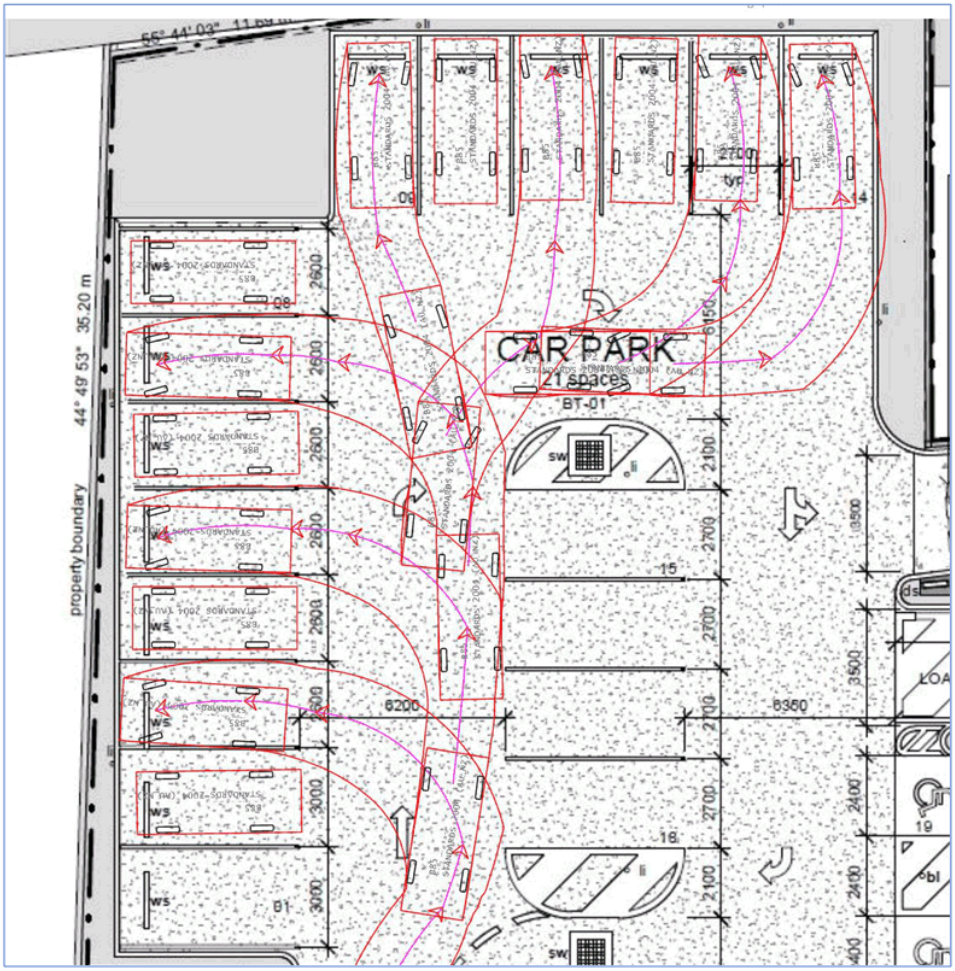
Request to demonstrate using swept paths that a B85 vehicles can turn into and out of all the proposed car parking spaces, without conflict of other vehicles.

The first two car parking spaces on the left-hand side located adjacent to the entry are three metres wide, to assist with a vehicle turning into and out of the spaces. While a vehicle may require using some of the painted median island, this is acceptable from a road rule perspective, as they are not expected to conflict with vehicles leaving, as demonstrated in the diagram below.

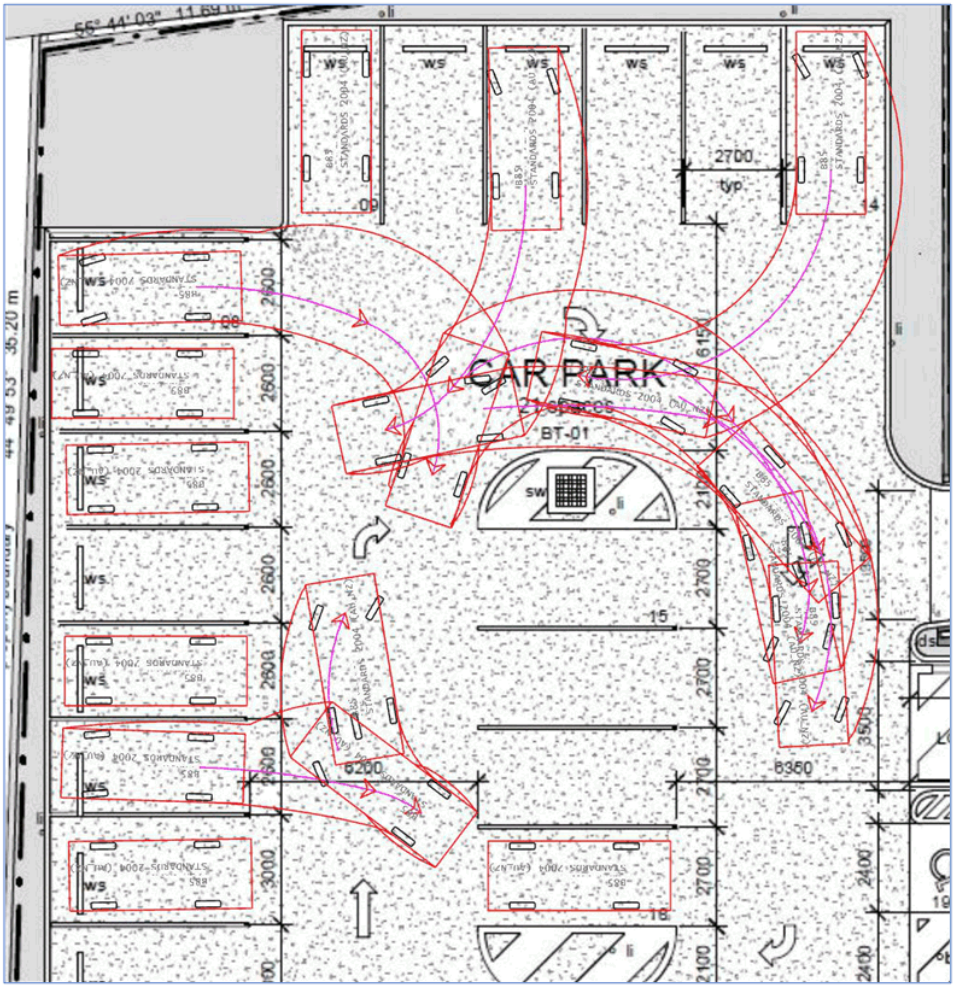


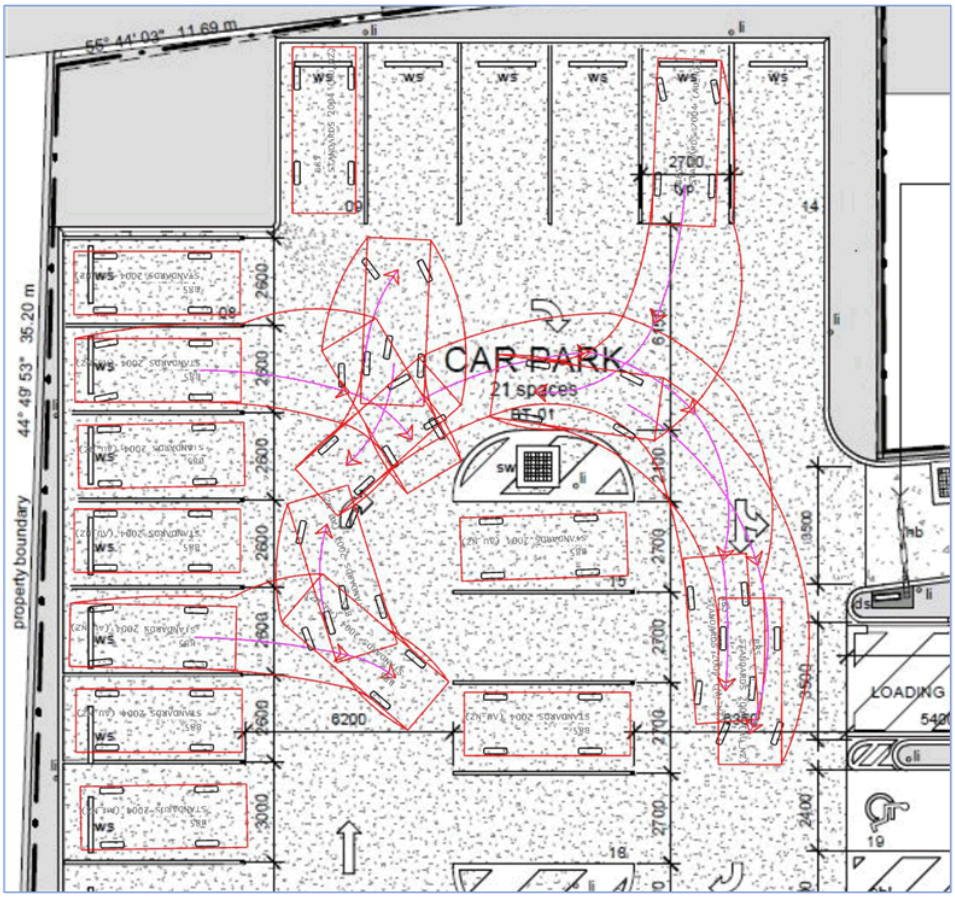


The diagram below demonstrates the swept paths for vehicles entering the side and rear parking spaces with vehicles parked adjacent.

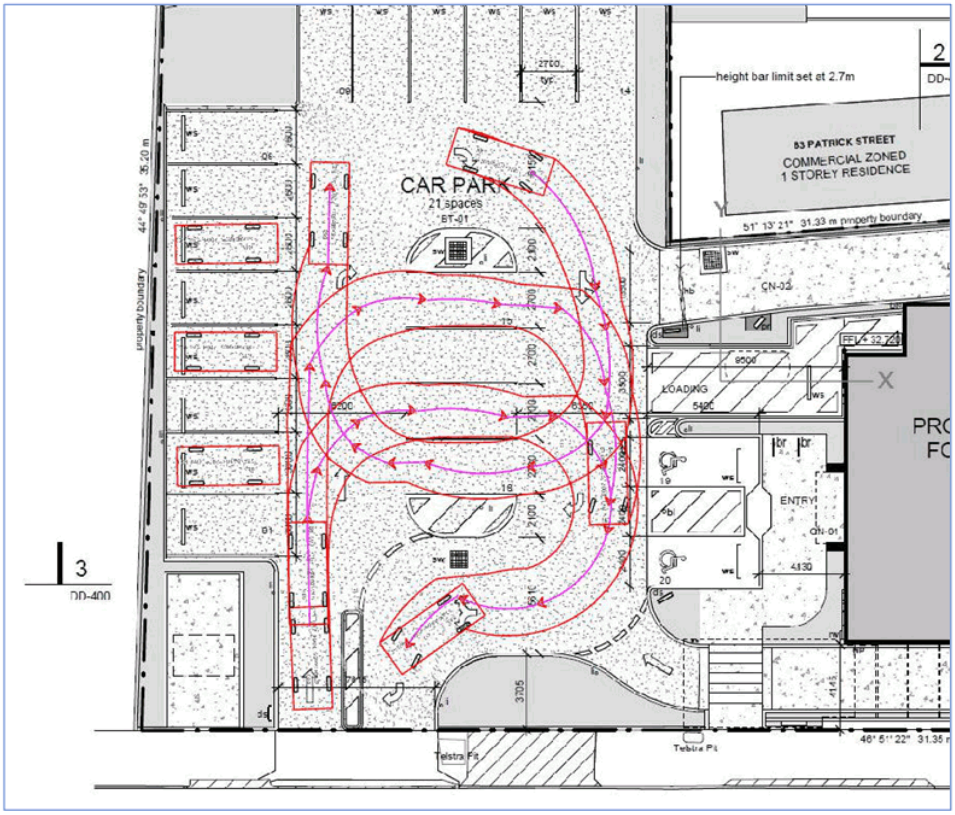


The kerbing around the parking spaces will be less than 150mm in height and allows for slight overhang for vehicles leaving the spaces.

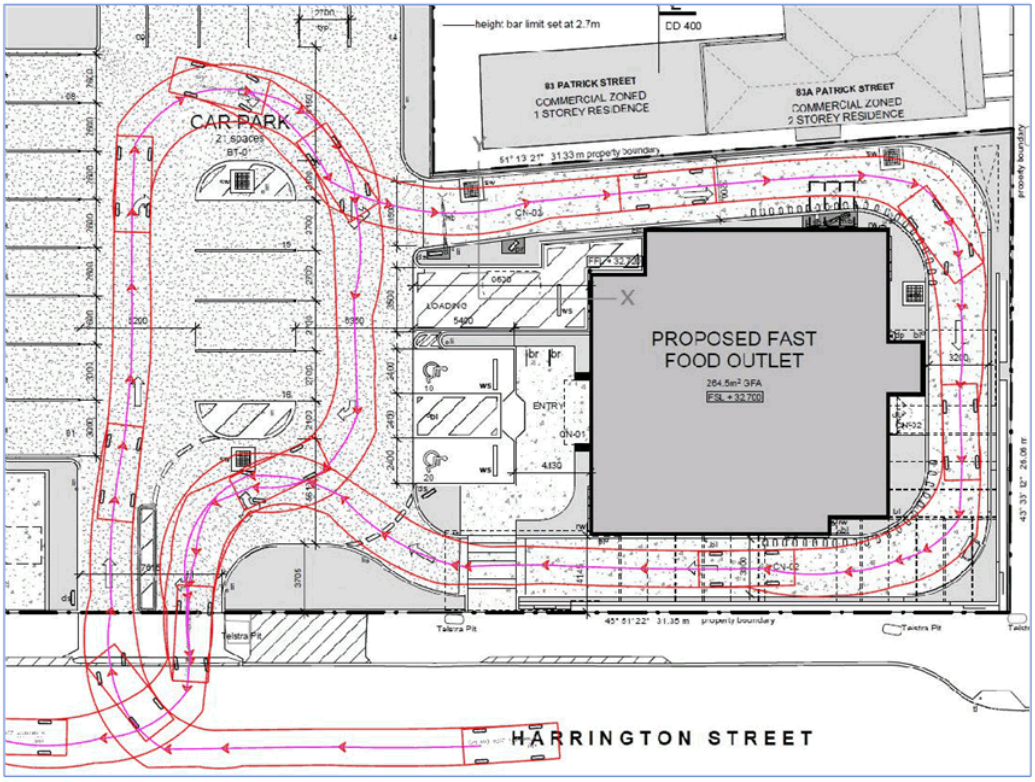


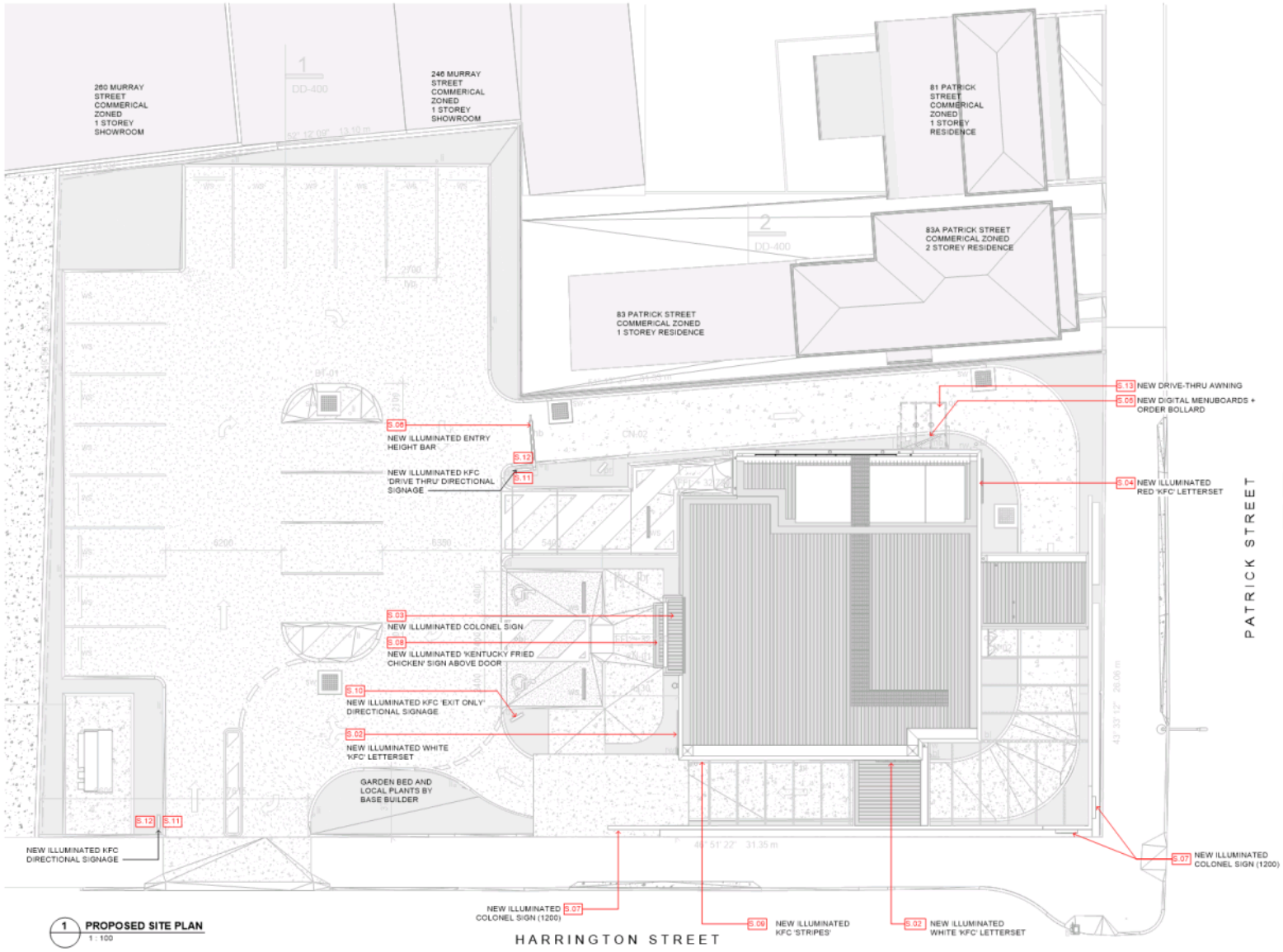

55° 44' 03" 11.69 m
44° 49' 53" 35.20 m
property boundary
CAR PARK
21 spaces
BT-01
LOADING
6200
2700
2600
3000
3500
2400

The one-way circulating aisle arrangement provides the opportunity for vehicles to enter and leave the central spaces from either side, as demonstrated in the diagram below.



The diagram below demonstrates that a B99 vehicle can enter, circulate, and leave the site with 300mm clearance to vertical obstructions, without conflict to parked vehicles or obstructions.





KFC

NOTE:
THIS PLAN IS FOR SITE SIGNAGE LOCATIONS ONLY.

FOR ALL SITE SETOUTS, DETAILS AND REQUIREMENTS, REFER BASE BUILD ARCHITECT DOCUMENTATION.

GENERAL NOTES:
1. ALL POWER SUPPLY + FOOTINGS FOR AWNINGS, MENUBOARDS, HEIGHT BARS, PYLON + DIRECTIONAL SIGNAGE TO BE PROVIDED INCLUDING HOLD DOWN BOLTS BY THE BASE BUILD
2. AWNINGS, HEIGHT BARS, PYLON + DIRECTIONAL SIGNAGE TO BE SUPPLIED AND INSTALLED BY SIGNAGE CONTRACTOR AS PART OF FITOUT WORKS.
3. HOLD DOWN BOLTS TO BE DESIGNED AND INSTALLED TO SUIT THE BASE PLATES PROVIDED BY SIGNAGE CONTRACTOR

NOT FOR CONSTRUCTION

ISSUE FOR APPROVAL

No.	REVISION	DATE	INIT.
DA2	ISSUE FOR APPROVAL	24/01/22	TR
DA1	NEW DA OPS APPROVAL	16/12/21	TR
FAF2	PRELIMINARY - ISSUE FOR FAF	09/11/20	TR
FAF1	PRELIMINARY - ISSUE FOR FAF	04/09/20	TR

ARCHITECT:

This drawing and design is subject to copyright © and may not be reproduced without prior consent. Contractor to verify all dimensions on site before commencing work. Report all discrepancies to the architect prior to construction. Figured dimensions to be taken in preference to scaled drawings.

inaspace ARCHITECTURE + DESIGN

BRIS: Level 1/92 HYDE RD, YERONGA QLD 4104
MELB: Factory 1, 10-12 MORLAND RD, BRUNSWICK EAST, VIC 3057
(07) 3252 7356 www.inaspace.com.au

CLIENT:
COLLINS FOODS LIMITED

PROJECT:
KFC HOBART

LOCATION:
209-215 HARRINGTON STREET
HOBART, TAS 7000

DRAWING:
PROPOSED SITE PLAN

SCALE:	DATE:	DRAWN BY:	NORTH
1 : 100 @ A1 1 : 200 @ A3	JULY 2020	HF	

JOB No.:	DWG No.:	REV:
2026	WD-0.02	DA2

CIVIL DRAWINGS
PROPOSED KFC HOBART
211-213 HARRINGTON STREET
HOBART TAS 7000

ALDANMARK DRAWING SCHEDULE

DRG No.	DESCRIPTION	REV	ISSUE DATE
20E99-232-C0.01	COVER SHEET	B	28/09/2020
20E99-232-C0.02	LOCALITY PLAN & NOTES	B	28/09/2020
20E99-232-C0.03	SITE LAYOUT PLAN	B	28/09/2020

REV.	DESCRIPTION	DATE	QA CHECK	
			DRAWN:	TM
			DRAWING CHECK:	MB
			DESIGNED:	TM
B	ISSUE FOR APPROVAL	28/09/2020	DESIGN CHECK:	MW
A	ISSUE FOR APPROVAL	18/09/2020	CERTIFIED:	MG

PRELIMINARY COPY
NOT TO BE USED FOR
CONSTRUCTION PURPOSES

ALDANMARK
CONSULTING ENGINEERS

Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 9996
mail@aldanmark.com.au
www.aldanmark.com.au

CLIENT: JOIANT PROPERTY GROUP
ADDRESS: 211-213 HARRINGTON STREET HOBART TAS 7000
PROJECT: KFC HOBART
ISSUE: BUILDING APPROVAL
SCALE:
SHEET: COVER SHEET
STAGE: -
TOTAL SHEETS: 3
SIZE: A1
PROJECT No: 20E99-232
SHEET No: C0.01
REV No: B

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, HYDRAULIC AND STRUCTURAL DRAWINGS AND SPECIFICATIONS. STANDARDS REFERENCED ARE TO BE THE MOST CURRENT VERSION.
2. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS ENDORSED FOR CONSTRUCTION AND AUTHORISED FOR ISSUE ACCORDINGLY.
3. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH: IPWEA/LGAT STANDARD DRAWINGS AND SPECIFICATIONS, AUSTRALIAN STANDARDS, (WSAA SEWERAGE CODE OF AUSTRALIA & WATER SUPPLY CODE OF AUSTRALIA) AND TO THE SATISFACTION OF COUNCIL'S DEVELOPMENT ENGINEER.
4. IPWEA/LGAT STANDARD DRAWINGS TO BE READ IN CONJUNCTION WITH HOBART CITY COUNCIL DEPARTURES FROM LGAT STANDARD DRAWINGS.
5. ALL WORKS ARE TO BE MAINTAINED IN A SAFE CONDITION.
6. CONFIRM ALL LEVELS ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
7. CONTRACTOR TO OBTAIN APPROVALS, SERVICE CLEARANCES AND COORDINATE WORK WITH ALL RELEVANT AUTHORITIES PRIOR TO COMMENCEMENT.
8. A "START OF WORKS NOTICE" MUST BE OBTAINED FROM COUNCIL PRIOR TO ANY WORKS COMMENCING.
9. SURVEY DATA UNDERTAKEN AND PROVIDED BY CITY SURVEYORS.
10. ARCHITECTURAL LAYOUT PROVIDED BY VOTO DESIGN. THESE PLANS TO BE READ IN CONJUNCTION WITH ARCHITECTS PLANS
11. COUNCIL APPROVED PLANNING PERMIT REFERENCE TBC.

WORKPLACE HEALTH & SAFETY NOTES:

BEFORE THE CONTRACTOR COMMENCES WORK THE CONTRACTOR SHALL UNDERTAKE A SITE SPECIFIC PROJECT PRE-START HAZARD ANALYSIS / JOB SAFETY ANALYSIS (JSA) WHICH SHALL IDENTIFY IN DOCUMENTED FORM:

- THE TYPE OF WORK;
- HAZARDS AND RISKS TO HEALTH AND SAFETY;
- THE CONTROLS TO BE APPLIED IN ORDER ELIMINATE OR MINIMIZE THE RISK POSED BY THE IDENTIFIED HAZARDS.
- THE MANNER IN WHICH THE RISK CONTROL MEASURES ARE TO BE IMPLEMENTED.

THESE ARE TO BE SUBMITTED TO THE SUPERINTENDENT AND/OR OTHER RELEVANT WORKPLACE SAFETY OFFICERS.

FOR THIS PROJECT: POSSIBLE HAZARDS INCLUDE (BUT ARE NOT LIMITED TO):

- EXCAVATION OF ANY TYPE & DEPTHS
- CONTAMINATED SOILS
- CONSTRUCTION IN GROUND WITH HIGH WATER TABLE
- FELLING / LOPPING & OR REMOVAL OF EXISTING TREES/VEGETATION
- UNDERGROUND STRUCTURES (MANHOLES / SUMPS / ETC)
- CONFINED SPACES
- OVERHEAD POWER LINES
- UNDERGROUND STORMWATER, WATER AND SEWER PIPES
- TELECOMMUNICATION CABLES - BOTH UNDERGROUND & OVERHEAD
- ELECTRICAL/POWER CABLES - BOTH UNDERGROUND & OVERHEAD
- WORKING AT HEIGHTS
- WORKING WITH ASBESTOS CONTAINING MATERIALS
- TRAFFIC MANAGEMENT

EARTHWORKS NOTES:

1. ALL EARTHWORKS SHALL BE IN ACCORDANCE WITH AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS".
2. ALL VEGETATION AND TOPSOIL SHALL BE STRIPPED AND GRUBBED IN THE AREA OF PROPOSED WORKS.
3. EXCAVATED AND IMPORTED MATERIAL USED AS FILL IS TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
4. FILL MATERIAL SHALL BE WELL GRADED AND FREE OF BOULDERS OR COBBLES EXCEEDING 150mm IN DIAMETER, UNLESS APPROVED TO BE OTHERWISE.
5. FILL REQUIRED TO SUPPORT PAVEMENT INCLUDING FILL IN EMBANKMENTS THAT SUPPORT PAVEMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
   - TOP SOIL AND ORGANIC MATTER SHALL BE STRIPPED TO A MINIMUM OF 150mm.
   - THE SUB GRADE SHALL HAVE A MINIMUM BEARING CAPACITY OF 100 kPa.
   - FILL IN EMBANKMENTS SHALL BE KEYED 150mm INTO NATURAL GROUND.
   - THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 200mm.
   - EACH LAYER SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95% STD. IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS IS ACHIEVED.
7. WHERE THE ABOVE REQUIREMENTS CANNOT BE ACHIEVED THE ENGINEER SHALL BE CONSULTED AND THE FORMATION SHALL BE PROOF ROLLED UNDER SUPERVISION OF THE ENGINEER TO CONFIRM AN APPROVED BASE.
8. BATTERS SHALL BE SET TO A SAFE ANGLE OF REPOSE IN ACCORDANCE WITH THE BCA VOL 2 AS INDICATED BELOW.

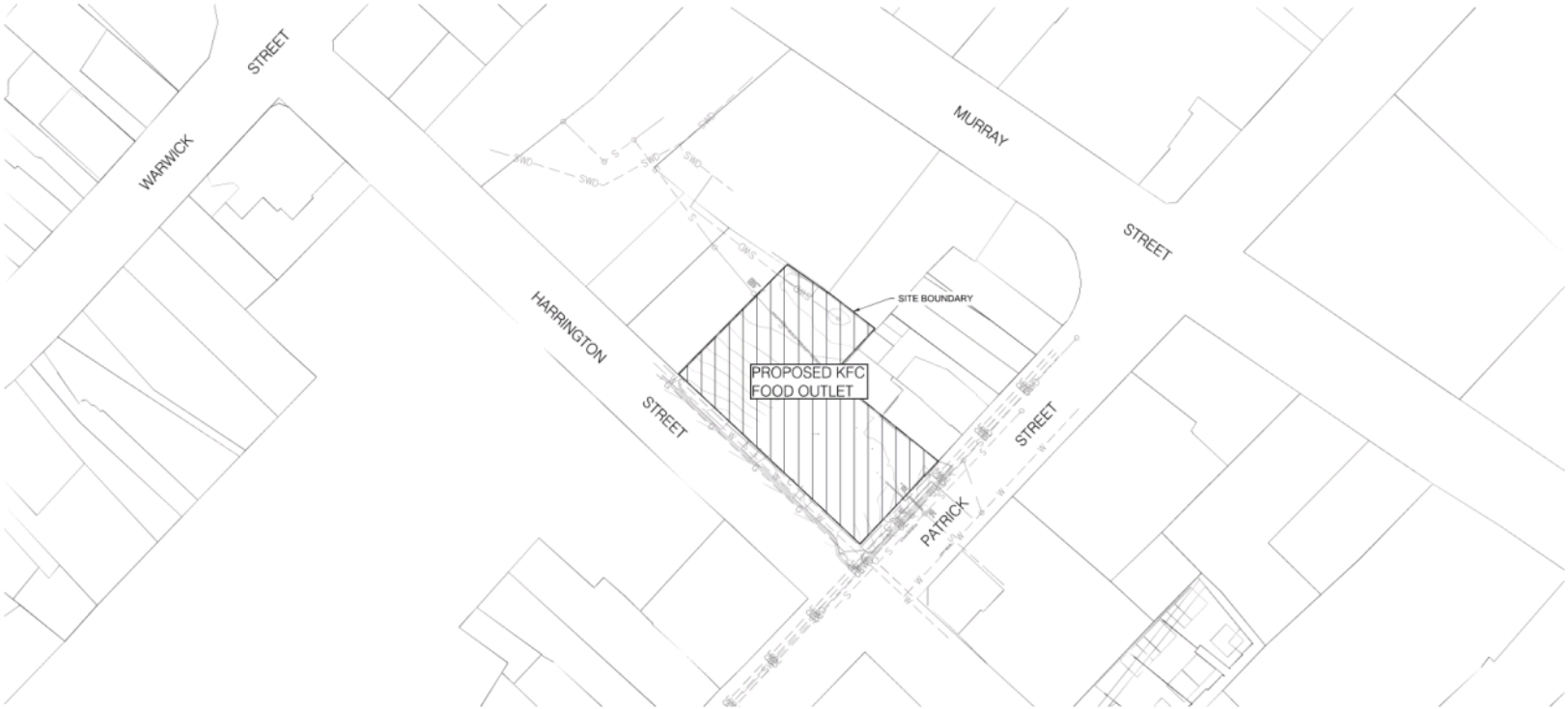
SOIL TYPE (* REFER BCA 3.2.4)		EMBANKMENT SLOPES H:L	
		COMPACTED FILL	CUT
STABLE ROCK (R*)		2:3	0:1
SAND (A*)		1:2	1:2
SILT (P*)		1:4	1:4
CLAY	FIRM CLAY	1:2	1:1
	SOFT CLAY	NOT SUITABLE	2:3
SOFT SOILS (P)		NOT SUITABLE	NOT SUITABLE

NOTE: WHERE SITE CONDITIONS ARE UNSUITABLE FOR A BATTERED BANK CONSULT THE ENGINEER FOR A SUITABLE RETAINING WALL DESIGN. EMBANKMENTS THAT ARE TO BE LEFT EXPOSED MUST BE STABILISED BY VEGETATION OR SIMILAR WORKS TO PREVENT SOIL EROSION.

DRAINAGE AND SERVICES NOTES:

1. ALL WORKS ASSOCIATED WITH PUBLIC STORMWATER INFRASTRUCTURE IS TO BE CARRIED OUT IN ACCORDANCE WITH IPWEA (TAS) LGAT STANDARD DRAWINGS AND SPECIFICATION AND TO THE SATISFACTION OF COUNCIL.
2. ALL WORKS ASSOCIATED WITH PUBLIC SEWER AND WATER IS TO BE CARRIED OUT IN ACCORDANCE WITH THE WSA PARTS 02 & 03 WATER AND SEWERAGE CODES OF AUSTRALIA AND TO THE SATISFACTION OF TASWATER.
3. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY THE REGULATING AUTHORITY AT COST TO BUILDER UNLESS APPROVED OTHERWISE.
4. HYDRAULIC LAYOUT TO BE COORDINATED WITH OTHER SERVICES. HYDRAULIC LAYOUT AS SHOWN IS NOTIONAL. LAYOUT TO BE CONFIRMED ON SITE.
5. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS. ANY DISCREPCIES IN LEVELS TO BE REPORTED TO ALDANMARK ENGINEERS FOR CHECKING PRIOR TO COMMENCEMENT OF WORKS.
6. SERVICES MATERIALS, INSTALLATION & TESTING SHALL COMPLY WITH AS3500 AND THE NCC VOLUME 3 (PCA)
7. INSTALL ALL AG DRAINS TO THE REQUIREMENTS OF AS3500 AND PART TP2 OF THE NCC VOLUME 3 (PCA)
8. PAVEMENT AND HARDSTAND AREAS SHALL FALL AT A MINIMUM OF 1% (1:100) TOWARD AN APPROVED DISCHARGE POINT.
9. ALL PIPE WORK UNDER TRAFFICABLE AREAS, INCLUDING DRIVEWAYS, IS TO BE BACKFILLED WITH COMPACTED FCR.
10. DRAINAGE PIPES TO BE MIN. uPVC CLASS SN4, PIPES UNDER TRAFFICABLE AREAS TO BE DN 100 U.N.O.
11. MINIMUM GRADES FOR DRAINAGE PIPES SHALL BE 1% FOR STORMWATER AND 1.67% FOR SEWER U.N.O.
12. MINIMUM COVER FOR DRAINAGE PIPES SHALL BE 300mm FOR STORMWATER AND 500mm FOR SEWER U.N.O.
13. STORMWATER MAINS TO BE MINIMUM DWV CLASS SN8 SN10 RRJ OR APPROVED EQUIVALENT UNLESS NOTED OTHERWISE.
14. WATER PIPES TO BE MIN. ENDS POLY PIPA AND FITTINGS TO BE MIN. CLASS 16 U.N.O.
15. WATER CONNECTIONS SHALL BE PROVIDED WITH METERAGE AND BACKFLOW PREVENTION AS PER TASWATER STANDARD DRAWING TSD-W-0002.
16. ALL PIPEWORK TO BE INSPECTED BY ALDANMARK PRIOR TO BACKFILL.
17. PIT DIMENSIONS SHOWN HAVE BEEN DESIGNED BY PIT CAPACITY TABLES. THESE PITS MAY NEED TO BE INCREASED IN MINIMUM INTERNAL SIZE DUE TO THE DEPTH AS PER AS3500.3 AS PER TABLE BELOW WHICH IS THE CONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE TO AS3500

DEPTH TO INVERT OF OUTLET		MINIMUM INTERNAL DIMENSIONS mm	
		WIDTH	LENGTH
	≤600	450	450
>600	≤900	600	600
>900	≤1200	600	900
>1200		900	900



SITE LOCALITY PLAN
SCALE 1:500 (A1)

THIS DRAWING MUST ONLY BE DISTRIBUTED IN FULL COLOUR. ALDANMARK CONSULTING ENGINEERS ACCEPTS NO LIABILITY ARISING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.

WARNING OF UNDERGROUND SERVICES
THE LOCATION OF UNDER GROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT LOCATION SHOULD BE PROVEN ON SITE BY THE RELEVANT AUTHORITIES. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN.

REV.	DESCRIPTION	DATE	QA CHECK
B	ISSUE FOR APPROVAL	26/06/2020	MW
A	ISSUE FOR APPROVAL	18/06/2020	MG

DRAWN: TM
DRAWING CHECK: MB
DESIGNED: TM
DESIGN CHECK: MW
CERTIFIED: MG

PRELIMINARY COPY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

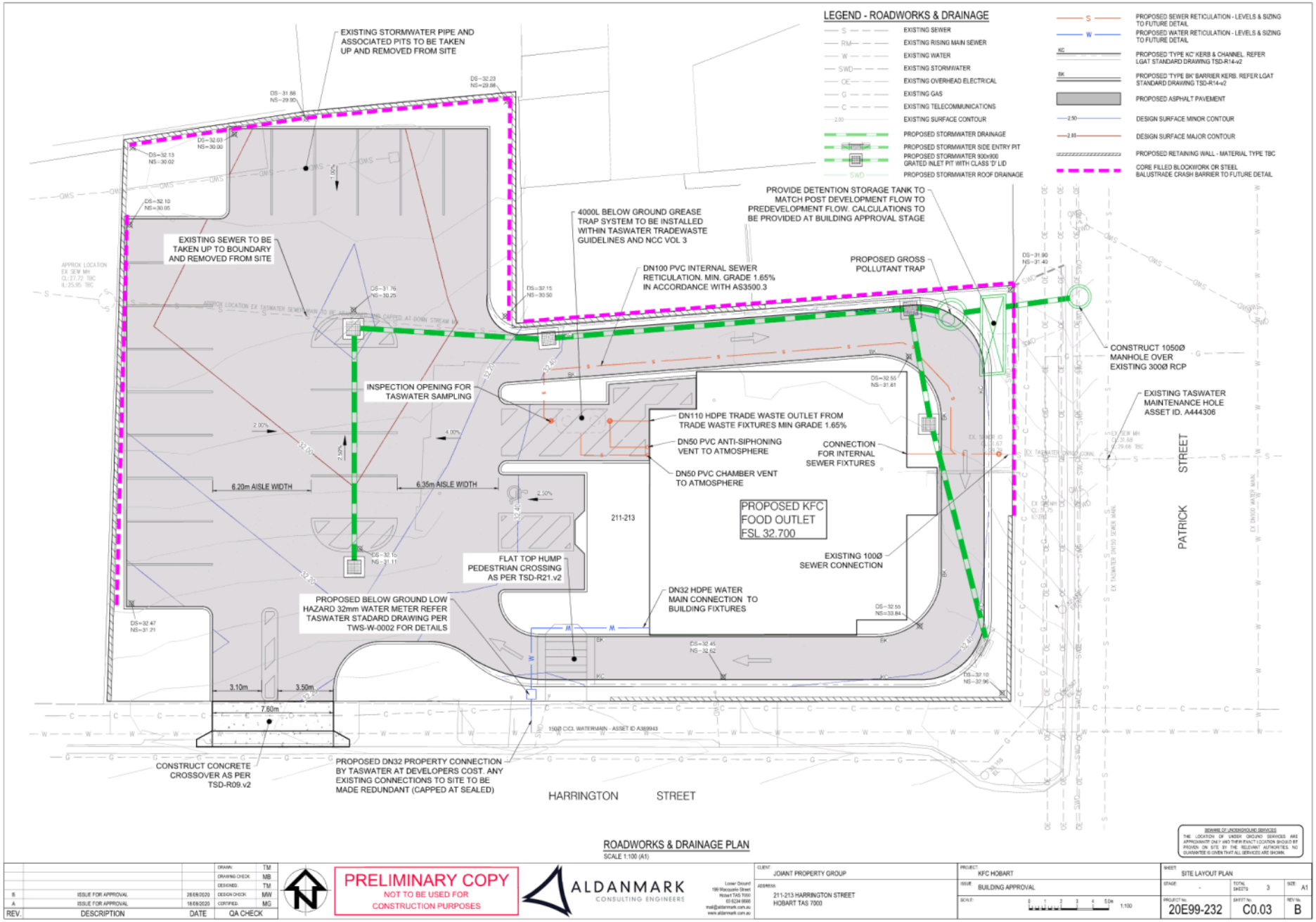
ALDANMARK CONSULTING ENGINEERS

Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 9595
mail@aldanmark.com.au
www.aldanmark.com.au

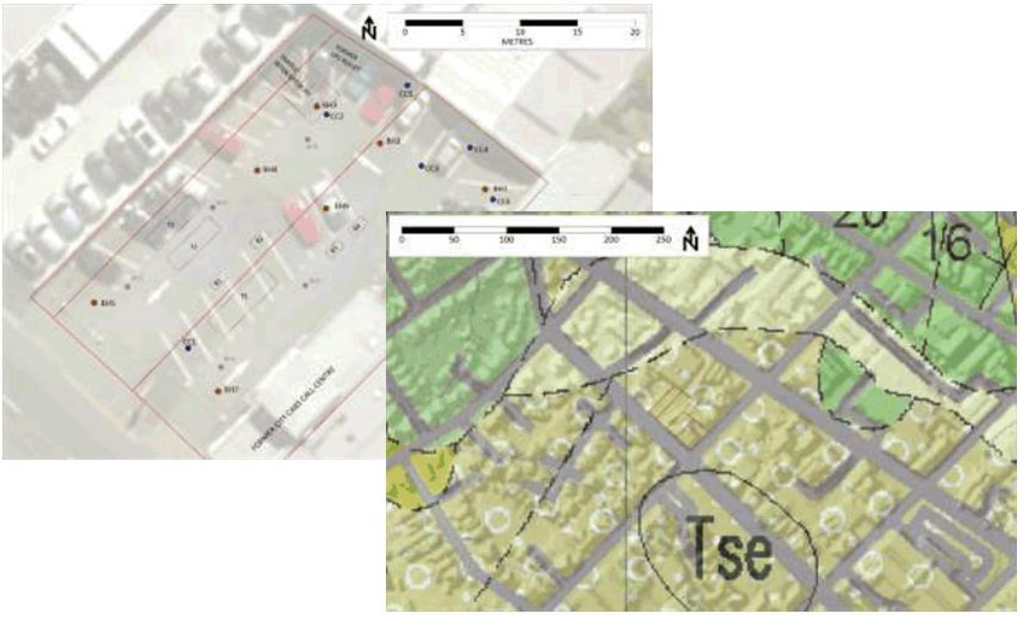
CLIENT: JOIANT PROPERTY GROUP
ADDRESS: 211-213 HARRINGTON STREET HOBART TAS 7000

PROJECT: KFC HOBART
ISSUE: BUILDING APPROVAL
SCALE: 1:500

SHEET: LOCALITY PLAN & NOTES
STAGE: -
TOTAL SHEETS: 3
SIZE: A1
PROJECT No: 20E99-232
SHEET No: C0.02
REV No: B


LEGEND - ROADWORKS & DRAINAGE
EXISTING SEWER
EXISTING RISING MAIN SEWER
EXISTING WATER
EXISTING STORMWATER
EXISTING OVERHEAD ELECTRICAL
EXISTING GAS
EXISTING TELECOMMUNICATIONS
EXISTING SURFACE CONTOUR
PROPOSED STORMWATER DRAINAGE
PROPOSED STORMWATER SIDE ENTRY PIT
PROPOSED STORMWATER 900x900 GRATED INLET PIT WITH CLASS 'D' LID
PROPOSED STORMWATER ROOF DRAINAGE
PROPOSED SEWER RETICULATION - LEVELS & SIZING TO FUTURE DETAIL
PROPOSED WATER RETICULATION - LEVELS & SIZING TO FUTURE DETAIL
PROPOSED 'TYPE KC' KERB & CHANNEL. REFER LGAT STANDARD DRAWING TSD-R14-v2
PROPOSED 'TYPE BK' BARRIER KERB. REFER LGAT STANDARD DRAWING TSD-R14-v2
PROPOSED ASPHALT PAVEMENT
DESIGN SURFACE MINOR CONTOUR
DESIGN SURFACE MAJOR CONTOUR
PROPOSED RETAINING WALL - MATERIAL TYPE TBC
CORE FILLED BLOCKWORK OR STEEL BALUSTRADE CRASH BARRIER TO FUTURE DETAIL
EXISTING STORMWATER PIPE AND ASSOCIATED PITS TO BE TAKEN UP AND REMOVED FROM SITE
EXISTING SEWER TO BE TAKEN UP TO BOUNDARY AND REMOVED FROM SITE
4000L BELOW GROUND GREASE TRAP SYSTEM TO BE INSTALLED WITHIN TASWATER TRADEWASTE GUIDELINES AND NCC VOL 3
PROVIDE DETENTION STORAGE TANK TO MATCH POST DEVELOPMENT FLOW TO PREDEVELOPMENT FLOW. CALCULATIONS TO BE PROVIDED AT BUILDING APPROVAL STAGE
DN100 PVC INTERNAL SEWER RETICULATION. MIN. GRADE 1.65% IN ACCORDANCE WITH AS3500.3
PROPOSED GROSS POLLUTANT TRAP
CONSTRUCT 1050Ø MANHOLE OVER EXISTING 300Ø RCP
EXISTING TASWATER MAINTENANCE HOLE ASSET ID. A444306
INSPECTION OPENING FOR TASWATER SAMPLING
DN110 HDPE TRADE WASTE OUTLET FROM TRADE WASTE FIXTURES MIN GRADE 1.65%
DN50 PVC ANTI-SIPHONING VENT TO ATMOSPHERE
CONNECTION FOR INTERNAL SEWER FIXTURES
DN50 PVC CHAMBER VENT TO ATMOSPHERE
6.20m AISLE WIDTH
6.35m AISLE WIDTH
211-213
PROPOSED KFC FOOD OUTLET FSL 32.700
EXISTING 100Ø SEWER CONNECTION
FLAT TOP HUMP PEDESTRIAN CROSSING AS PER TSD-R21.v2
PROPOSED BELOW GROUND LOW HAZARD 32mm WATER METER REFER TASWATER STADARD DRAWING PER TWS-W-0002 FOR DETAILS
DN32 HDPE WATER MAIN CONNECTION TO BUILDING FIXTURES
3.10m
3.50m
7.60m
CONSTRUCT CONCRETE CROSSOVER AS PER TSD-R09.v2
PROPOSED DN32 PROPERTY CONNECTION BY TASWATER AT DEVELOPERS COST. ANY EXISTING CONNECTIONS TO SITE TO BE MADE REDUNDANT (CAPPED AT SEALED)
HARRINGTON STREET
PATRICK STREET
ROADWORKS & DRAINAGE PLAN
SCALE 1:100 (A1)
PRELIMINARY COPY
NOT TO BE USED FOR CONSTRUCTION PURPOSES
ALDANMARK CONSULTING ENGINEERS
JOIANT PROPERTY GROUP
211-213 HARRINGTON STREET HOBART TAS 7000
KFC HOBART
BUILDING APPROVAL
SITE LAYOUT PLAN
20E99-232
C0.03
B
ISSUE FOR APPROVAL
ISSUE FOR APPROVAL
REV.
DESCRIPTION
DATE
QA CHECK

GEO-ENVIRONMENTAL
SOLUTIONS



ENVIRONMENTAL SITE ASSESSMENT

209-215 HARRINGTON STREET, HOBART

REVISED SEPTEMBER 2020

Geo Environmental Solutions – GES

DOCUMENT CONTROL

Title	Version	Date	Author	Reviewed By
Environmental Site Assessment, 209-215 Harrington Street, Hobart	Version 1	September 2018	Kris Taylor	JP Cumming
Environmental Site Assessment, 209-215 Harrington Street, Hobart, Revised September 2020	Version 2	29th September 2020	Mark Downie	JP Cumming

1 EXECUTIVE SUMMARY

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at 209 to 215 Harrington Street, Hobart - hereby referred to as 'The Site'. GES was commissioned by George Walker of 6ty Architecture on behalf of his client Joiant Property Group to conduct the site assessment.

The requirement for an environmental site assessment has been triggered by the interim planning scheme (IPS) contaminated site overlay.

The site was previously owned by City Cabs Co-Operative Society Ltd. and formerly operated as a taxi call center, parking and re-fueling depot from approximately 1970 until 2006. It is understood that all petroleum- related infrastructure was removed from the site in 2006. A triple interceptor pit remains on the site which is believed to have been associated with a car wash at the site.

Previous environmental investigations, conducted by SEMF Pty Ltd (SEMF) and Coffey Environments (Coffey) in 2007 historically identified a dissolved phase petroleum hydrocarbon plume in the groundwater beneath the eastern corner of the site.

The following is proposed at the site:

- It is proposed that the site remains as commercial land use.
- The proposal is for a drive through fast food outlet which will encompass all existing titles.
- There will be demolition of existing buildings on the site.
- There will be no additional excavations on the site aside from those required for foundations and services trenches.
- The Finished Floor Level (FFL) of the proposed building, car parking and drive-through on the site will be higher than the current ground level of the site.

The scope of works of this ESA was to review the previous ESA (GES 2018) and update in line with current plans for the site. The previous ESA undertook the following works:

- Identify areas of concern and contaminants of concern through a desktop assessment;
- Collect groundwater from existing groundwater monitoring wells at the site and sample for contaminants of concern to assess potential onsite and potential offsite impact;
- Detail specific onsite human health risk and environmental impacts which may source from any contaminated groundwater;
- Drill nine (9) soil bores at the site to identify potential human health risk to onsite receptors from potential contamination impacted soil;
- Assess all risks with respect to proposed future land use which includes site demolition, soil excavation and commercial building development;
- Assess potential impact to surrounding offsite receptors; and
- Develop a conceptual site model (CSM) for the site and offsite if applicable to assess specific potential ecosystem and human health receptors.

The following contaminants have been identified based on the current and historical site investigations:

- PAH compounds in soil (including benzo(a)pyrene) and various heavy metals sourcing from the interceptor trap;
- Petroleum hydrocarbons in soil sourcing from former underground storage tanks;
- Hydrocarbon impact historically identified in the aquifer at the site has not been detected in this assessment; and
- Although not all hydrocarbon impacted wells could be sampled, no further vapour intrusion assessment is required.

Based on an assessment of soil, groundwater and soil petroleum hydrocarbon vapour at the site, a human health risk has not been identified to the either of the following receptors:

- Site development workers;
- Future site users;
- Future site trench workers

Management measures need to be put in place to manage offsite sediment transport from stormwater and vehicle trafficking.

Provided the recommendations herein are implemented, the following conclusions can be made:

- A risk to potential receptors has not been identified during and after development.
- All samples collected at the site are below threshold concentrations for assessing risk to human health;
- No particular health and safety issues are identified which may originate from onsite contamination activities;
- Other than advice provided within the recommendations section of this report, there are no specific remediation and protection measures required to be implemented before excavation commences;
- GES advise that during site excavation works for site redevelopment, there is a low risk that site contamination will present an environmental risk, and these risks can be mitigated by a soil and water management plan (SWMP).

The soil investigated was predominantly Level 1 material (Clean Fill), with some samples yielding results of Level 2 and Level 3 materials.

We suggest that certified clean fill is used to bring the site up to the desired 32.75 m AHD FFL, and any excavations of material on site below the introduced clean fill should be stockpiled and tested against IB105 guidelines to determine if it is able to be reused onsite (if confirmed as clean fill), or disposed of at a suitable facility in line with the results of testing against IB105.

In summary, if recommendations herein are implemented, based on the adopted land used class, there is a low likelihood that residual contamination at the site will present any risk to human health or the environment.

Table of Contents

DOCUMENT CONTROL 2

1 EXECUTIVE SUMMARY I

2 ABREVIATIONS VIII

3 INTRODUCTION 1

3.1 GENERAL 1
3.2 BACKGROUND 2
3.3 SITE LAYOUT 2
3.4 SITE DETAILS 4
3.5 INVESTIGATION OBJECTIVES 4
3.6 SCOPE OF WORKS 5

4 PLANNING 5

4.1 PROPOSED SITE DEVELOPMENT WORKS 5
4.2 INTERIM PLANNING SCHEME 7
4.2.1 ACCEPTABLE SOLUTIONS 7
4.2.2 EXCAVATION WORKS E2.6.2 P1 7
4.2.3 STATEMENT OF SUITABILITY 7

5 DESKTOP STUDY 8

5.1 SITE WALKOVER 8
5.1.1 SURFACE COVERINGS 8
5.1.2 SIGNS OF CONTAMINATION 8
5.2 MRT GEOLOGY MAPPING 8
5.3 SITE TOPOGRAPHY, DRAINAGE & HYDROGEOLOGY 8
5.4 HISTORICAL AERIAL PHOTOGRAPHY INTERPRETATION 9
5.5 PREVIOUS SITE INVESTIGATIONS 16
5.5.1 SITE INFRASTRUCTURE SUMMARY 16
5.5.2 SEMF 2007 16
5.5.3 COFFEY ENVIRONMENTS 2007 16
5.6 GROUNDWATER 17
5.6.1 POTENTIAL UP-GRADIENT CONTAMINATION SOURCES 17
5.6.2 DOWNGRADIENT ECOSYSTEM RECEPTORS 17
5.6.3 WATER BORE USERS 17
5.7 POTENTIAL CONTAMINATION ISSUES 20
5.7.1 AREAS OF POTENTIAL CONCERN 20
5.7.2 CONTAMINANTS OF POTENTIAL CONCERN 21

6 FIELD INVESTIGATION PROCEDURES 21

6.1 WORKS SUMMARY 21
6.2 SOIL INVESTIGATION 23
6.2.1 BOREHOLE DRILLING 23
6.2.2 SOIL SAMPLING 23

6.2.3 SOIL ANALYSIS 24
6.3 GROUNDWATER ASSESSMENT 24
6.3.1 MONITORING WELL ESTABLISHMENT 24
6.3.2 MONITORING WELL DEVELOPMENT AND SLUG TESTING 24
6.3.3 MONITORING WELL GAUGING AND SAMPLING 25
6.3.4 GROUNDWATER ANALYSIS 25
6.4 SOIL VAPOR ASSESSMENT 25

7 QUALITY CONTROL 26

7.1 FIELD 26
7.2 LABORATORY 27
7.3 QUALITY ASSURANCE AND QUALITY CONTROL OUTPUTS 27

8 FIELD INVESTIGATION FINDINGS 28

8.1 SOIL BORES 28
8.1.1 GEOLOGICAL INTERPRETATION 28
8.1.2 GRAIN & DEPTH CLASS INTERPRETATION 28
8.1.3 SOIL CONTAMINATION OBSERVATIONS 29
8.2 GROUNDWATER 29
8.2.1 AQUIFER INTERPRETATION 29
8.2.2 GROUNDWATER GAUGING 29
8.2.3 HYDRAULIC GRADIENT AND FLOW DIRECTION 30
8.2.4 GROUNDWATER PHYSIOCHEMISTRY 31
8.2.5 PSH & GROUNDWATER CONTAMINATION OBSERVATIONS 31

9 SOIL ECOLOGICAL IMPACT ASSESSMENT 33

9.1 PROTECTED ENVIRONMENTAL VALUES 33
9.2 NEPM (2013) GUIDELINES 33
9.3 GUIDELINES 34
9.3.1 ECOLOGICAL SCREENING LEVELS 34
9.3.2 ECOLOGICAL INVESTIGATION LEVELS 34
9.4 FINDINGS 34
9.4.1 ECOLOGICAL SCREENING LEVELS 34
9.4.2 ECOLOGICAL INVESTIGATION LEVELS 36

10 GROUNDWATER ECOLOGICAL ASSESSMENT 37

10.1 HYDROCARBON PLUME OVERVIEW 37
10.2 ECOLOGICAL RISK 37

11 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT 40

11.1 GUIDELINES 40
11.1.1 LAND USE CLASSIFICATION 40
11.1.2 ADOPTED LAND USE CLASSIFICATION 40
11.1.3 HEALTH INVESTIGATION & SCREENING LEVELS 41
11.2 FINDINGS 41
11.2.1 DERMAL CONTACT - PETROLEUM HYDROCARBONS 41
11.2.2 DUST INHALATION & SOIL INGESTION 41

12 INDOOR INHABITANT PVI ASSESSMENT – HSL'S 45

12.1 LAND USE CLASS 45
12.2 SELECTED MEDIA FOR ASSESSING PVI RISK 46
12.3 SOIL 46
12.3.1 LAND USE CLASS 46
12.3.2 FINDINGS 46
12.4 GROUNDWATER 48
12.4.1 LNAPL CLASSIFICATION 48
12.4.2 HSL GUIDELINES 48
12.4.3 FINDINGS 48

13 TRENCH WORKER PVI ASSESSMENT – HSL'S 50

13.1 CLASSIFICATION 50
13.2 FINDINGS 50
13.2.1 SOIL 50

14 SOIL DISPOSAL ASSESSSMENT 52

14.1.1 GUIDELINES 52
14.1.2 FINDINGS 52

15 CONCEPTUAL SITE MODEL 54

15.1 PRIMARY SOURCES OF CONTAMINATION 54
15.1.1 POTENTIAL PRIMARY SOURCES 54
15.1.2 CONFIRMED PRIMARY SOURCES 54
15.2 POTENTIAL SECONDARY SOURCES OF CONTAMINATION 54
15.2.1 SOIL 54
15.2.2 GROUNDWATER 54
15.3 IDENTIFIED SECONDARY SOURCE OF CONTAMINATION 55
15.3.1 SOIL 55
15.3.2 GROUNDWATER 55
15.4 POTENTIAL RECEPTORS 55
15.4.1 POTENTIAL ONSITE RECEPTORS 55
15.4.2 POTENTIAL OFFSITE RECEPTORS 55
15.5 TRANSPORT MECHANISMS 55
15.6 EXPOSURE ROUTES 56
15.6.1 INCOMPLETE CONTAMINANT EXPOSURE PATHWAYS 56
15.6.2 POTENTIAL PATHWAYS 56
15.6.3 PLAUSIBLE CONTAMINANT EXPOSURE PATHWAY DETAILS 57

16 CONCLUSIONS 59

16.1 DESKTOP ASSESSMENT 59
16.2 ADOPTED GUIDELINE SETTINGS 59
16.3 SOIL ASSESSMENT 59
16.4 GROUNDWATER ASSESSMENT 59
16.5 PROPOSED DEVELOPMENT WORKS 60

17 RECOMMENDATIONS 60

REFERENCES 61

LIMITATIONS STATEMENT 63

APPENDIX 1 GES STAFF 64

APPENDIX 2 SITE PLAN FOR PROPOSED DEVELOPMENT (SOURCE VIOTO ARCHITECTS) 65

APPENDIX 3 SITE PHOTOGRAPHS 73

APPENDIX 4 REGISTERED WATER BORE DATABASE 78

APPENDIX 5 EQUIPMENT (PID METER) CALIBRATION CERTIFICATES 85

APPENDIX 6 LABORATORY CHAIN OF CUSTODY (COC) 87

APPENDIX 7 QUALITY CONTROL 94

APPENDIX 8 SOIL BORE LOGS 154

APPENDIX 9 GROUNDWATER PURGE RECORDS 164

APPENDIX 10 SOIL & GROUNDWATER CERTIFICATE OF ANALYSIS 167

APPENDIX 11 CRC CARE TECHNICAL REPORT 10 HSL APPLICATION CHECKLIST 195

Figures

Figure 1 Site Location 1
Figure 2 Existing Site Layout 2
Figure 3 Proposed Site Development – image extracted from Locality Plan drawn by Vioto Architects 6
Figure 4 Mineral Resources Tasmania 1:25000 Scale Mapping (The LIST) 8
Figure 5 Surface Topography 9
Figure 6 Summary of Historical Investigation Points, Known Site Infrastructure Associated with Petroleum Storage and Use & Historical Analytical Results 18
Figure 7 Potential Upgradient Contaminating Activities 19
Figure 8 Regional Topography with Inferred Groundwater Flow Direction 20
Figure 9 Test Pit (TH1 the TH3) and Borehole (BH1 to BH3) Investigation Areas 22
Figure 10 Inferred Shallow Gravel Aquifer Confined Within the Alluvial Deposits. Aquifer Lithology Indicated Alongside Boreholes 32
Figure 11 Conceptual Site Model Identifying Contamination Source, Receptors and Transport Mechanisms/Exposure Routes 58

Tables

Table 1 Site Details 4
Table 2 Historical Aerial Photograph Review 10
Table 3 Summary of Site Investigation Work Dates 21
Table 4 Summary of Soil Sampling Methods 23
Table 5 Overview of Soil Analysis and Quality Control 24
Table 6 Summary of Monitoring Well Gauging and Sampling Procedures 25
Table 7 Overview of Groundwater Analysis and Quality Control 25
Table 8 Field QA/QC Procedures and Compliance 26
Table 9 Laboratory QA/QC Procedures and Compliance for Soil 27

TABLE 10 LABORATORY QA/QC PROCEDURES AND COMPLIANCE FOR GROUNDWATER 27
TABLE 11 STRATIGRAPHY AT THE SITE (DEPTHS INDICATE BASE OF HORIZON) 28
TABLE 12 SUMMARY OF GROUNDWATER GAUGING RESULTS 29
TABLE 13 SUMMARY OF GRAIN & DEPTH CLASS BASED ON USCS CLASSIFICATION 30
TABLE 14 SUMMARY OF INFERRED SITE GROUNDWATER FLOW DIRECTIONS AND RATES 30
TABLE 15 SUMMARY OF STABILISED GROUNDWATER PROPERTIES 31
TABLE 16 SUMMARY OF SOIL CONTAMINATES CONSIDERED AS PART OF THIS INVESTIGATION, BASED ON NEPM (2013) ASC 33
TABLE 17 ADOPTED LAND USE SCENARIO FOR THE VARIOUS SOIL BORES 34
TABLE 18 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED WITH ESL'S 35
TABLE 19 SOIL ANALYTICAL RESULTS COMPARED AGAINST ECOLOGICAL INVESTIGATION LEVELS 36
TABLE 20 SUMMARY OF VADOSE ZONE LITHOLOGY BASED ON USCS SYSTEM 38
TABLE 21 PAH CONCENTRATIONS IN GROUNDWATER COMPARED AGAINST NEPM 2013 THRESHOLD LIMITS FOR FRESH WATER ECOSYSTEMS AND DRINKING WATER 39
TABLE 22 SUMMARY OF LAND USE SETTING AND DENSITY FOR DETERMINING EXPOSURE RISK 40
TABLE 23 SUMMARY OF LAND USE CLASS ADOPTED FOR DEFINING SOIL ANALYSIS THRESHOLD LIMITS 40
TABLE 24 SUMMARY OF EXPOSURE PATHWAYS AND PRELIMINARY (TIER 1) METHODS FOR ASSESSING HUMAN EXPOSURE RISK 41
TABLE 25 SOIL ANALYTICAL RESULTS COMPARED AGAINST CRC CARE (FRIEBEL & NADEBAUM, 2011) GUIDELINES FOR DERMAL CONTACT 42
TABLE 26 SOIL ANALYTICAL RESULTS COMPARED AGAINST NEPM (2013) HEALTH INVESTIGATION LIMIT GUIDELINES 43
TABLE 27 SUMMARY OF LAND USE SETTING AND DENSITY FOR DETERMINING EXPOSURE RISK 45
TABLE 28 PREFERRED METHODS FOR DETERMINING SITE PVI RISK 46
TABLE 29 SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL A 47
TABLE 30 CLASSIFICATION USED TO ASSESS PETROLEUM VAPOUR INTRUSION RISK TO LOCAL RECEPTORS FROM SOIL 48
TABLE 31 SUMMARY OF GROUNDWATER CONCENTRATIONS COMPARED AGAINST CRC CARE (FRIEBEL & NADEBAUM, 2011) GUIDELINES FOR ASSESSING FOR THE PRESENCE OF LNAPL 49
TABLE 32 SUMMARY OF GROUNDWATER SAMPLES THAT EXCEEDED THRESHOLD HSL LIMITS 50
TABLE 33 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL'S FOR ASSESSING PVI RISK TO TRENCH WORKERS 51
TABLE 34 SUMMARY OF IB105 CLASSIFICATION GUIDELINES 52
TABLE 35 SOIL ANALYTICAL RESULTS COMPARED AGAINST IB105 INVESTIGATION LIMITS FOR SOIL DISPOSAL 53
TABLE 36 SUMMARY OF INCOMPLETE CONTAMINANT EXPOSURE PATHWAYS 56
TABLE 37 SUMMARY OF POTENTIAL COMPLETE CONTAMINANT EXPOSURE PATHWAYS 56

2 ABREVIATIONS

ADWG	Australian Drinking Water Guidelines
AEC	Areas of Environmental Concern
AHD	Australian Height Datum
ALS	Analytical Laboratory Services
ANZECC	Australia and New Zealand Environment and Conservation Council
AWQG	Australian Water Quality Guidelines
BGS	Below Ground Surface
BH	Borehole
BTEX	Benzene Toluene Ethylbenzene Xylene
COA	Certificate of Analysis
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CRC CARE	Corporative Research Centre for Contamination Assessment and Remediation of the Environment
CSM	Conceptual Site Model
DQO	Data Quality Objectives
DWS	Depth Water Struck
EC	Electrical Conductivity
EPA	Environmental Protection Authority
EPN	Environmental Protection Notice
ESA	Environmental Site Assessment
GDA94	Geocentric Datum of Australia 1994
GES	Geo-Environmental Solutions Pty. Ltd.
GME	Groundwater Monitoring Event
HIL	Health Investigation Levels
HSL	Health Screening Levels
IL	Investigation Levels
IN	Investigation Notice
IP	Interface Probe
LiDAR	Light Detection And Ranging
LOR	Limits of Reporting
MCRWBA	Minimum Construction Requirements for Water Bores in Australia
MDL	Mean Detection Limit
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measure
NHMRC	National Health and Medical Research Council
NRMMC	Natural Resource Management Ministerial Council
NL	Non Limiting
NRMMC	Natural Resource Management Ministerial Council

PAH	Poly-Aromatic Hydrocarbons
PCP	Physico-Chemical Parameters
PEV	Protected Environmental Values
PHC	Petroleum Hydrocarbons
PID	Photo-Ionisation Detector
PPA	Preferential (PVI) Pathways Assessment
PSH	Phase Separated Hydrocarbons
PVI	Petroleum Vapour Intrusion
Redox	Reduction / Oxidation Potential
RN	Remediation Notice
SCA	Site Contamination Assessment
SCM	Site Contamination Model
SWL	Standing Water Level
TDS	Total Dissolved Solids
TOC	Top of Casing
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
USCS	Unified Soil Classification System
VME	Vapour Monitoring Event
VP	Vapour Probe
WRG	Water Resource Group

3 INTRODUCTION

3.1 General

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at 209 to 215 Harrington Street, Hobart - hereby referred to as 'The Site'. The site location is presented in Figure 1.

GES was commissioned by George Walker of 6ty Architecture on behalf of his client Joiant Property Group to conduct the site assessment. The ESA was initially conducted with sampling in 2017 and reporting 2018 (GES 2018) for a proposal consisting of ground level commercial operations with a multi-story apartment complex above the ground level, and excavations for basement. This ESA is a revised version of GES (2018) to take into account a single story commercial operation without basement excavations currently proposed for the site.

This ESA has been prepared by a suitably qualified and experience practitioner in accordance with procedures and practices detailed in National Environmental Protection Measure (NEPM; 2013) guidelines and key regulations and policies identified in the References section of this document. Personnel engaged in preparing this ESA are listed in Appendix 1 along with their relevant qualifications and years of experience.

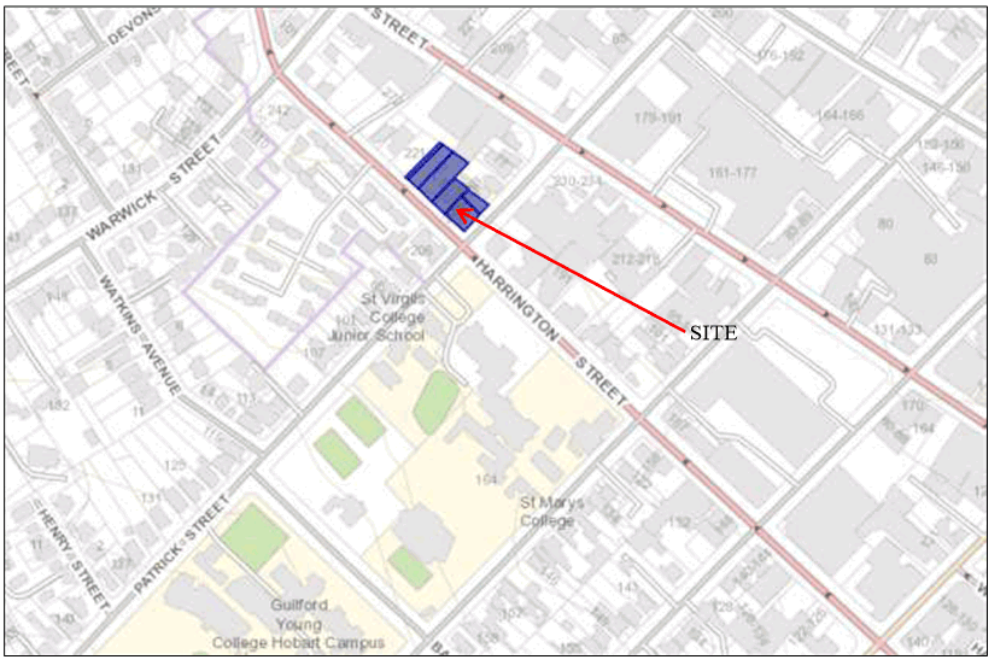


Figure 1 Site Location

3.2 Background

The site was previously owned by City Cabs Co-Operative Society Ltd. and formerly operated as a taxi call center, parking and re-fueling depot from approximately 1970 until 2006. It is understood that all petroleum- related infrastructure was removed from the site in 2006. A triple interceptor pit remains on the site which is believed to have been associated with a car wash at the site. Prior to its operation as the cab depot, the site use is unknown.

Previous environmental investigations conducted by SEMF Pty Ltd (SEMF) and Coffey Environments (Coffey) in 2007 historically identified a dissolved phase petroleum hydrocarbon plume in the groundwater beneath the eastern corner of the site. The plume has not been delineated to the north-east, east and south-east.

Residual soil impact at concentrations were identified above the former Underground Storage Tank (UST) in the eastern corner of the site at a minimum depth of 1 .4metres below ground surface (mgbs).

The ESA conducted by GES for a different proposal on the same site (GES 2018) found; no human health risk investigation limits exceeded at commercial land use levels, Ecological Screening Level (ESL) exceedances in three (3) of the thirty one (31) primary soil samples for hydrocarbons, and that the ecological risks can be mitigated by implementing a soil and water management plan to reduce the spread of onsite soils and water to any ecological receptors.

3.3 Site Layout

A schematic of the existing site layout is presented in Figure 2, Plate 1 & Plate 2.

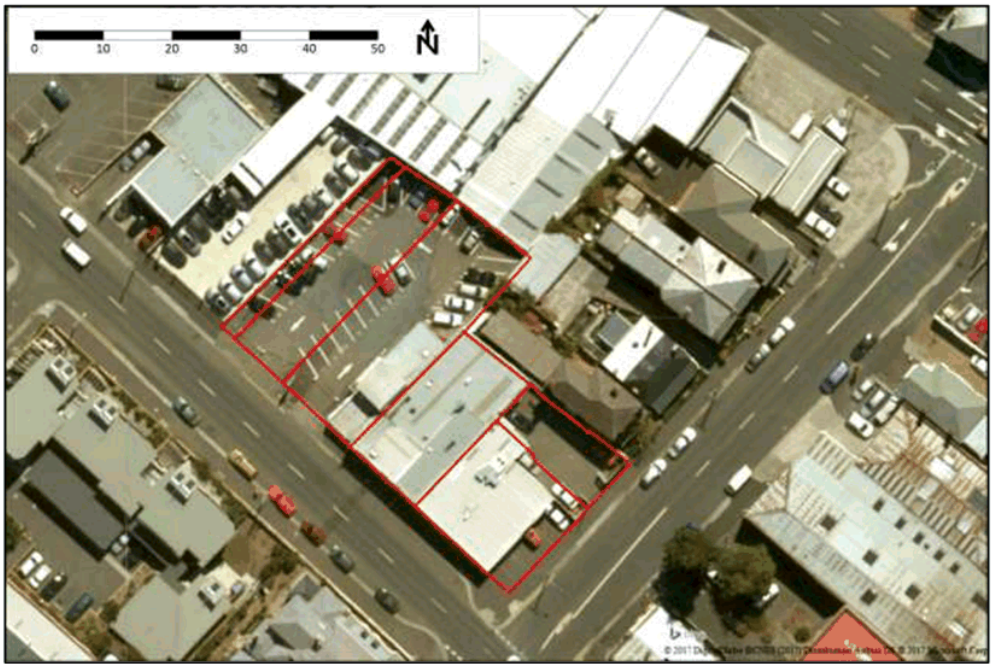


Figure 2 Existing Site Layout

Plate 1 Aerial View of The Site

Plate 2 Aerial View of The Site

3.4 Site Details

Site details are presented in Table 1.

Table 1 Site Details

SITE LOCATION: 209-215 Harrington Street, Hobart
INVESTIGATION AREA 209-215 Harrington Street only. Limits approximately defined by borehole extent
SITE ELEVATION & GRADIENT 28 to 32.5 m AHD with an average 15% gradient in local area to the north-east
SITE SURFACING The surface of the site is bitumen paved and with building slabs
TITLE REFERENCES The investigation area includes the following title references: CT 52394/1 (shared ROW with 221 Harrington St) CT52395/1 CT232390/1 CT203787/1 CT247958/1 CT197488/1
SITE OWNER CHAU NOMINEES PTY LTD
PREVIOUS LANDUSE Unknown
SITE SURROUNDING LAND ZONING Hobart Interim Planning Scheme 2015 23.0 Commercial (north) 11.0 Inner Residential (south)
SITE LAND USE - Commercial: Private Car Parking (825 m^2) Jackson Security offices (436 m^2) Industry Link Culinary School (220 m^2) Office car parking (260 m^2)
PROPOSED LAND USE Single story commercial use – drive through fast food outlet.
SURROUNDING LAND USE: NW – Car Yard & Printing Supplies Shop; SW – Residential; SE – Restaurant & Toy Shop; E – Vehicle Servicing Workshop; NE – Residential; N – Jacksons Motor Car Company

3.5 Investigation Objectives

The objective of this ESA was to:

- Determine the suitability of the site for the intended use;
- Review any historical contaminated site assessment reports or documents which may indicate previous land use which may have had involved contaminating activities
- Assess the following at the site:
  - Contaminants of Potential Concern (COPC's);
  - Areas of Environmental Concern (AEC); and
  - Human and Environmental health risk.
- Review soil and groundwater results from 2017 invasive investigation – previously reported in GES (2018) and updated for the revised development plan.
- Determine the potential for offsite impact from site contamination, and implications for offsite ecosystem receptors;
- Assess any environmental site assessment data gaps;
- Provide recommendations on what measures may need to be put in place to address any potential data gaps and to further assess contamination remediation and/or management (if required).

3.6 Scope of Works

The scope of works of this ESA was to revise the data relating to potential site contamination in the former ESA (GES 2018), and apply the data to the updated proposed use of the site. The scope of works undertaken for GES (2018) were:

- Identify areas of concern and contaminants of concern through a desktop assessment;
- Collect groundwater from existing groundwater monitoring wells at the site and sample for contaminates of concern to assess potential onsite and potential offsite impact;
- Detail specific onsite human health risk and environmental impacts which may source from any contaminated groundwater;
- Drill nine (9) soil bores at the site to identify potential human health risk to onsite receptors from potential contamination impacted soil;
- Assess all risks with respect to proposed future land use which includes site demolition, soil excavation and commercial building development;
- Assess potential impact to surrounding offsite receptors; and
- Develop a conceptual site model (CSM) for the site and offsite if applicable to assess specific potential ecosystem and human health receptors.

4 PLANNING

4.1 Proposed Site Development Works

The following is proposed at the site:

- It is proposed that the site remains as commercial land use.
- The proposal is for a drive through fast food outlet which will encompass all existing titles (site plan presented in Figure 3).
- There will be demolition of existing buildings on the site.
- The Finished Floor Level (FFL) of the proposed building, car parking and drive-through on the site is higher than the current ground level of the site, indicating that there will be no additional excavations on the site aside from those required for foundations and services trenches. The FFL is indicated as 32.75 m AHD in the Locality Plan drawn by Vioto Achitects and presented in Appendix 2, and the current ground level of the site is 28.0-32.5 (GES 2018).

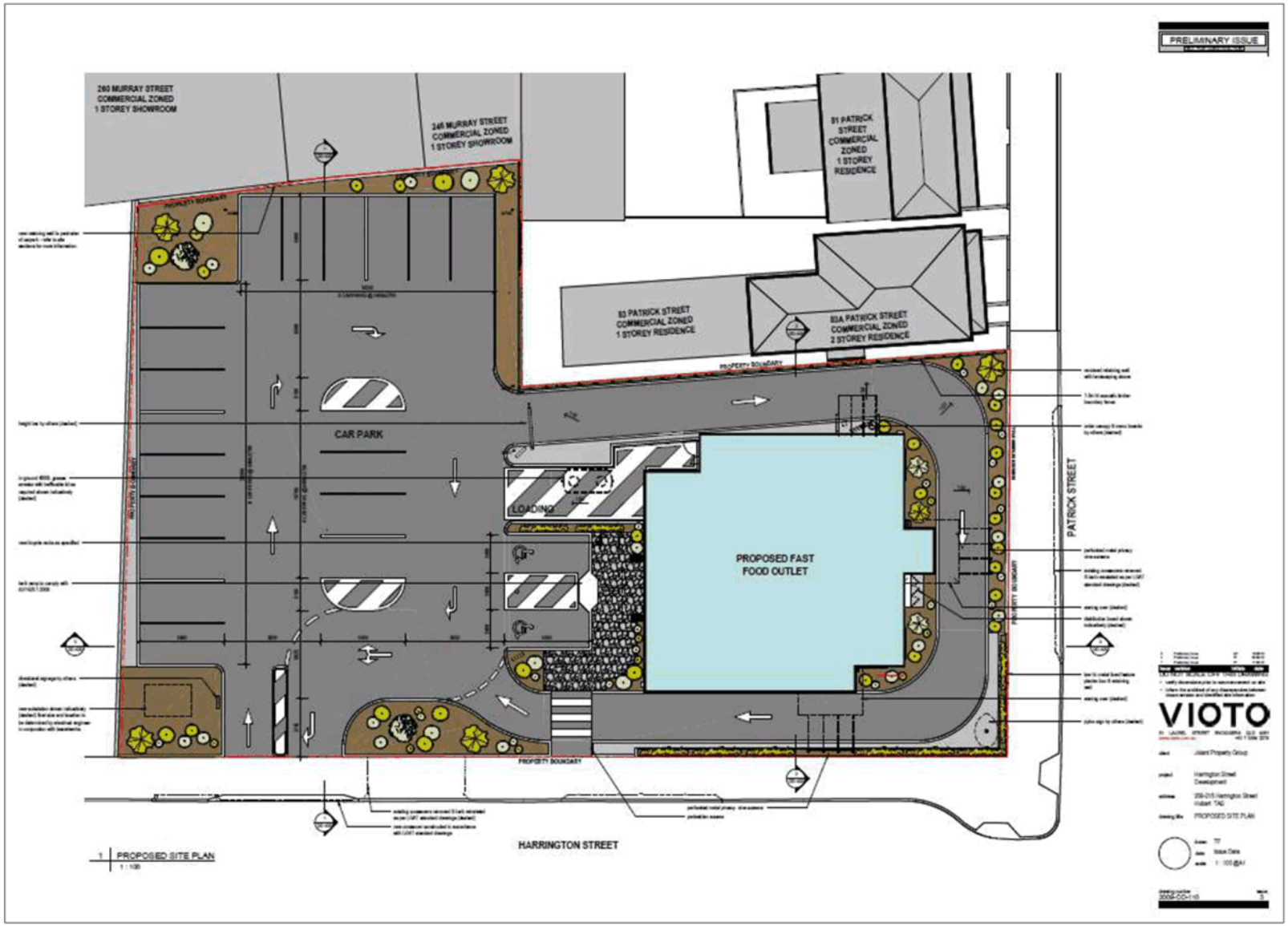


Figure 3 Proposed Site Development – image extracted from Locality Plan drawn by Vioto Architects

4.2 Interim Planning Scheme

4.2.1 Acceptable Solutions

As the history of the site suggests that potentially contaminating activities may have taken place on or near the site, for any future potential ***excavation*** at the site, there are no acceptable solutions to proposed works, and therefore E2.6.2 P1 performance criteria are to be addressed.

4.2.2 Excavation Works E2.6.2 P1

As there is proposed excavation works at the site, there are no acceptable solutions to proposed works, E2.6.2 P1 performance criteria are to be addressed. The performance criteria identify that the excavation works must not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human health and the environment that includes:

  i. an environmental site assessment;

  ii. any specific remediation and protection measures required to be implemented before excavation commences; and

  iii. a statement that the excavation does not adversely impact on human health or the environment.

4.2.3 Statement of Suitability

A statement based on the results of the Environmental Site Assessment that the excavation as part of the planned works will not adversely impact on human health or the environment is to be provided (subject to implementation of any identified remediation and/or protection measures as required).

5 DESKTOP STUDY

5.1 Site Walkover

A site walkover was completed by GES staff. Attention was paid mainly to the accessible paved areas of the site, and notice was taken of any spill locations or areas at the site that might present a source of potential contamination (site photographs are presented in Appendix 3).

5.1.1 Surface Coverings

The surface condition of bitumen across the site was generally good but may not reflect the previous site condition when it was operating as a City Cabs.

5.1.2 Signs of Contamination

No oily stains could be identified around the former City Cabs site. There was some staining around the waste bins in the small yard fronting on Patrick street.

5.2 MRT Geology Mapping

The geology of the site has been mapped on a 1:25,000 scale by Mineral Resources Tasmania (Figure 4) and is inferred to be underlain with:

- Tertiary age, poorly-consolidated interbedded claystone, sandstone and pebble conglomerate (Tse);

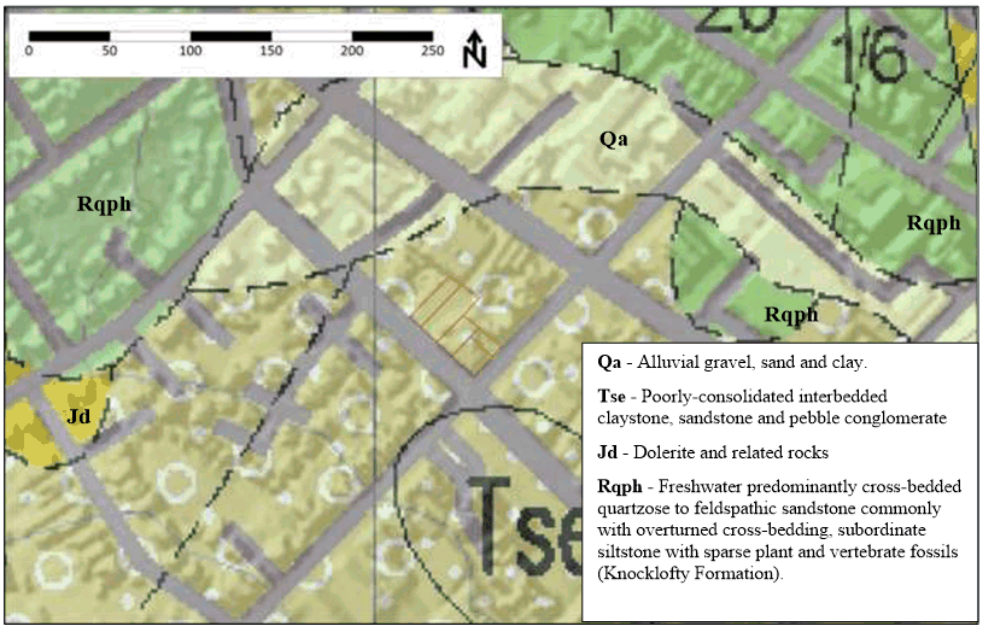


Figure 4 Mineral Resources Tasmania 1:25000 Scale Mapping (The LIST).

5.3 Site Topography, Drainage & Hydrogeology

The site ranges in elevation from 28 to 32.5 m AHD and has an average gradient of 15% to the north-east in local area. Some of the contours in the area are confused by cut and fill, with a likely fill of 1 m in the northern corner of the former City Cabs site and likely deep cuts of up to 2 m on the neighboring site to the northwest. There are surface water spoon drains and/or grates around the northern perimeter of the former City Cabs site and the western perimeter of the yard.

On a local scale, groundwater is inferred to be migrating to the northeast towards Jacksons Motor Company site within a perched aquifer and then to the east based on broad scale topographic trends (Figure 5).

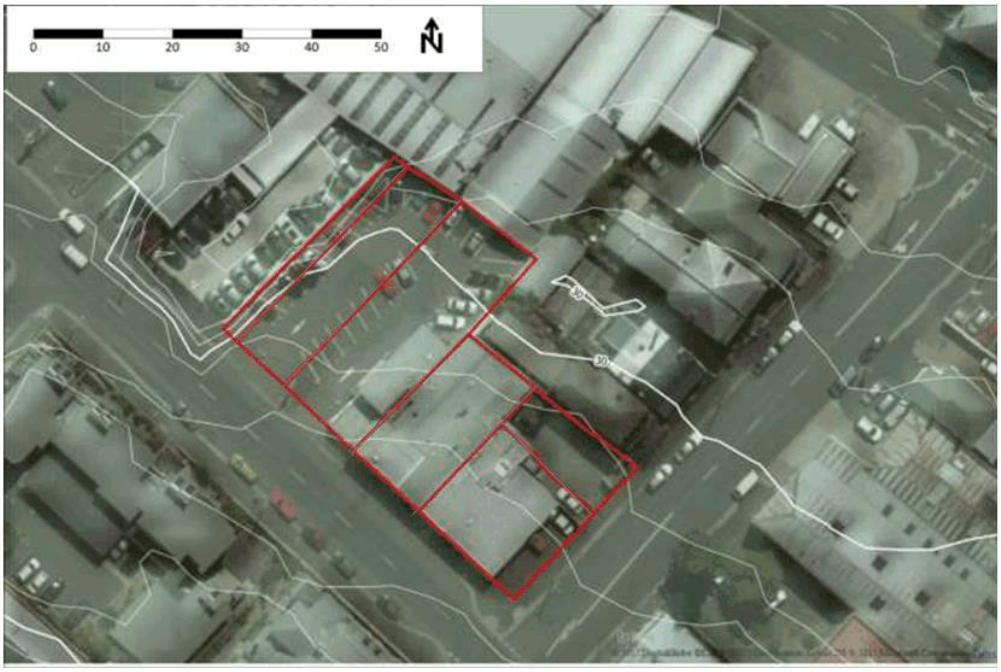


Figure 5 Surface Topography

5.4 Historical Aerial Photography Interpretation

Historical aerial photographs of the site were collated from the Department of Primary Industries, Parks, Water and Environment (DPIPWE).

Table 2 presents a summary of alterations to the site between photo events and the individual aerial photos are presented in Plate 3 to Plate 11.

Table 2 Historical Aerial Photograph Review

Photo	52394/1	52395/1	232390/1	203787/1	247958/1	197488/1
1957 Plate 3	Car wreckers.	Car wreckers.	Large historical residence. Large backyard with a couple of smaller sheds.	Large historical residence with many trees in the backyard.	Large residences with a small yard on the norther portion of the lot and a couple of conjoined outbuildings.	Small residence fronting on Patrick Street.
1958 Plate 4	As above	As above	As above	As above	As above	As above
1969 Plate 5	As above	As above	As above	The site building has been demolished and replaced with a shed covering the entire site except for three off-street carparks.	Possible car park off Harrington Street alongside the northern boundary (on the northern side of the residence).	Backyard looks to be paved. Residence remaining.
1973 Plate 6	As above	As above	The site appears to have been infilled and is possibly used as a commercial space with a small shed built on the southern boundary.	As above	A shed has been built in place of the carpark. The existing house and outbuilding have been retained.	As above with cars in the backyard and side lane.
1977 Plate 7	As above	As above	Very uniform looking cars present on the site may be taxi's.	The off-street carparks have been made under cover with a tall pitched roof as apparent in present day.	As above	Residence has been demolished. Used as a car parking/storage yard.
1989 Plate 8	Taxi car park, refueling & call center.	Taxi car park, refueling & call center. Pavement removed above UST	The taxi call center has been expanded to double the size with a smaller second level. A canopy has been placed over the bowsers.	As above	As above	Car parking
2007 Plate 9	Taxi car park, refueling & call center	Taxi car park, refueling & call center	As above	As above	All site buildings have been demolished and replaced with the existing Jacksons Security building.	As above
2016 Plate 10	Carpark	Carpark	The canopy has been deconditioned but the call center remains. The site has been converted into a carpark.	As above	As above	As above
2019 Plate 11	As above	As above	As above	As above	As above	As above

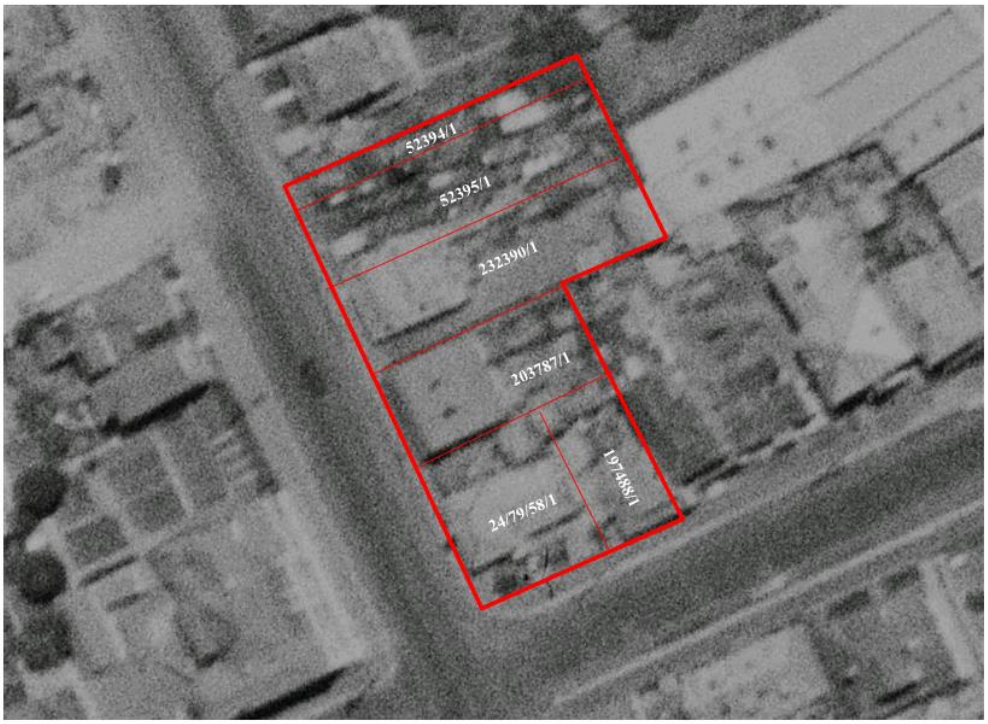


Plate 3 Historical Aerial Photograph, The Site 1957

Plate 4 Historical Aerial Photograph, The Site 1958

Plate 5 Historical Aerial Photograph, The Site 1969

Plate 6 Historical Aerial Photograph 1973

Plate 7 Historical Aerial Photograph 1977

Plate 8 The Site Aerial Photograph 1989

Plate 9 The Site Aerial Photograph 2007

Plate 10 The Site Aerial Photograph 2016

Plate 11 The Site Aerial Photography 2019 – Source Google Earth

5.5 Previous Site Investigations

The following environmental site assessments are known to have been conducted at the site:

- Connelly Environmental 2006 Analysis of validation samples: City Cabs: 215 Harrington Street, Hobart 7001. Letter report, dated 18 April 2006.
- SEMF 2006 City Cabs, 215-217 Harrington Street, Hobart, Environmental Site Assessment Report. Dated December 2006.
- SEMF 2007a BSG Electrical Pty. Ltd., 215-217 Harrington Street, Hobart, stage 2 Environmental Site Assessment Report. Dated August 2007.
- SEMF 2007b Heath Risk Assessment, City Cabs, 215-217 Harrington Street, Hobart. Dated 14 August 2007.
- Coffey Environments 2007. Health Risk Assessment. Former City Cabs Site 215-217 Harrington Street, Hobart, Tasmania. Prepared for BSH Electrical Pty Ltd 213 Harrington Street Hobart, Tasmania 7000, 31 October 2007.

The following reports, which contain information pertaining to the historical and current site conditions including soil and groundwater data, were reviewed for this assessment:

- SEMF 2007 Heath Risk Assessment, City Cabs, 215-217 Harrington Street, Hobart. Dated 14 August 2007.
- Coffey Environments 2007. Health Risk Assessment. Former City Cabs Site 215-217 Harrington Street, Hobart, Tasmania. Prepared for BSH Electrical Pty Ltd 213 Harrington Street Hobart, Tasmania 7000, 31 October 2007.

5.5.1 Site Infrastructure Summary

Coffey 2007 report details that all site underground petroleum storage system (UPSS) infrastructure which was historically present at the site has been decommissioned. A total of three underground storage tanks and four bowsers have been removed from the site. It is presumed that associated pipework has also been removed. There was no sign of the triple interceptor trap on the northern corner of the site.

5.5.2 SEMF 2007

The following can be concluded from the Health Risk Assessment at 215-217 Harrington Street:

- Given the limited opportunity for access to impacted soil, the HIL D investigation limits apply. Of the 16 soil samples collected from 6 soil bores (Figure 6) all heavy metal concentrations were below HIL D investigation limits for assessing commercial/industrial sites. NEPM 2013 HIL threshold for commercial sites are noted to have either increased or remain the same in the case of lead;
- There was minor occurrence of TPH C_6-C_9 type compounds detected in BH4-3.0 and BH5-2.9 which exceeded historical investigation limits, but are identified to be below NEPM 2013 F1 threshold investigation limits for assessing vapour intrusion risk on commercial/industrial sites for all soil types and depths;
- Benzene, toluene, xylene and ethylbenzene concentrations were below NEPM 2013 HSL D threshold limits for assessing vaporing intrusion risk for all soil types and depths,
- Based on the substances identified on site, their concentrations, and the isolated pockets in which they occur, SEMF concluded that the human health risk was very low, as such, acceptable.

5.5.3 Coffey Environments 2007

The following can be concluded from the Health Risk Assessment at 215-217 Harrington Street:

- The purpose of the Coffey HRA was to assess the potential health risks to on- and off-site populations associated with petroleum hydrocarbon impact identified in soil and groundwater based on non-sensitive commercial/industrial use of the site, and residential and commercial land uses of properties located hydraulically down-gradient;
- Coffey did not assess impacts from contaminants other than petroleum hydrocarbons or risks to off-site ecological receptors;
- Coffey identified soil and groundwater impact is associated with the storage of petroleum-based products at the site;

- Benzene, toluene and ethylbenzene concentrations (consistent with unleaded fuel) were highest in CC3, followed by CC5 and CC6. CC3 is adjacent to the former petroleum bowsers, and CC5 is downgradient (to the north) of the same bowsers;
- TRH C_{10} to C_{36} concentrations (consistent with diesel type fuel) are highest in CC5, followed by CC3, CC6 and CC2.
- Based on the distribution of the diesel contamination plume, it is apparent that groundwater may be migrating to the northeast (if the diesel leak is originated from the bowsers) or the east to north-east if the diesel leak originated from the diesel UST T2. This contrasts with Coffey inferred east to south easterly groundwater flow;
- Concentrations of contaminants in soil samples only exceeded both the DTAE (2006) Further Investigation Thresholds and the NEPM HIL F guideline for commercial industrial land use at one location;
- Coffey conducted a quantitative risk assessment and concluded that COPC concentrations identified in soil and groundwater, were not considered to present an unacceptable health risk to on-site and off-site commercial and maintenance workers and off-site residential occupants, based on the future non-sensitive commercial land use and commercial and residential properties hydraulically down-gradient of the site;
- Coffey noted that the triple interceptor pit was not investigated and potential hydrocarbon impact beneath this area is not known and is therefore considered to be a limitation of their assessment. Coffey concluded that if impact is detected in this area during redevelopment of the site, then an additional assessment of the potential health risks may be required;

5.6 Groundwater

5.6.1 Potential Up-Gradient Contamination Sources

There are no known potential contaminated sites upgradient of the site other than a service station on the corner of Hill Street and Patrick Street approximately 500 m to the southwest. Contouring indicates that groundwater from this service station is likely to divert to the east of the site. There are only residential dwellings and school hydraulically upgradient of the site.

5.6.2 Downgradient Ecosystem Receptors

It is inferred that groundwater at the site locally diverts to the northeast before intersecting the bottom of the valley 100 m to the north and following the Quaternary alluvial sediments along the former rivulet alignment towards the Derwent River marine ecosystem environmental setting. The total length of the course is anticipated to be approximately 800 m.

5.6.3 Water Bore Users

Mineral Resources Tasmania Registered water bores are presented in Appendix 4. The nearest registered groundwater bore to the site (bore ID 2864) is located approximately 2.5 km to the north of the site in a Jurassic dolerite fractured rock aquifer. The groundwater within that bore is marginally salty with a TDS value of 1800 ppm. It is improbable that the water bore would be used for drinking water purposes given the salinity. The groundwater in this bore is not expected to be entirely representative of the groundwater at the site. The Tertiary deposits around Hobart are typically quite salty, and similar or higher TDS values are expected.

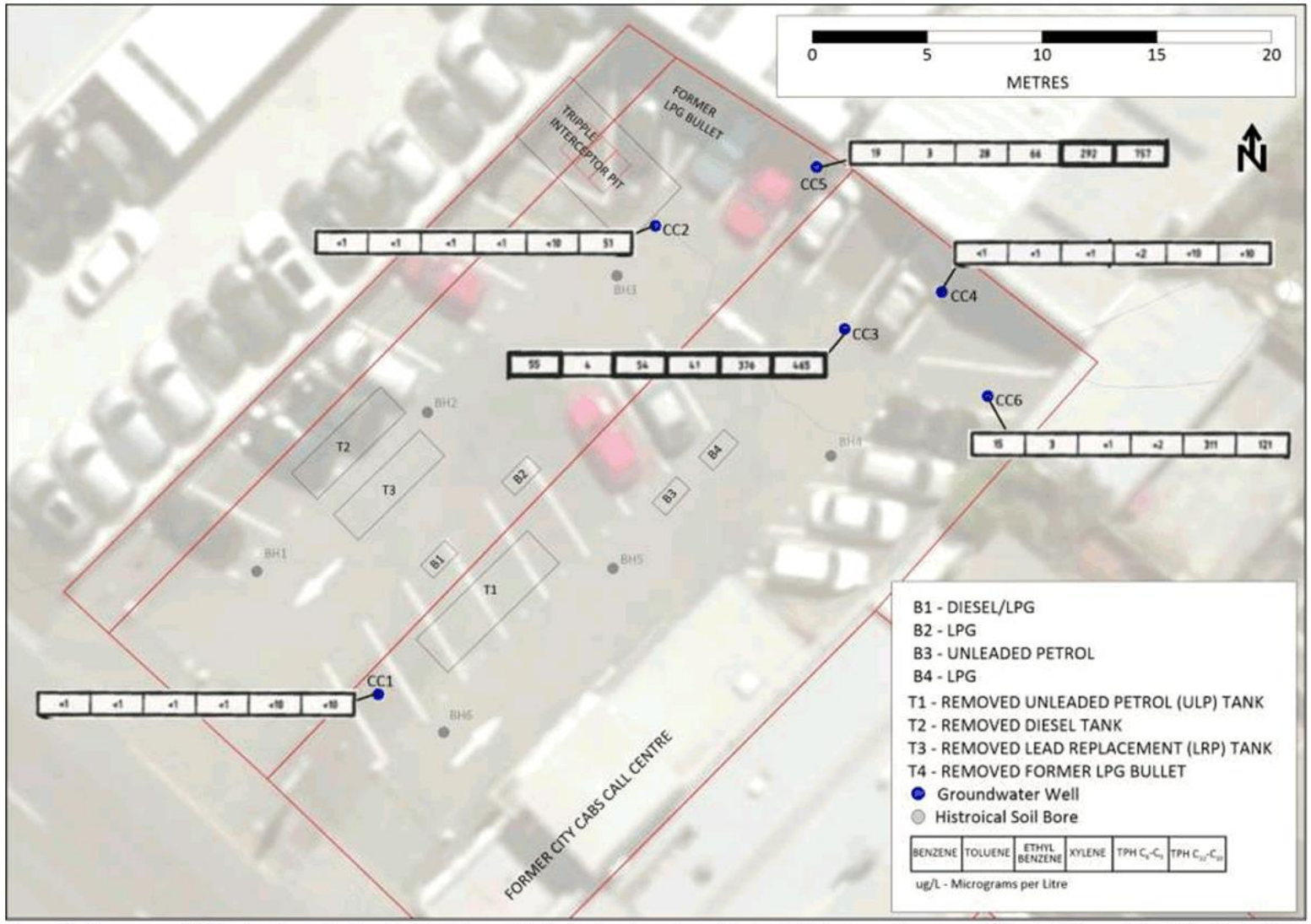


Figure 6 Summary of Historical Investigation Points, Known Site Infrastructure Associated with Petroleum Storage and Use & Historical Analytical Results

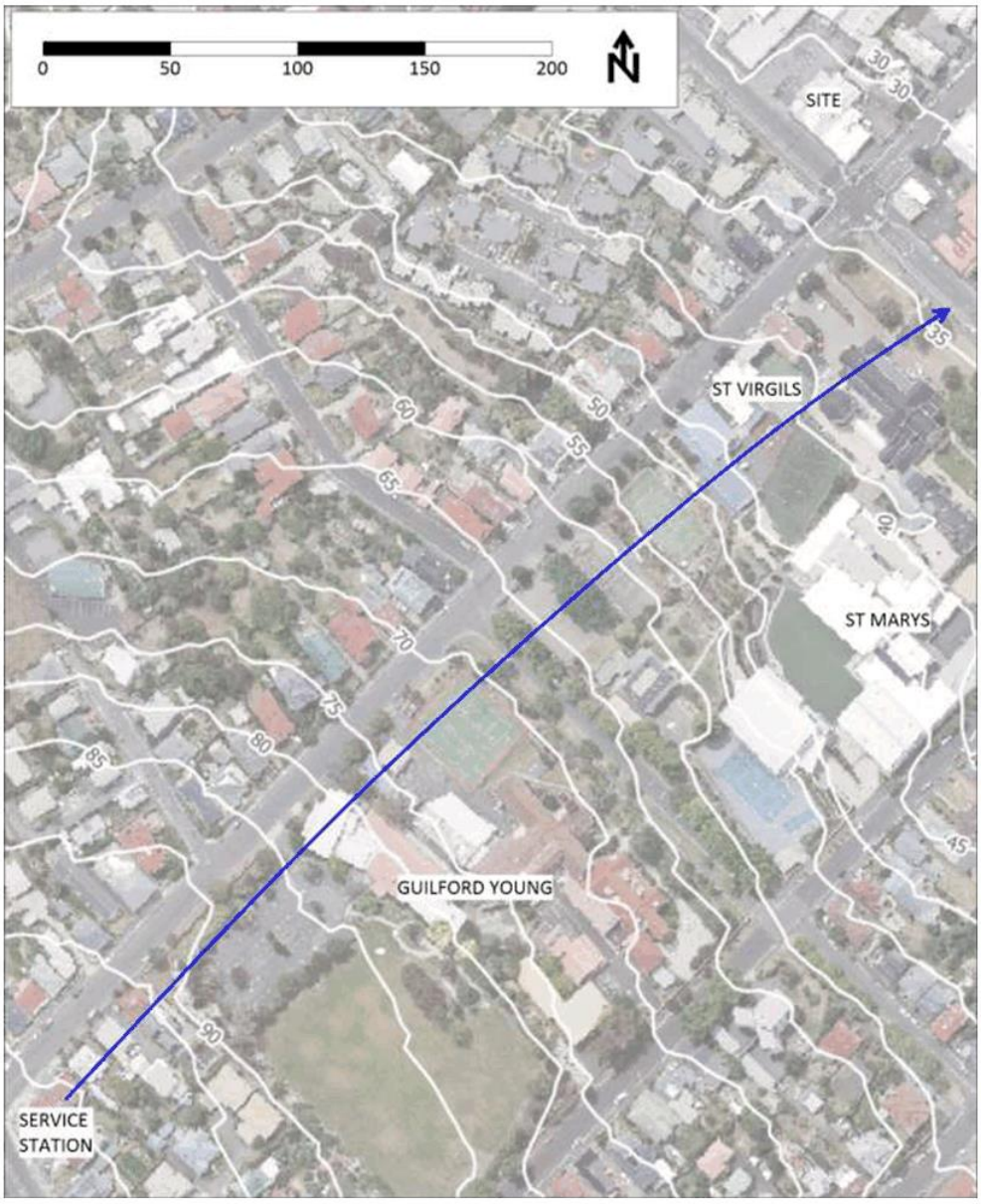


Figure 7 Potential Upgradient Contaminating Activities

Figure 8 Regional Topography with Inferred Groundwater Flow Direction

5.7 Potential Contamination Issues

5.7.1 Areas of Potential Concern

The following areas of potential concern have been identified:

- Before 1957 to between 1977 and 1989, lots 52395/1 & 52394/1 have been used as a car storage yard and probably a car wrecker. It is not apparent if the site was paved during this period but may have been a source of hydrocarbon spills;
- Between 1967 and 1973, fill material was disposed onto the northern side of lot 232390/1;
- Lots 52395/1, 52394/1 &232390/1 may have been used as a taxi can center since 1973 and certainly between 1977 and 2007, with the installation UPSS infrastructure on the site;
- It is not clear how much soil been removed from around the UPSS infrastructure. This soil at the historical locations has not been identified at a risk to human health or environment;
- GES are not aware of any groundwater contour diagram which has been historically produced for the site. Assumptions were made that the impacted wells CC3 and CC5 are either hydraulically or topographically downgradient (to the northeast) of the UPSS infrastructure. This needs to be clarified with revised gauging to ensure groundwater monitoring wells have been appropriately placed;
- Although Coffey identified that groundwater concentrations did not exceed modelled threshold limits for assessing vapour intrusion, this is based on the previous development proposal (details of which are not available) which may not reflect proposed change of use for this development. A revised vapour intrusion assessment is therefore required to determine how proposed site conditions will affect vapour intrusion risk to future site users;
- Groundwater ecological risk was not assessed by Coffey;
- The proposed development may involve excavation and disposal of soil for foundations and services trenches which may be impacted. The soil needs to be reassessed against NEPM 2013 criteria for assessing ecological and human health risk and compared against IB150 for determining disposal fate; and
- Data gaps in the historical assessment include the interceptor trap. GES are not aware of any formalized UPSS decommissioning validation reporting.

5.7.2 Contaminants of Potential Concern

Contamination from the site source from underground fuel storage and dispensing infrastructure. COPC include the following:

- Total Petroleum/Recoverable Hydrocarbons (TPH/TRH) from various sources;
- Mono Aromatic hydrocarbons: Benzene, Toluene, Ethylbenzene, Xylene (BTEX) sourcing from leaded fuel stored and dispensed at the site;
- Polycyclic Aromatic Hydrocarbons (PAH) potentially in the fill and sourcing from the historical vehicle wreckers;
- Lead from fuel, batteries stored in the car yard part of the site; and
- General heavy metals which may be present within the fill material.

6 FIELD INVESTIGATION PROCEDURES

6.1 Works Summary

Site investigation works comprised of soil bore drilling which is summarised in Table 3 and Figure 9.

Table 3 Summary of Site Investigation Work Dates

Hole ID	SB# Drill & Sample	Locate Existing Wells	MW# Gauge	MW# Purge & Sample
BH01-BH09	31/10/17		-	-
CC1, CC2, CC4*	-		25/9/17	25/9/17
CC6	26/9/17		-	-
CC1, CC2, CC6	-		16/11/17	-

SB Soil Bore; CC – Monitoring Well
* CC3 & CC5 could not be located or were badly damaged and inaccessible

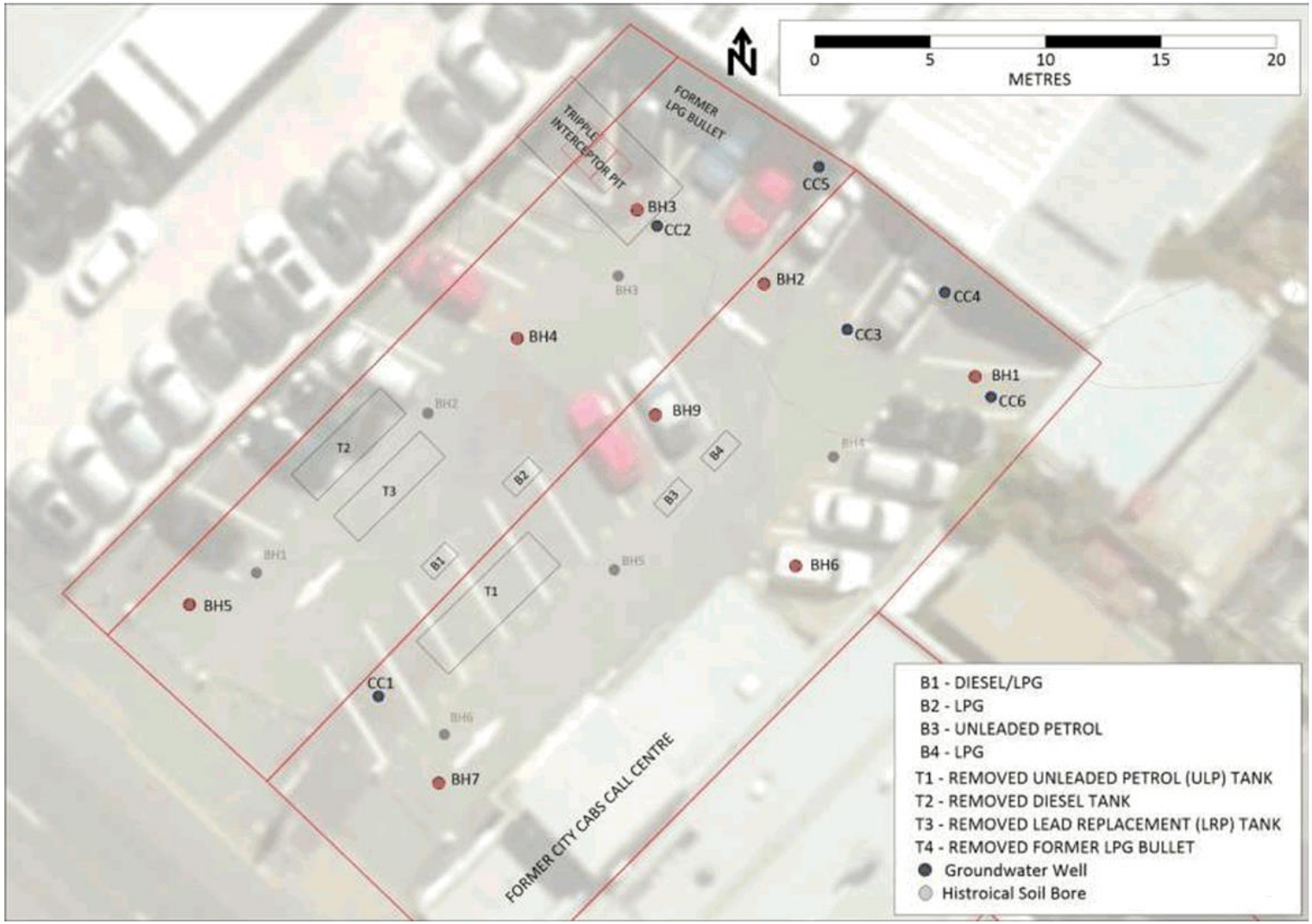


Figure 9 Test Pit (TH1 the TH3) and Borehole (BH1 to BH3) Investigation Areas

6.2 Soil Investigation

6.2.1 Borehole Drilling

At each of the bore locations, the following precautions were put in place to avoid disrupting underground service assets:

- Dial Before You Dig plans were obtained;
- Archers Underground Service were engaged; and
- Where practical, the first meter of the bore was cleared with a hand auger.

Concrete coring was undertaken through bitumen and concrete at each drilling location as required.

A total of nine (9) 65 mm diameter soil bores were drilled for assessing site geology and sampling for contamination impact. The bores were drilled by GES using a hand auger and or the industry recognized Geoprobe direct push drilling systems. The selected drilling method involved using a Geoprobe dual tube to retain wall integrity and eliminates risk of profile collapse whilst allowing extraction of 1.0 m length sample cores and allows for deployment of pre packed well systems.

6.2.2 Soil Sampling

Soil bore soil sampling was conducted per the National Environmental Protection Measure (NEPM 2013) and AS4482 sampling guidelines. Table 4 presents a summary of the soil assessment methodology adopted at the site.

Table 4 Summary of Soil Sampling Methods

Activity	Details / Comments
Drilling Method	Soil bores were drilled: • Hand auger over the first meter to clear for services, and grab sampling; • Hollow stem auger until refusal depth and split spoon sampling; • Percussion drilling in rock and grab samples were collected from air blasted cuttings
Soil Logging	Logging the soil was conducted in accordance with the unified soil classification system (USCS) as detailed in AS1726 (1993).
Decontamination of Sampling Equipment	Quantum Clean Laboratory Detergent (R213) was used to decontaminate reusable sampling equipment.
Soil Screening	In accordance with AS4482.2. Individual soil samples were collected from the core tray at 0.5 intervals below ground surface (BGS) and/or change in geology. Collected samples were screened for volatile fractions using a Photoionisation Detector (PID). This was done by placing the samples within snap lock bags and analysing the headspace with a PID probe. Equipment calibration certificates are presented in Appendix 5
Laboratory Soil Sample Collection	In accordance with AS4482.2. All samples were collected using disposable nitrile gloves. All samples were selected for laboratory analysis. A minimum number of samples were carefully selected which would provide sufficient information to delineate hydrocarbon contamination in soils.
Sample preservation	Samples were placed into a jar for laboratory analysis. Soil jars were placed in a pre-chilled cool box with ice bricks.
Sample holding times	Sample holding times were within acceptable range (based on NEPM B3-2013) from collection to extraction.

6.2.3 Soil Analysis

Primary and QC samples were submitted to Analytical Laboratory Services (ALS) for analysis. Of the 31 primary samples collected, all 31 were selected for analysis. Chain of Custody (COC) documentation was completed and is provided in Appendix 7. Table 5 presents a summary of the laboratory analyses undertaken.

Table 5 Overview of Soil Analysis and Quality Control

Analytes	Primary Soil Samples	Inter-Lab Split[a]	Rinse Blank[b]	Field Blank[c]
TPH/TRH	31	2	1	-
BTEX	31	2	1	-
PAH*	31	2	1	-

Sampling Quality Control Standards (AS4482):
a – One (1) in twenty (20) duplicate samples, and one (1) in twenty (20) inter laboratory split samples
b - Single rinse sample per piece of equipment per day
c - Single trip blank per esky

Given that a full 15 metal suite was analysed, there was requirement to assess the following soil physical properties to determine soil threshold investigation levels:

- Soil grain class (sand/silt or clay)
- % Clay content (for chromium);
- Cation exchange capacity; and
- Soil pH

The soil physical properties were assessed through site assessment and chemical properties were based on knowledge of similar soil types encountered around Hobart.

6.3 Groundwater Assessment

6.3.1 Monitoring Well Establishment

A total of six groundwater wells were historically installed at the site. All wells were inspected for suitability for use in this contaminated site assessment. Only four of the wells were usable for the purposes of this investigation:

- CC5 could not be located and is suspected to be buried beneath a concrete plinth/slab, and
- CC3 could be located but was badly damaged and could not be used to access groundwater.

6.3.2 Monitoring Well Development and Slug Testing

All groundwater monitoring wells are presumed to have been historically developed. Slug testing for hydraulic conductivity was not part of the scope of this investigation.

6.3.3 Monitoring Well Gauging and Sampling

Table 6 summarises the procedures for monitoring well gauging and sampling.

Table 6 Summary of Monitoring Well Gauging and Sampling Procedures

Activity	Procedure Details
Surveying	All wells and bores were located to within 0.5 m horizontal on The LIST plan. 2013 Mt Wellington & Derwent River LIDAR survey were used in this investigation to approximate top of casing elevations to an estimated 0.1 m vertical accuracy.
Groundwater Gauging	All groundwater wells were gauged for standing water levels (SWL) from top of casing (TOC) and the presence of Phase Separated Hydrocarbons (PSH) using a Solinst water/oil/air Interface Probe (IP).
Groundwater Extraction Method	Groundwater was extracted from the well using one of the following: • Geoprobe peristaltic pump in cases where the well is shallower than 7 m; or a • Waterra valve in cases where the well is deeper than 7 m.
Groundwater Purging	To ensure a representative groundwater sample could be collected, groundwater was purged three (3) times the volume of the well (6 x water column) or purged dry using the chosen groundwater extraction method for well development. The following physiochemical parameters (PCP's) were monitored whilst purging to ensure that the aquifer and groundwater parameters had stabilised to within 10% variation of the previous reading: • Reduction / Oxidation potential (REDOX); • Temperature; • pH; and • Electrical conductivity (EC).
Decontamination Procedure	Dedicated tubing was used at each monitoring well. All reusable equipment (IP) was decontaminated using Quantum Clean Laboratory Detergent (R213) and deionized water between each monitoring event.
Sample preservation	Following groundwater purging, all groundwater samples were collected in laboratory supplied receptacles, labelled, chilled, and delivered with a COC to National Association of Testing Authorities (NATA) certified laboratories for analysis within the prescribed holding time.
Sample holding times	Sample holding times were within acceptable range (based on NEPM B3-2013) from collection to extraction.

6.3.4 Groundwater Analysis

Primary and QC samples (excluding triplicates) were submitted to Analytical Laboratory Services (ALS) for analysis. Table 7 presents a summary of the sample analysis including the QC sampling based on AS5667.1 and AS5667.11.

Table 7 Overview of Groundwater Analysis and Quality Control

Analytes	Primary Groundwater Samples	Duplicates[a]	Triplicate[b]	Rinse Blank[c]	Field Blank[d]
TPH/TRH	4	1	-	1	-
BTEX	4	1	-	1	-
Lead	4	1	-	1	-

a – One (1) in ten (10) intra laboratory split (duplicate) samples
b - One (1) in ten (10) inter laboratory split (triplicate) sample
c - Single rinse sample per piece of equipment per day
d - Single field blank per day.

6.4 Soil Vapor Assessment

No soil vapour sampling was conducted. Soil and groundwater petroleum hydrocarbon concentrations are used to infer soil vapour risks.

7 QUALITY CONTROL

7.1 Field

It is standard to expect up to 10% error in field duplication and up to 10% laboratory error. Therefore in theory up to 20% error can be assumed on duplicate analysis. Some variation may exist in soil and groundwater because even though all efforts are made to split samples homogeneously, fragments of materials may bias samples in certain elements.

Relative Percentage Differences (RPDs) for the duplicate and triplicate samples where applicable are calculated using the method outlined below.

The acceptance criteria used for the RPDs depend on the levels of contaminants detected and the laboratory's Method Detection Limits (MDL). The closer the levels detected are to the MDL the greater the acceptable RPD.

RPDs are calculated as follows:

- RPD <50% for low level results (<20 * MDL)
- RPD <30% for medium level results (20-100 * MDL)
- RPD <15% for high level results (>100 * MDL)
- No limit applies at <2 * MDL

Acceptable RPD is less than 30%. Therefore if RPD >30% difference, a review into the cause should be conducted of both laboratories and of the appropriateness of the methods being used.

Field QA/QC procedures and compliance are summarised in Table 8

Table 8 Field QA/QC Procedures and Compliance

QA/QC Requirement	Completed	Comments
Appropriate sampling strategy used and representative samples collected	Yes	Sampling program was undertaken in accordance with AS4482.1-2005
Field instruments calibrated	Yes	Certificates can be Provided
Appropriate and well documented sample collection, handling, logging and transportation procedures.	Yes	Appropriate and well documented
Decontamination	Yes	Appropriate decontamination such as cleaning tools before sampling and between sample locations was undertaken
Chain-of-custody (COC) documentation completed	Yes	COC were completed in accordance with NEPM Schedule B2, Section 5.4.5 and transported under strict COC procedures. The signed COC documents are included in this report, which includes the condition report on arrival of samples to the Laboratory, cross checking of sample identification and paperwork and preservation method.
Required number of duplicate samples collected (1:20)	Yes/No	Inter-laboratory split samples were be sent to a secondary Laboratory that is NATA accredited. Intra-laboratory duplicate samples were not analysed. Mixing of the duplicate and split sample was sampled in accordance of NEPM Schedule B, Section 5.3
Required numbers of field and rinse blank samples collected	Rinse only	One rinse blank was collected. As one rinsate is required per day of sampling.
Samples delivered to the laboratory within sample holding times and with correct preservative	Yes	All samples were sent to the laboratory within holding times and correct preservative.

7.2 Laboratory

Laboratory QA/QC procedures and compliance are summarised in Table 9 & Table 10.

Table 9 Laboratory QA/QC Procedures and Compliance for Soil

QA/QC Requirement	Compliance	Comments
All analyses NATA accredited	Yes	
Appropriate analytical methods used, in accordance with Schedule B(3) of the NEPM	Yes	
Acceptable laboratory limits of reporting (LORs) adopted.	Yes	
Method blanks: zero to <Practical Quantitation Limit (PQL)	Yes	
Laboratory control samples: 70% to 130% recovery for soil; or 80% to 120% recovery for waters;	Yes	
Duplicate samples outliers:<30% to 50% RPD.	No	EM1715132 outlier for lead
Matrix spikes: 70% to 130% recovery for organics or 80%-120% recovery for inorganics	No	EM1715132 outliers for lead and manganese
Surrogates: 70% to 130% recovery	Yes	
Analysis holding time outliers	Yes	
Frequency of Quality Control Sample	No	EM1715132 PAH, Phenols, TRH laboratory duplicates EM1715132 PAH/phenol matrix spike

Table 10 Laboratory QA/QC Procedures and Compliance for Groundwater

QA/QC Requirement	Compliance	Comments
All analyses NATA accredited	Yes	
Appropriate analytical methods used, in accordance with Schedule B(3) of the NEPM	Yes	
Acceptable laboratory limits of reporting (LORs) adopted.	Yes	
Method Blanks: zero to <Practical Quantitation Limit (PQL)	Yes	
Duplicate Samples:<30% to 50% RPD.	Yes	
Laboratory Control Samples: 70% to 130% recovery for soil; or 80% to 120% recovery for waters;	Yes	
Matrix spikes: 70% to 130% recovery for organics or 80%-120% recovery for inorganics	Yes	
Surrogates: 70% to 130% recovery	Yes	
Analysis holding time outliers	Yes	
Quality Control Sample Frequency Outliers	Yes	

7.3 Quality Assurance and Quality Control Outputs

All field and Laboratory Quality Assurance and Quality Control (QA/QC) details are presented in Appendix 7.

8 FIELD INVESTIGATION FINDINGS

8.1 Soil Bores

8.1.1 Geological Interpretation

The geology of the site is summarised in Table 11 and soil bore logs are presented in Appendix 8.

The outside areas of the site (BH01 to BH09) are paved with approximately 100 mm of bitumen. No boreholes have been drilled within the existing building footprint. Existing building footprints are not determined to be areas of potential concern considering historical site use primarily as residential dwellings. Fill material comprises primarily of GRAVEL and SAND. The fill is up to 1.6 m thick but averages 1.0 m and displays no pattern of distribution across the site as expected from the historical aerials.

The natural sediments comprises of mixed silty and sandy CLAY material.

Table 11 Stratigraphy at the Site (depths indicate base of horizon)

Investigation Holes	Fill Composition	Fill Base (m)	Natural Soil Composition	Natural Soil Base Top of Rock (m)	Rock Composition	Hole Depth (m)
BH01	BITUMEN CLAY/GRAVEL	0.9	Sandy CLAY	3+	NA	3+
BH02	BITUMEN Clayey GRAVEL	1.0	Sandy Silty CLAY	3+	NA	3+
BH03	BITUMEN Clayey GRAVEL/SAND	1.2	Clayey SAND Sandy Silty CLAY	3+	NA	3+
BH04	BITUMEN Sandy GRAVEL Gravelly CLAY	1.3	Clayey SAND Sandy Silty CLAY	3+	NA	3+
BH05	BITUMEN Clayey SAND	1.1	Clayey SAND Sandy Silty CLAY	4+	NA	4+
BH06	BITUMEN Clayey SAND	0.45	Sandy CLAY	2.5+	NA	2.5+
BH07	BITUMEN Clayey SAND	0.7	Sandy CLAY	2.8+	NA	2.8+
BH08	BITUMEN Sandy GRAVEL	1.0	Sandy CLAY	3.5+	NA	3.5+
BH09	BITUMEN GRAVEL/SAND	1.6	Sandy CLAY	3+	NA	3+

8.1.2 Grain & Depth Class Interpretation

Grain size classifications are applied to all soils at the site to determine threshold screening level concentrations for hydrocarbons (and chromium) to assess soil ecological and human health risks.

Grain class threshold values are determined based on either the:

- sample grain size (in the case of ecological screening levels or chromium limits); or
- average grain class overlying the sample point (when assessing petroleum vapour screening levels) relative to the proposed finished floor level.

When assessing petroleum vapour intrusion screening levels, site development works have the potential to affect vapour intrusion risks. The following inclusions are developed into the petroleum hydrocarbon vapour intrusion model with respect to grain class averages overlying the sample:

- Where the proposed finished floor levels are below the pre-development levels and where soil is proposed to be excavated from the site, the excavated material is excluded from the grain class averages for determining threshold PVI HSL limits;
- Where the proposed finished floor levels are above the pre-development surface levels and site infilling is proposed, the fill material will be assigned a GW (well weathered gravel) coding which will be added to (extend) the overall vapour intrusion depth;
- An allowance will be made for a slab on ground. The slab will be conservatively assigned CLAY type material properties. Slab thickness may be locally adjusted (applied to the development plans) to attenuate vapour intrusion risks;
- An allowance is made for developments which have a crawl space. In this scenario, the soil sample depth corresponds with the vapour intrusion depth, and a crawl space attenuation factor may be applied if the proposal is deemed to allow for crawl space ventilation, and the crawl space is not venting into the building;
- Where garden beds or unpaved areas are proposed near the borehole, biodegradation attention factor is applied.

The corresponding depth class from which the sample is collected is also adjusted and revised based on the proposed development finished floor levels. Where the fields are left blank, a class is not assigned given the sample was collected from within the proposed excavation. Pavement is assigned a clay class by default.

Table 13 provides a summary of the grain class averages for material overlying the sample (excluding the excavated materials).

8.1.3 Soil Contamination Observations

No PID screening was conducted at the site. There were no obvious signs of hydrocarbon impacted soil.

8.2 Groundwater

8.2.1 Aquifer Interpretation

The migration of contamination downhill of the site rather in line with the hydraulic gradient is best explained by the presence of a perched aquifer within the fill and above the natural clay material.

8.2.2 Groundwater Gauging

Two separate gauging events were conducted. Groundwater wells were re-gauged as groundwater from the initial gauging was inferred to be spurious and directed into the hillside. The wells were identified to be pressurized and the caps were left off for 24 hours prior to the second gauging event.

Field results from the groundwater gauging are presented in Appendix 9. Groundwater depths for the gauging event are presented in Table 12. PSH was not detected (gauged) in any of the monitoring wells. Groundwater levels have been contoured in Figure 10.

Table 12 Summary of Groundwater Gauging Results

Monitoring Well	CC1	CC2	CC6
Well Depth (m)	9.53	9.49	6.39
Top of Casing (TOC) Height (m AHD)	31.389	30.048	29.830
Groundwater Gauging Date	16/11/17	16/11/17	16/11/17
Groundwater Depth from TOC (m)	4.857	3.505	3.400
PSH Thickness (mm)	0	0	0
Corrected Groundwater Elevation (m AHD)*	26.532	26.543	26.430

Table 13 Summary of Grain & Depth Class Based on USCS Classification

Sample	Excavation - Red Fill (Aded as GW) - Green (metres)	Revised Depth From (m)	Soil Grain Class Averaging Above Soil Sample																	Crawl Space Thickness (m)	Attenuation			Petroleum Vapour Intrusion HSL Grain Class*	SAMPLE USCS
			GW	GP	GM	GC	SW	SP	SM	SC	ML	CL	OL	MH	CH	OH	CI	Rock (R)	Existing Pavement (P)		Proposed SLAB (CH)	Crawl Space	Biodegradation		
BH01 1.5-1.6	2.2	3.8	2.2			0.9									0.6					NA	0.1	1.0	1.0	SAND	CH
BH01 2.5-2.6	2.2	4.8	2.2			0.9									0.8		1			NA	0.1	1.0	1.0	SAND	CI
BH01 2.7-2.8	2.2	5.0	2.2			0.9									0.8		1			NA	0.1	1.0	1.0	SAND	CI
BH02 0.7-0.8	2.2	3.0	2.2			0.7														NA	0.1	1.0	1.0	SAND	GC
BH02 1.5-1.6	2.2	3.8	2.2			1.0									0.5					NA	0.1	1.0	1.0	SAND	CH
BH02 2.5-2.6	2.2	4.8	2.2			1.0									1.5					NA	0.1	1.0	1.0	SAND	CH
BH02 2.7-2.8	2.2	5.0	2.2			1.0									1.7					NA	0.1	1.0	1.0	SAND	CH
BH03 0.5-0.6	2.0	2.6	2.0			0.3				0.2										NA	0.1	1.0	1.0	SAND	GC
BH03 1.5-1.6	2.0	3.6	2.0			0.8				0.7										NA	0.1	1.0	1.0	SAND	SC
BH03 2.5-2.6	2.0	4.6	2.0			0.8				0.8					0.9					NA	0.1	1.0	1.0	SAND	CH
BH03 2.7-2.8	2.0	4.8	2.0			0.8				0.8					1.1					NA	0.1	1.0	1.0	SAND	CH
BH04 0.5-0.6	1.7	2.3	1.7			0.5														NA	0.1	1.0	1.0	SAND	GC
BH04 1.5-1.6	1.7	3.3	2.1			0.6				0.1					0.1		0			NA	0.1	1.0	1.0	SAND	CH
BH04 2.5-2.6	1.7	4.3	2.1			0.6				0.1					1.1		0			NA	0.1	1.0	1.0	SAND	CH
BH04 2.9-3.0	1.7	4.7	2.1			0.6				0.1					1.5		0			NA	0.1	1.0	1.0	SAND	CH
BH05 0.5-0.6	0.5	1.1	0.5							0.5										NA	0.1	1.0	1.0	SAND	SC
BH05 1.5-1.6	0.5	2.1	0.5							1.3					0.2					NA	0.1	1.0	1.0	SAND	CH
BH05 2.5-2.6	0.5	3.1	0.5							1.3					1.2					NA	0.1	1.0	1.0	SAND	CH
BH05 3.6-3.7	0.5	4.2	0.5							1.3					2.3					NA	0.1	1.0	1.0	CLAY	CH
BH06 0.5-0.6	1.7	2.3	1.7							0.4					0.1					NA	0.1	1.0	1.0	SAND	CH
BH06 1.5-1.6	1.7	3.3	1.7							0.4					0.8		0			NA	0.1	1.0	1.0	SAND	CI
BH06 2.4-2.5	1.7	4.2	1.7							0.4					0.8		1			NA	0.1	1.0	1.0	SAND	CI
BH07 0.5-0.6	1.1	1.6	1.1				0.2			0.2										NA	0.1	1.0	1.0	SAND	SW
BH07 1.5-1.6	1.1	2.6	1.1				0.4			0.2					0.8					NA	0.1	1.0	1.0	SAND	CH
BH07 2.5-2.6	1.1	3.6	1.1				0.4			0.2					1.8					NA	0.1	1.0	1.0	CLAY	CH
BH08 1.5-1.6	0.1	1.7	1.1												0.5					NA	0.1	1.0	1.0	SAND	CH
BH08 3.4-3.5	0.1	3.6	1.1												2.4					NA	0.1	1.0	1.0	CLAY	CH
BH09 0.5-0.6	1.7	2.3	2.0				0.2													NA	0.1	1.0	1.0	SAND	SW
BH09 1.5-1.6	1.7	3.3	2.0				0.4								0.8					NA	0.1	1.0	1.0	SAND	CH
BH09 2.5-2.6	1.7	4.3	2.0				0.4								1.3		1			NA	0.1	1.0	1.0	SAND	CI
BH09 2.9-3.0	1.7	4.7	2.0				0.4								1.3		1			NA	0.1	1.0	1.0	SAND	CI

8.2.3 Hydraulic Gradient and Flow Direction

The groundwater flow direction is inferred to be to the east and the hydraulic gradient is determined to be approximately 0.7% (Table 14). Given the very shallow gradient and the coarse approach to obtaining the casing elevations, the findings are not considered reliable.

Table 14 Summary of Inferred Site Groundwater Flow Directions and Rates

Details	Result
Groundwater flow direction from the site	Site
Hydraulic Gradient Calculations	
Upgradient Groundwater Elevation	26.53 m AHD contour
Downgradient Groundwater Elevation	26.46 m AHD contour
Distance Between Upgradient and Downgradient Points	10 m
Hydraulic Gradient	0.7 %

8.2.4 Groundwater Physiochemistry

All purge volumes were attained or the wells were pumped dry before collecting a representative sample for physiochemical analysis and laboratory analysis. Physiochemical parameters were collected whilst purging and a representative value for the aquifer is presented in Table 15.

Table 15 Summary of Stabilised Groundwater Properties

Parameter	Range	Average	Comment
Temp (°C)	13.9 (CC4) to 16.2 (CC1)	15.1	Typical temperature for groundwater within southern Tasmania
pH	7.15 (CC6) to 7.38 (CC1)	7.3	Indicates neutral pH conditions for groundwater
Redox (mV)	10.5 (CC4) to 186 (CC1)	77.8	Indicates mildly oxidising REDOX conditions for groundwater
EC (µs/cm)	1474 (CC6) to 4360 (CC1)	2518.8	Indicates mildly brakish conditions for groundwater

8.2.5 PSH & Groundwater Contamination Observations

PSH was not gauged in any wells at the site.

The following observations can be made during groundwater sampling activities:

- PID read 125 ppm when wall CC4 was opened and 567 ppm when CC6 was opened;

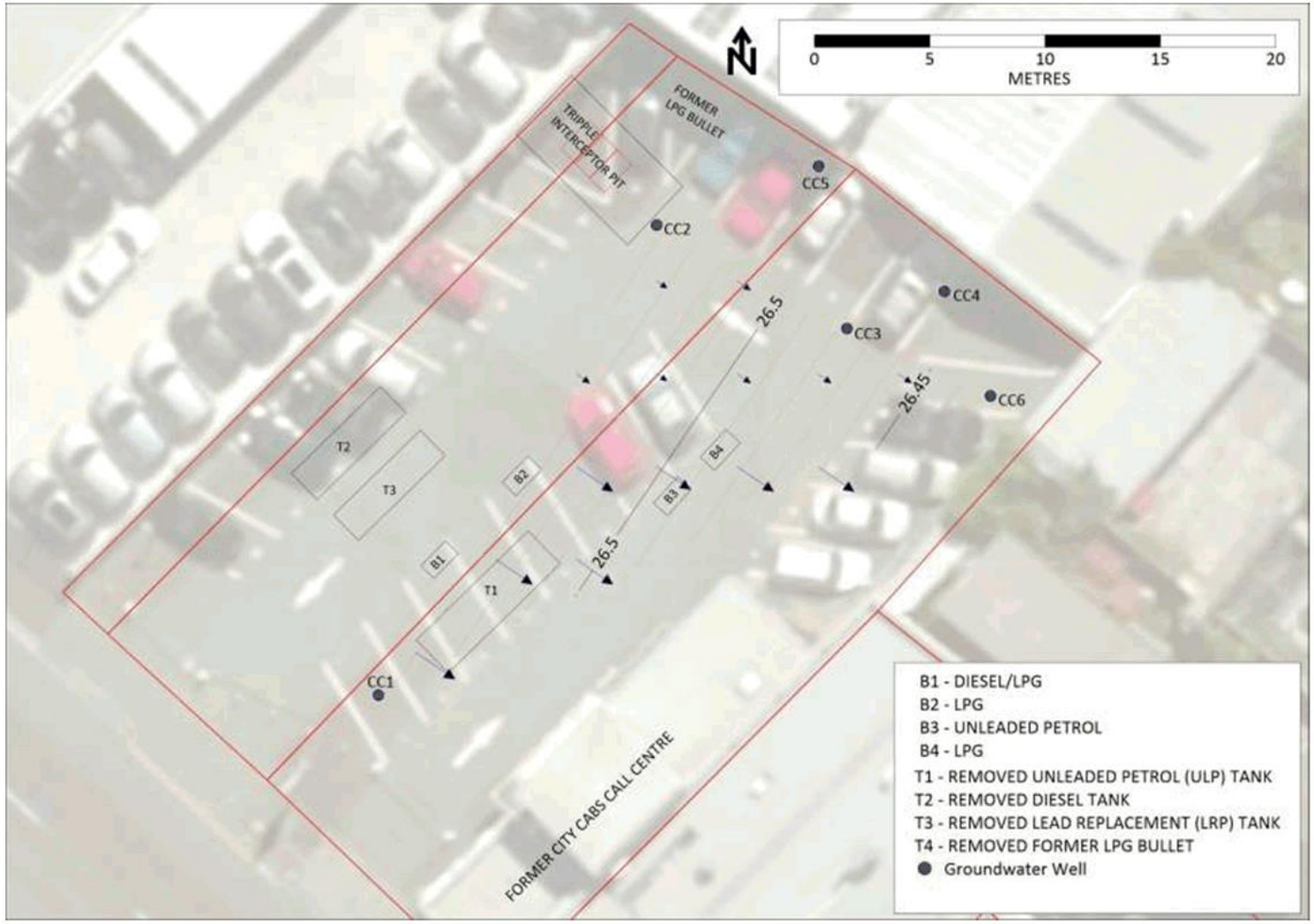


Figure 10 Inferred Shallow Gravel Aquifer Confined Within the Alluvial Deposits. Aquifer Lithology Indicated Alongside Boreholes

9 SOIL ECOLOGICAL IMPACT ASSESSMENT

9.1 Protected Environmental Values

The requirement for protecting soil from contaminated activities in Tasmania is managed under the Environmental Management and Pollution Control Act 1994 (EMPCA) which states in Part 5A:

(2) An area of land is a contaminated site if –

(a) there is in, on or under that area of land a pollutant in a concentration that –

(i) is above the background concentration; and

(ii) is causing or is likely to be causing serious or material environmental harm or environmental nuisance, or is likely to cause serious or material environmental harm or environmental nuisance in the future if not appropriately managed;

Potential soil impact at the site is assessed through application of the following environmental investigation guidelines.

9.2 NEPM (2013) Guidelines

The following ecological investigation guidelines are to be addressed in order to assess acceptable levels of risk to terrestrial ecosystems:

- NEPM (2013) Ecological Investigation Levels (EIL's) – have been developed for selected metal and organic substances. EIL's depend on specific soil and physicochemical properties and land use scenarios and generally apply to the top two (2) metres of the soil profile (NEPM 2013);
- NEPM (2013) Ecological Screening Levels (ESL's) – have been developed for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon fractions. ESL's broadly apply to coarse and fine grained soils and various land use scenarios within the top two (2) metres of the soil profile (NEPM 2013).

Soil analytical results are compared against Ecological Screening Levels (ESL's) and Ecological Investigation Levels (EIL's) limits presented in Table 16.

Table 16 Summary of Soil Contaminates Considered as part of this investigation, based on NEPM (2013) ASC

Investigation Levels (IL)	Analytes Investigated						
	Hydrocarbons				Metals		DDT
	BTEX	TRH (F1 to F4)	Benzo(a) pyrene (PAH)	Naphthalene (PAH)	Zn, Cu, Cr(III), Ni & As	Lead	
ESL's	Analysed	Analysed	Analysed				
EIL's				Analysed	Analysed	Analysed	Not Analysed

9.3 Guidelines

9.3.1 Ecological Screening Levels

The following compounds were compared against NEPM (2013) Ecological Screening Levels (ESL's):

- BTEX;
- F1 to F4 TRH; and
- Benzo(a)pyrene

Selection of ESL threshold investigation limits are set out in the NEPM (2013) guidelines and require classification of the soil according to:

- Land use sensitivity:
    - Areas of ecological significance
    - Urban residential and public open space; and
    - Commercial and industrial.

- Dominant particle size passing through a 2 mm sieve into:
    - Coarse – sand sizes and greater; and
    - Fine – clay and silt sizes.

Adopted NEPM (2013) soil and land use classifications are presented below.

9.3.2 Ecological Investigation Levels

The following compounds were compared against Environmental Investigation Levels:

- Lead;
- Nickel;
- Chromium;
- Zinc;
- Copper;
- Arsenic; and
- Naphthalene.

There was a requirement to classify the soil according to physicochemical properties given that the above listed compounds. Adopted physicochemical parameters are presented in the results tables.

Selection of EIL threshold investigation limits are set out in the NEPM (2013) guidelines and require classification of the soil per specific soil and physicochemical properties which are presented in the results tables. The adopted land use scenarios presented in Table 17.

Table 17 Adopted Land Use Scenario For the Various Soil Bores

Land Use Scenario	Applicable Soil Bores
Areas of Ecological Significance	
Urban Residential & Public Open Space	
Commercial & Industrial	*All soil bores*

9.4 Findings

9.4.1 Ecological Screening Levels

Laboratory analytical results are presented in Appendix 10.

Given the FFL of the development is higher than the current site elevation, and that there is a proposal for pavement coverings at the site, there is overall reduced risk that existing hydrocarbons will leach into the receiving environment.

Table 18 compares soil analytical results against relevant NEPM ESL's. Concentrations which exceeded laboratory levels of reporting (LOR) are highlighted in bold, ESL exceedances are highlighted with a colored cell, and samples within the proposed excavation zone are marked with an X.

The following exceedances were noted:

- Benzo(a)pyrene exceeds ESL guideline limits for commercial sites in BH03 1.5-1.6 and BH05 0.5-0.6.
- F2 type compounds exceeds ESL guideline limits for commercial sites in BH09 2.5-2.6.

Given the exceedances are below the proposed excavation depth and there is a proposal for pavement coverings at the site, there is a low risk that hydrocarbons will leach into the receiving environment.

Table 18 Summary of Soil Analytical Results Compared with ESL's

NEPM Ecological Screening Levels for Soil				BTEX				PAH	TRH			
Bold - Indicates LOR Exceedances X - Indicates Sample Within Proposed Excavation Zone Colour Shading - Indicates ESL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x				Benzene	Toluene	Ethylbenzene	Xylenes	Benzo(a)pyrene	F1 (C6 - C10)	F2 (>C10 - C16)	F3 (>C16 - C34)	F4 (>C34 - C40)
Sample ID	Sample Date	Soil Texture Class (fine/coarse)	Land Use	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 0.5	LOR 10	LOR 50	LOR 100	LOR 100
BH01 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH01 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH01 2.7-2.8	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH02 0.7-0.8	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH02 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH02 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	**1**	**1.4**	<0.5	**16**	<50	<100	<100
BH02 2.7-2.8	31/10/17	F	COM/IND	<0.2	<0.5	**3.1**	**4.6**	<0.5	**74**	**120**	<100	<100
BH03 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH03 1.5-1.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	**4.2****	<10	<50	**350**	<100
BH03 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH03 2.7-2.8	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH04 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	**280**	**100**
BH04 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH04 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH04 2.9-3.0	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	**160**	**120**	<100
BH05 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	**12.6****	<10	<50	**820**	**220**
BH05 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH05 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH05 3.6-3.7	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH06 0.5-0.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH06 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH06 2.4-2.5	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH07 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH07 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH07 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH08 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH08 3.4-3.5	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH09 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH09 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH09 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	**230**	**170**	<100
BH09 2.9-3.0	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100

Note that the samples that exceed ESL investigation limits, are below elevations likely to be within excavations zones. For example BH05 is ~30.5m AHD, sample BH03 0.5-0.6 is at ~30.0m AHD, and the FFL of the site will be 32.75m AHM, hence ~2.25m of fill will be placed upon this location, and the effected soil taken from ~2.75m below FFL.

9.4.2 Ecological Investigation Levels

Table 19 compares soil analytical results for residual samples (non-excavated soil which is to remain at the site) against relevant ecological investigation limits (EIL's). Any EIL exceedances would be highlighted with a colored cell, and samples within the proposed excavation zone are marked with an X.

No EIL exceedances were detected based on the limited samples collected at the site.

Table 19 Soil Analytical Results Compared Against Ecological Investigation Levels

NEPM Ecological Investigation Levels for Soil **Bold - Indicates LOR Exceedances** X - Indicates Sample Within Proposed Excavation Zone Colour Shading - Indicates ESL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x														
Sample ID	Sample Date	EIL Land Use Sensitivity Class	Soil CEC (cmolc/kg)	Soil pH	Soil Texture Class (fine /coarse)	Copper (CEC)	Copper (pH)	Nickel	Zinc	Chromium III	Lead	Arsenic	DDT	Naphthalene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH01 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	22	22	12	32	16	12	<5		<1
BH01 2.5-2.6	31/10/17	COM/IND	35	6 (3)	F	17	17	19	54	14	8	<5		<1
BH01 2.7-2.8	31/10/17	COM/IND	35	6 (3)	F	23	23	30	77	14	13	<5		<1
BH02 0.7-0.8	31/10/17	COM/IND	20	6 (3)	C	56	56	24	83	15	875	11		<1
BH02 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	21	21	16	28	15	22	<5		<1
BH02 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	18	18	12	37	14	13	<5		<1
BH02 2.7-2.8	31/10/17	COM/IND	45	6 (3)	F	24	24	16	66	11	15	<5		2
BH03 0.5-0.6	31/10/17	COM/IND	20	6 (3)	C	58	58	25	87	12	15	<5		<1
BH03 1.5-1.6	31/10/17	COM/IND	20	6 (3)	C	124	124	17	610	25	558	7		<1
BH03 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	39	39	33	37	25	11	<5		<1
BH03 2.7-2.8	31/10/17	COM/IND	45	6 (3)	F	45	45	27	42	28	9	<5		<1
BH04 0.5-0.6	31/10/17	COM/IND	20	6 (3)	C	66	66	21	226	17	216	<5		<1
BH04 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	30	30	14	34	20	12	<5		<1
BH04 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	36	36	26	38	22	9	<5		<1
BH04 2.9-3.0	31/10/17	COM/IND	45	6 (3)	F	33	33	26	52	19	11	<5		<1
BH05 0.5-0.6	31/10/17	COM/IND	20	6 (3)	C	83	83	18	219	16	452	<5		<1
BH05 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	36	36	19	32	28	10	<5		<1
BH05 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	41	41	26	34	29	8	<5		<1
BH05 3.6-3.7	31/10/17	COM/IND	45	6 (3)	F	43	43	27	48	24	10	<5		<1
BH06 0.5-0.6	31/10/17	COM/IND	45	6 (3)	F	21	21	18	31	16	10	<5		<1
BH06 1.5-1.6	31/10/17	COM/IND	35	6 (3)	F	40	40	28	56	13	10	<5		<1
BH06 2.4-2.5	31/10/17	COM/IND	35	6 (3)	F	37	37	25	73	13	12	<5		<1
BH07 0.5-0.6	31/10/17	COM/IND	10	6 (3)	C	<5	<5	<2	<5	4	<5	<5		<1
BH07 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	26	26	19	39	17	10	<5		<1
BH07 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	55	55	13	58	12	10	<5		<1
BH08 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	27	27	18	23	17	10	<5		<1
BH08 3.4-3.5	31/10/17	COM/IND	45	6 (3)	F	36	36	15	54	12	13	<5		<1
BH09 0.5-0.6	31/10/17	COM/IND	10	6 (3)	C	<5	<5	<2	13	4	<5	<5		<1
BH09 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	37	37	11	115	12	120	<5		<1
BH09 2.5-2.6	31/10/17	COM/IND	35	6 (3)	F	24	24	20	76	17	11	<5		<1
BH09 2.9-3.0	31/10/17	COM/IND	35	6 (3)	F	41	41	25	61	15	12	<5		<1

10 GROUNDWATER ECOLOGICAL ASSESSMENT

10.1 Hydrocarbon Plume Overview

Groundwater COC and analytical results are presented in Appendix 6 & 10.

Petroleum hydrocarbons were detected in all wells at the site with the exception for CC1 which is located on the western side of the site. Low concentration TPH C_6-C_{10} are identified above laboratory limits of reporting (LOR). The hydrocarbons are located on the northern side of the site and are expected to source from unleaded fuel.

Table 10 presents a summary of the laboratory analytical results, and indicates where hydrocarbons were detected in groundwater they do not comprise a significant portion (ie. >20%) of the effective solubility in the product (CRC CARE 2013) and are therefore not inferred to comprise of LNAPL.

10.2 Ecological Risk

Groundwater does not exceed threshold limits for freshwater ecosystem protection (Table 20), and therefore the groundwater at the site does not present a risk to downgradient ecological receptors.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Table 20 Summary of Vadose Zone Lithology based on USCS System

Investigation Levels		Benzene	Toluene	Ethyl-benzene	Xylene			BTEX	Napthalene	TPH Carbon Chain Fractions		TRH Carbon Chain Fractions							
Indicates >Laboratory LOR					M, P Xylene	O Xylene	Total Xylene			C6 - C14	C10 - C14	C6 - C10	C6 - C16	F1	>C10 - C16	>C16 - C34	>C34 - C40	>C10 - C40	F2
Indicates Likley LNAPL																			
UNITS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
Date Collected	**Water Sample**																		
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
25/09/2017	CC2	<1	<2	<2	<2	<2	<2	<1	<5	40	<50	20	20	20	<100	<100	<100	<100	<100
25/09/2017	CC4	<1	<2	<2	<2	<2	<2	<1	<5	130	<50	120	120	120	<100	<100	<100	<100	<100
26/09/2017	CC6	<1	<2	<2	<2	<2	<2	<1	<5	160	<50	150	150	150	<100	<100	<100	<100	<100

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Table 21 PAH Concentrations in Groundwater Compared Against NEPM 2013 Threshold Limits for Fresh Water Ecosystems and Drinking Water

AWQG (2000) Fresh Water (95% Trigger)		Benzene	Toluene	Ethyl-benzene	Xylene			BTEX	Napthalene	TRH Carbon Chain Fractions							Metal
					M, P	O	Total	Total		6 - 10	F1	>10 - 16	>16 - 34	>34 - 40	>10 - 40	F2	Pb
UNITS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
LOR		<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	<100	<100	<100	<100	0.001
Investigation Limit		950				350			16								0.0034
Date Collected	**Water Sample ID**																
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	<100	<100	<100	<100	<0.001
25/09/2017	CC2	<1	<2	<2	<2	<2	<2	<1	<5	20	20	<100	<100	<100	<100	<100	<0.001
25/09/2017	CC4	<1	<2	<2	<2	<2	<2	<1	<5	120	120	<100	<100	<100	<100	<100	<0.001
26/09/2017	CC6	<1	<2	<2	<2	<2	<2	<1	<5	150	150	<100	<100	<100	<100	<100	<0.001

11 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT

11.1 Guidelines

Guidelines presented herein are based on potential exposure of human receptors to soil impact which may include:

- Trench workers repairing or building services (typically to 1 m BGS). This classification is not dependent on the land use class.
- Onsite inhabitants which may be exposed to potential shallow soil impact in non-paved areas of the site; and
- Onsite excavation works eg. swimming pools, lift shafts etc. (up to 3 m BGS); basement carparks; and deep foundations.

11.1.1 Land Use Classification

The NEPM (2013) guidelines have been referenced to ensure that the correct land use and density category has been adopted for the site and the surrounding properties (where applicable). As per NEPM 2013 guidelines, the adopted land use class is dependent on the building density and the opportunity for soil access by site occupants (exposure to potentially impacted soil). Aspects needing to be considered include:

- Whether the site is of sensitive land use such as a childcare center, preschool, primary school or aged care facility in which case land use Class A is applicable;
- The percentage of paved area to determine direct contact exposure risk and therefore classification as low or high density; and
- Classification based on residential, recreational or commercial/industrial setting.

11.1.2 Adopted Land Use Classification

The adopted land use class is presented in Table 22.

Land use class is based on the opportunity for soil access as per NEPM 2013 guidelines. A land use class D has been applied to all soil samples. There will be minimal opportunity to access to soil due to the presence of the pavement surfaces.

Table 22 Summary of Land Use Setting and Density for Determining Exposure Risk

Property	Land Use Class	Land Use Density	Paved Area	Sensitive Land Use
The Site	D	High	~100%	No

Table 23 summarises the areas of the site in which the soil analytical results are expected to be relevant as well as the applicable land use class for defining the threshold limits.

Table 23 Summary of Land Use Class Adopted for Defining Soil Analysis Threshold Limits

Soil Bores	Relevant Receptors	Adopted Land Use Class
All soil bores	The site – commercial workers	D

11.1.3 Health Investigation & Screening Levels

The main exposure pathways and methods for assessing short term heath risk from contaminated soils are presented in Table 24. Vapour inhalation risk is addressed in Section 13 of this report.

Table 24 Summary of Exposure Pathways and Preliminary (Tier 1) Methods for Assessing Human Exposure Risk

Exposure Scenario	Contaminant Type	Tier 1 Assessment Method	Reference
Vapour Inhalation – Indoor (PVI)	Petroleum Hydrocarbons	HSL's (addressed in PVI sections)	NEPM (2013)
Vapour Inhalation – Trench (PVI)			CRC CARE (Friebel & Nadebaum, 2011)
Dermal Contact		HSL's	
Dust Inhalation	Metals PAH's Organochlorides Phenols Herbicides Other Pesticides	Health Investigation Levels (HIL's)	NEPM (2013)
Soil Ingestion			

PVI – Petroleum Vapour Intrusion

11.2 Findings

11.2.1 Dermal Contact - Petroleum Hydrocarbons

Laboratory analytical results are presented in Appendix 10.

Table 25 presents soil hydrocarbon analytical results compared against CRC CARE (Friebel & Nadebaum, 2011) HSL guidelines for assessing dermal contact risk. Concentrations which exceeded laboratory LOR are highlighted in bold, HSL exceedances are highlighted with a colored cell indicating the highest HSL land used class which is exceeded, and samples within the proposed excavation zone are marked with an X.

The dermal contact risk is acceptable in selected sample locations per guidelines for intrusive maintenance workers, HSL D guidelines.

11.2.2 Dust Inhalation & Soil Ingestion

Combined dust inhalation and soil ingestion risk is assessed through the application of NEPM (2013) HIL's for exposure to soil contaminants.

Laboratory analytical results are presented in Appendix 10. Soil analytical results are compared against the HIL's presented in Table 26. Concentrations which exceeded laboratory LOR are highlighted in bold, HIL exceedances are highlighted with a colored cell indicating the highest HIL land used class which is exceeded and samples within the proposed excavation zone are marked with an X.

There are no HIL exceedance based on Commercial Setting D for assessing exposure risk to future land users with limited access to impacted soil (commercial and residential) and commercial workers involved with the site development works.

Table 25 Soil Analytical Results Compared Against CRC CARE (Friebel & Nadebaum, 2011) Guidelines for Dermal Contact

CRC CARE Health Screening Level Dermal Contact Hazard from Soil Hydrocarbons'		EP080: BTEXN					EP080/071: TRH			
		Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.2	0.5	0.5	0.5	1	10	50	100	100
HSL A Low Density Residential		100	14000	4500	12000	1400	4400	3300	4500	6300
HSL B High Density Residential		140	21000	5900	17000	2200	5600	4200	5800	8100
HSL C Recreational		120	18000	5300	15000	1900	5100	3800	5300	7400
HSL D Commercial/Industrial		430	99000	27000	81000	11000	26000	20000	27000	38000
Intrusive Maintenance Worker		1100	120000	85000	130000	29000	82000	62000	85000	120000
Date	Sample									
31/10/2017	BH01 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH01 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH01 2.7-2.8	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH02 0.7-0.8	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH02 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH02 2.5-2.6	<0.2	<0.5	**1**	**1.4**	<1	**18**	<50	<100	<100
31/10/2017	BH02 2.7-2.8	<0.2	<0.5	**3.1**	**4.6**	**2**	**81**	**120**	<100	<100
31/10/2017	BH03 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH03 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**350**	<100
31/10/2017	BH03 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH03 2.7-2.8	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH04 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**280**	**100**
31/10/2017	BH04 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH04 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH04 2.9-3.0	<0.2	<0.5	<0.5	<0.5	<1	<10	**160**	**120**	<100
31/10/2017	BH05 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**820**	**220**
31/10/2017	BH05 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH05 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH05 3.6-3.7	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH06 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH06 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH06 2.4-2.5	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH07 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH07 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH07 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH08 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH08 3.4-3.5	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH09 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH09 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH09 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	**230**	**170**	<100
31/10/2017	BH09 2.9-3.0	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Table 26 Soil Analytical Results Compared Against NEPM (2013) Health Investigation Limit Guidelines

Bold - Indicates LOR Exceedance in Non Metalic Compounds		EA055: Moi	EG005T: Total Metals by ICP-AES														EG035T: Total Recover
NEPM Health Investigation Levels (HIL's) Dust Inhalation and Soil Ingestion Assessment X - Indicates Sample Within Proposed Excavation Zone		Moisture Content	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury
Units		%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		1	5	10	1	50	1	2	2	5	5	5	2	5	5	5	0.1
HIL A Low Density Residential			100		60	4500	20		100	6000	300	3800	400	200		7400	40
HIL B High Density Residential			500		90	40000	150		600	30000	1200	14000	1200	1400		60000	120
HIL C Recreational			300		90	20000	90		300	17000	600	19000	1200	700		30000	80
HIL D Comercial/Industrial			3000		500	3E+05	900		4000	2E+05	1500	60000	6000	10000		400000	730
Sample date:	Sample ID																
31/10/2017	BH01 1.5-1.6	22	<5	90	<1	<50	<1	16	16	22	12	456	12	<5	66	32	<0.1
31/10/2017	BH01 2.5-2.6	16	<5	10	<1	<50	<1	14	21	17	8	133	19	<5	46	54	<0.1
31/10/2017	BH01 2.7-2.8	13	<5	10	<1	<50	<1	14	29	23	13	227	30	<5	56	77	<0.1
31/10/2017	BH02 0.7-0.8	19	11	120	<1	<50	<1	15	23	56	875	446	24	<5	73	83	0.8
31/10/2017	BH02 1.5-1.6	16	<5	90	<1	<50	<1	15	17	21	22	108	16	<5	75	28	0.1
31/10/2017	BH02 2.5-2.6	23	<5	70	<1	<50	<1	14	11	18	13	95	12	<5	48	37	<0.1
31/10/2017	BH02 2.7-2.8	16	<5	20	<1	<50	<1	11	12	24	15	84	16	<5	25	66	<0.1
31/10/2017	BH03 0.5-0.6	18	<5	100	1	<50	<1	12	20	58	15	613	25	<5	79	87	<0.1
31/10/2017	BH03 1.5-1.6	27	7	310	<1	<50	<1	25	13	124	558	422	17	<5	42	610	4.2
31/10/2017	BH03 2.5-2.6	22	<5	70	<1	<50	<1	25	26	39	11	347	33	<5	78	37	<0.1
31/10/2017	BH03 2.7-2.8	20	<5	60	<1	<50	<1	28	23	45	9	296	27	<5	84	42	<0.1
31/10/2017	BH04 0.5-0.6	20	<5	130	<1	<50	<1	17	23	66	216	229	21	<5	91	226	0.5
31/10/2017	BH04 1.5-1.6	26	<5	60	<1	<50	<1	20	18	30	12	179	14	<5	78	34	<0.1
31/10/2017	BH04 2.5-2.6	20	<5	100	<1	<50	<1	22	17	36	9	245	26	<5	76	38	<0.1
31/10/2017	BH04 2.9-3.0	18	<5	60	<1	<50	<1	19	27	33	11	142	26	<5	63	52	<0.1
31/10/2017	BH05 0.5-0.6	17	<5	220	<1	<50	<1	16	15	83	452	474	18	<5	52	219	1.1
31/10/2017	BH05 1.5-1.6	26	<5	50	<1	<50	<1	28	20	36	10	144	19	<5	86	32	<0.1
31/10/2017	BH05 2.5-2.6	18	<5	230	<1	<50	<1	29	20	41	8	1060	26	<5	83	34	<0.1
31/10/2017	BH05 3.6-3.7	18	<5	100	<1	<50	<1	24	25	43	10	694	27	<5	82	48	<0.1
31/10/2017	BH06 0.5-0.6	20	<5	90	<1	<50	<1	16	19	21	10	85	18	<5	60	31	<0.1
31/10/2017	BH06 1.5-1.6	18	<5	10	<1	<50	<1	13	26	40	10	196	28	<5	66	56	<0.1
31/10/2017	BH06 2.4-2.5	16	<5	10	<1	<50	<1	13	25	37	12	213	25	<5	70	73	<0.1
31/10/2017	BH07 0.5-0.6	4.9	<5	<10	<1	<50	<1	4	<2	<5	<5	19	<2	<5	8	<5	<0.1
31/10/2017	BH07 1.5-1.6	23	<5	60	<1	<50	<1	17	18	26	10	79	19	<5	63	39	<0.1
31/10/2017	BH07 2.5-2.6	23	<5	20	<1	<50	<1	12	8	55	10	83	13	<5	58	58	0.2
31/10/2017	BH08 1.5-1.6	21	<5	160	<1	<50	<1	17	16	27	10	117	18	<5	78	23	<0.1
31/10/2017	BH08 3.4-3.5	20	<5	20	<1	<50	<1	12	13	36	13	210	15	<5	75	54	<0.1
31/10/2017	BH09 0.5-0.6	2.8	<5	<10	<1	<50	<1	4	<2	<5	<5	22	<2	<5	15	13	<0.1
31/10/2017	BH09 1.5-1.6	22	<5	120	<1	<50	<1	12	10	37	120	142	11	<5	45	115	0.9
31/10/2017	BH09 2.5-2.6	16	<5	10	<1	<50	<1	17	19	24	11	148	20	<5	48	76	<0.1
31/10/2017	BH09 2.9-3.0	21	<5	10	<1	<50	<1	15	27	41	12	116	25	<5	61	61	<0.1

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Table 26 Soil Analytical Results Compared Against NEPM (2013) Health Investigation Limit Guidelines

Bold - Indicates LOR Exceedance in Non Metalic Compounds		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons																	
NEPM Health Investigation Levels (HIL's) Dust Inhalation and Soil Ingestion Assessment X - Indicates Sample Within Proposed Excavation Zone		Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	PAHs	Benzo(a)pyrene TEQ (WHO)
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HIL A Low Density Residential																		300	3
HIL B High Density Residential																		400	4
HIL C Recreational																		300	3
HIL D Comercial/Industrial																		4000	40
Sample date:	Sample ID																		
31/10/2017	BH01 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH01 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH01 2.7-2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 0.7-0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 2.7-2.8	**1.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.6**	<0.5
31/10/2017	BH03 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH03 1.5-1.6	<0.5	**0.6**	<0.5	<0.5	**2.4**	**0.9**	**6.2**	**6.9**	**4.0**	**3.9**	**5.4**	**2.0**	**4.2**	**2.2**	**0.6**	**2.8**	**42.1**	**6.2**
31/10/2017	BH03 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH03 2.7-2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 2.9-3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH05 0.5-0.6	**1.0**	**3.4**	<0.5	**1.3**	**9.9**	**3.5**	**15.9**	**17.7**	**9.4**	**9.4**	**13.7**	**5.9**	**12.6**	**6.2**	**1.8**	**7.7**	**119.0**	**18**
31/10/2017	BH05 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH05 2.5-2.6	<0.5	<0.5	<0.5	<0.5	**1.2**	<0.5	**1.1**	**1.0**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.3**	<0.5
31/10/2017	BH05 3.6-3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 2.4-2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH07 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH07 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH07 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH08 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH08 3.4-3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 2.9-3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

12 INDOOR INHABITANT PVI ASSESSMENT – HSL's

This PVI assessment has been conducted in accordance with relevant CRC CARE Technical Documentation and NEPM 2013 guidelines presented in references section of this report. The HSL assessment approach is generally the first (Tier 1) investigation phase adopted for assessing PVI risk at petroleum hydrocarbon (PHC) impacted sites. HSL guidelines have been applied for samples collected from the site to account for risks that may be associated with volatile hydrocarbon vapour intrusion into confined spaces where there may be an inhalation risk through longer term exposure. This does not constitute a full vapour risk assessment but provides additional information from which to further quantify any risk.

A detailed investigation (Tier 2 to 3) is recommended over an HSL assessment where an acute risk has been identified at the site (CRC CARE 2013) because of:

- Migrating product on surface soils beneath buildings;
- Strong PHC odors;
- Flammable risk in confined spaces; and/or
- Health complaints from occupants.

Based on the preliminary site visit, none of the above conditions have been identified at the site. If the outcome of this Tier 1 assessment reveals HSL exceedances for hydrocarbon vapour intrusion, a more detailed (Tier 2) assessment will be required to further evaluate the human health risk.

PVI risk is initially interpreted through the development of HSL threshold limits from the following classifications:

- The geology and or hydrogeology of the investigation point; and
- Land use sensitivity:

The resulting HSL threshold limits are compared with laboratory analytical results.

The following checklists have been filled in for this assessment:

- Appendix 11. Health Screening Level Application Checklist. CRC CARE Technical Report No.10 Part 2, Appendix A (Friebel & Nadebaum 2011b);

12.1 Land Use Class

For surrounding properties, the potential PVI risk is characterized through application of CRC CARE HSL's for each individual properties based on their existing land use (NEPM 2013; Friebel & Nadebaum 2010). The CRC CARE guidelines have been referenced to ensure that the correct land use and density category has been adopted for surrounding land use to ensure health risks are consistent with the HSL models. Aspects considered include the:

- Sensitivity of the existing or potential land use;
- Percentage of paved area for defining potential vapour migration risk;
- Type of basement garage which may influence the confinement of PHC vapors;
- Presence of a slab or cavity for discerning vapour intrusion risk.

If hydrocarbon impacted soil is discerned at the site, consideration is given to downgradient receptors. Site land use class and land use class of downgradient receptors (where onsite HSL exceedances have been identified) are indicated in Table 27.

Table 27 Summary of Land Use Setting and Density for Determining Exposure Risk

Property	Land Use Class	Land Use Density	Paved Area	Sensitive Land Use
67 Harrington Street	D	High	100%	No

A land use class D has been applied (in accordance with Friebel & Nadebaum 2011).

12.2 Selected Media for Assessing PVI Risk

Table 28 presents a summary of the preferred HSL approach to assessing PVI risk.

Table 28 Preferred Methods for Determining Site PVI Risk

Media Analysed	Method	Limitations	Order of Preference
Soil Gas	Concentrations of a soil gas through a soil vapor probe	This approach provides the most reliable data in interpreting PVI risk, although direct modelling should be applied if concentrations exceed HSL threshold limits.	Primary
Groundwater	Concentrations of PHC in groundwater through deployment of monitoring wells	Determining PVI risk based on groundwater is inherently conservative when interpreting vapour risk to account for not readily discernable preferential pathways. Reference may be drawn to alternative assessment approaches: 1) Application of site specific conditions to the CRC CARE model for assessing PVI risk 2) Soil gas interpretation for areas where a PVI risk is identified from groundwater analysis.	Secondary
Soil	Concentrations of PHC in soil	Concentrations in soil may be subject variability due to soil moisture, organic content and oxygen ingress all which create significant bias in threshold values. Reliance is placed on utilizing groundwater analysis over soil.	Tertiary

12.3 Soil

12.3.1 Land Use Class

For surrounding properties, the potential PVI risk is characterized through application of CRC CARE HSL's for each individual property based on their existing land use (NEPM 2013; Friebel & Nadebaum 2010). The CRC CARE guidelines have been referenced to ensure that the correct land use and density category has been adopted for surrounding land use to ensure health risks are consistent with the HSL models. Aspects considered include the:

- Sensitivity of the existing or potential land use;
- Percentage of paved area for defining potential vapour migration risk;
- Type of basement garage which may influence the confinement of PHC vapors;
- Presence of a slab or cavity for discerning vapour intrusion risk.

If hydrocarbon impacted soil is discerned at the site, consideration is given to downgradient receptors. Where applicable, land use class therefore considers:

- Downgradient receptors where onsite HSL exceedances have been identified in soil; and
- Variations in land use for different parts of the proposed development.

The following land use classes are applied:

- *HSL D for commercial spaces*

12.3.2 Findings

Soil samples from the site have been assessed against the elected NEPM (2013) health screening levels (HSL) to determine potential hydrocarbon vapour risk to site users. Laboratory analytical results are presented in Appendix 10.

Specific grain, depth and land use classes are presented in Table 29.

Concentrations which exceeded laboratory LOR are highlighted in bold, and HSL exceedances would be highlighted with a colored cell.

Table 29 Soil Analytical Results Compared Against HSL A

Soil Hydrocarbon HSL's for Assessing Indoor Vapour Intrusion (NEPM 2013) **Soil Sample Analysis**					EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances Colour Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x					Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	F1	F2
Sample ID	Sample Date	Depth Class	Grain Class	HSL	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
					LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH01 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.7-2.8	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 0.7-0.8	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	**1**	**1.4**	<1	**16**	<50
BH02 2.7-2.8	31/10/2017	4+	SAND	D	<0.2	<0.5	**3.1**	**4.6**	**2**	**74**	**120**
BH03 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.7-2.8	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.9-3.0	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	**160**
BH05 0.5-0.6	31/10/2017	1 - 2	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 2.5-2.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 3.6-3.7	31/10/2017	4+	CLAY	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 2.4-2.5	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 0.5-0.6	31/10/2017	1 - 2	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 2.5-2.6	31/10/2017	2 - 4	CLAY	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 1.5-1.6	31/10/2017	1 - 2	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 3.4-3.5	31/10/2017	2 - 4	CLAY	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	**230**
BH09 2.9-3.0	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

None of the soil samples exceeded HSL limits for assessing petroleum vapour intrusion risk.

12.4 Groundwater

12.4.1 LNAPL Classification

Determining the presence of LNAPL at the site is important for understanding petroleum vapour intrusion risk and refining the conceptual site model. The presence of LNAPL is based on CRC CARE (2013 page 8) guidelines for defining LNAPL based on 20% effective solubility of hydrocarbon concentrations in groundwater.

12.4.2 HSL Guidelines

Concentrations of hydrocarbons in groundwater have been assessed against NEPM (2013) HSL's to determine potential risk to nearby habitable buildings because of PVI from the aquifer. Groundwater HSL's are specific to each monitoring well and involves characterisation based on the following variables:

- The HSL's for surrounding properties (already identified);
- The dominant grain class overlying the hydrocarbon impacted groundwater based on US Agriculture Soil Classification System (USCS) and partitioning into either sand, silt or clay; and
- A depth class range is selected in accordance with the depth at which hydrocarbon impacted groundwater was intercepted. The groundwater will fit into one of the following depth classes 2 to 4 m; 4 to 8 m and greater than 8 m. A depth class is not applicable for groundwater shallower than 2 m BGS and in this case, vapour probes are recommended to be installed.

Table 30 summarises groundwater wells and land use classification to characterise PVI risk at the site. The land use classification adopted for the site is HSL D which all analytical results will be compared against.

Table 30 Classification Used to Assess Petroleum Vapour Intrusion Risk to Local Receptors from Soil

Property	Monitoring Wells	Land Use Class
67 Harrington Street	All Monitoring Wells	D

12.4.3 Findings

Groundwater sampling results Certificate of Analysis is presented in Appendix 10. Hydrocarbon concentrations within groundwater have been compared against CRC CARE 2013 Guidelines for Assessing for the Presence of LNAPL in Table 31. No LNAPL has been identified at the site.

Groundwater has been assessed against the elected NEPM ASC health screening levels (HSL) to determine potential hydrocarbon vapour risks to site users. Specific grain, depth and land use classes as well as nominated guideline limits are presented in Table 32.

Although two of the historically impacted wells located on the northeastern side of the site could not be sampled, it is expected that the low-level impacted groundwater will have migrated offsite and largely biodegraded over the space of 10 years. The historical vapour intrusion assessment (Coffey 2007) did not reveal any petroleum vapour intrusion risks based on indoor vapour intrusion model.

There are no HSL exceedances identified in groundwater collected from the site, and no risk of petroleum vapour intrusion at the site identified.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Investigation Levels		Benzene	Toluene	Ethyl-benzene	Xylene			BTEX	Napthalene	TPH Carbon Chain Fractions		TRH Carbon Chain Fractions							
Indicates >Laboratory LOR					M, P Xylene	O Xylene	Total Xylene			C6 - C14	C10 - C14	C6 - C10	C6 - C16	F1	>C10 - C16	>C16 - C34	>C34 - C40	>C10 - C40	F2
Indicates Likley LNAPL																			
UNITS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
Date Collected	**Water Sample**																		
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
25/09/2017	CC2	<1	<2	<2	<2	<2	<2	<1	<5	40	<50	20	20	20	<100	<100	<100	<100	<100
25/09/2017	CC4	<1	<2	<2	<2	<2	<2	<1	<5	130	<50	120	120	120	<100	<100	<100	<100	<100
26/09/2017	CC6	<1	<2	<2	<2	<2	<2	<1	<5	160	<50	150	150	150	<100	<100	<100	<100	<100

Table 31 Summary of Groundwater Concentrations Compared Against CRC CARE (Friebel & Nadebaum, 2011) Guidelines for Assessing for the Presence of LNAPL

Table 32 Summary of Groundwater Samples That Exceeded Threshold HSL Limits

						Benzene	Toluene	Ethylbenzene	Xylene	Naphthalene	F1	F2
Units						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						<1	2	2	2	5	20	100
Water Sample ID	Date	Groundwater Depth Class (m)	Grain Class	HSL								
CC1	25/9/17	4 - 8	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	<20	<100
CC2	25/9/17	2 - 4	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	20	<100
CC4	25/9/17	2 - 4	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	120	<100
CC6	26/9/17	2 - 4	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	150	<100

#N/A - Requires alternative assessment approach if PHC identified ie. soil vapour assessment
NL – Non Limiting applicable as any derived HSL will exceed analyte solubility limit

13 TRENCH WORKER PVI ASSESSMENT – HSL's

13.1 Classification

The following Health Screening Assessment is based on hydrocarbon vapour intrusion risk to subsurface excavation workers within excavations. This is assessed through analysis of vapors from soil and soil vapours. Groundwater is generally not used to assess risk as threashold limits for all depth and grain classes are non-limiting. Land use classes are not applicable when assessing vapour intrusion into trenches.

Soil and soil vapour HSL's for assessing hydrocarbon risk to maintenance workers are based on CRC CARE Technical Report 10 guidelines (Friebel & Nadebaum 2011) and the following variables:

- Dominant grain size class of material at the soil sample depth or based on the dominant grain class of the backfill material based on US Agriculture Soil Classification System (SCS) and partitioning into either sand, silt or clay; and
- Classifying soil according to depth ranges: 0 to 2 m; 2 to 4 m; 4 to 8 m; and greater than 8 m;

13.2 Findings

13.2.1 Soil

Laboratory analytical results are presented in Appendix 10.

Table 33 compares soil analytical results for residual samples (non-excavated soil which is to remain at the site) against relevant CRC CARE HSL's for shallow intrusive maintenance workers. Concentrations which exceeded laboratory levels of reporting (LOR) are highlighted in bold, and ESL exceedances are highlighted with a colored cell.

None of the soil samples collected at the site exceed the hydrocarbon HSL's for assessing petroleum vapour intrusion risk to intrusive maintenance workers

Table 33 Summary of Soil Analytical Results Compared against HSL's for Assessing PVI Risk to Trench Workers

CRC CARE Health Screening Level Assessment for PHC Inhalation Risk To Trench Workers From Soil Sample Analysis				EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances										
Dark Grey Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x				Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction
Sample ID	Sample Date	Depth Class	Grain Class	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH01 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.7-2.8	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 0.7-0.8	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	**1**	**1.4**	<1	**18**	<50
BH02 2.7-2.8	31/10/2017	4 to 8m	SAND	<0.2	<0.5	**3.1**	**4.6**	**2**	**81**	**120**
BH03 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.7-2.8	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.9-3.0	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	**160**
BH05 0.5-0.6	31/10/2017	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 2.5-2.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 3.6-3.7	31/10/2017	4 to 8m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 2.4-2.5	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 0.5-0.6	31/10/2017	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 2.5-2.6	31/10/2017	2 to 4m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 1.5-1.6	31/10/2017	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 3.4-3.5	31/10/2017	2 to 4m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	**230**
BH09 2.9-3.0	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

14 SOIL DISPOSAL ASSESSSMENT

14.1.1 Guidelines

Soil which is excavated from the site for landfill disposal is to be assessed against Information Bulletin 105 (IB105) for Classification and Management of Contaminated Soil for Disposal. The EPA uses 4 categories to classify contaminated soil as per Table 34:

- (Level 1) Fill Material;
- (Level 2) Low Level Contaminated Soil;
- (Level 3) Contaminated Soil; and
- (Level 4) Contaminated Soil.

Fixed numerical values are presented for soil concentrations and leachable fraction concentrations.

Table 34 Summary of IB105 Classification Guidelines

	Classification (with reference to Table 2)	Controlled Waste[1]	Comments
Fill Material[2] (Level 1)	Soil that exhibits levels of contaminants below the limits defined under *Fill Material* in Table 2.	Unlikely	Soil classified as *Fill Material* can still be a 'pollutant' under the *Environmental Management and Pollution Control Act 1994* and needs to be responsibly managed.
Low Level Contaminated Soil (Level 2)	Soil that exhibits levels of contaminants above the limits defined under *Fill Material* but below the limits defined under *Low Level Contaminated Soil* in Table 2.	Likely	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil (Level 3)	Soil that exhibits levels of contaminants above the limits defined under *Low Level Contaminated Soil* but below the limits defined under *Contaminated Soil* in Table 2.	Yes	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil for Remediation (Level 4)	Soil that exhibits levels of contaminants above the limits defined under *Contaminated Soil* in Table 2 (regardless of the maximum total concentrations) is generally ***not*** considered acceptable for off-site disposal without prior treatment.	Yes	Soil that contains contaminants that do not have criteria for leachable concentrations (*e.g.* petroleum hydrocarbons), and the levels of contaminants exceed the maximum total concentrations listed in *Contaminated Soil*, are generally classified as *Contaminated Soil for Remediation*.

[1] Controlled Waste is defined in the *Environmental Management and Pollution Control Act 1994*.
[2] Criteria for *Fill Material* are the limits set by the Director for the purposes of R.9(2)(a)(ii) in the *Regulations*.

14.1.2 Findings

With the site finished floor levels of 32.75 m AHD, and existing ground level of 28.0-32.5 m AHD, there will be only minimal volumes of soil disturbance for foundations and service trenches, and most disturbance will be within the introduced fill material. Soil samples were collected from the car parking area (215 Harrington Street), which represents the highest likelihood of contamination owing to the former UPSS, samples were not obtained around the area of 209-213 Harrington street owing to buildings being present in the area. Table 35 presents soil samples collected compared against IB105 guidelines for potential future soil disposal. Table 35 shows that of the 31 samples analysed, two were considered Level 3 Material (Contaminated Soil), six were considered Level 2 Material (Low Level Contaminated Soil), and the remaining twenty-three samples were considered Clean Fill. We suggest that certified clean fill is used to bring the site up to the desired 32.75 m AHD FFL, and any excavations of material on site below the introduced clean fill should be stockpiled and tested against IB105 guidelines to determine if it is able to be reused onsite (if confirmed as clean fill), or disposed of at a suitable facility in line with the results of stockpiled material testing against IB105.

Table 35 is presented as a guide to indicate contaminant levels in the areas most likely to be contaminated on site (i.e in the area of former fuel storage).

Table 35 Soil Analytical Results Compared Against IB105 Investigation Limits for soil Disposal

Information Bulletin 105 Classification and Management of Contaminated Soil For Disposal		Arsenic	Barium	Beryllium	Cadmium	Chromium Total	Copper	Cobalt	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Benzo(a)pyrene	C6 - C9 Fraction	C10 - C36 Fraction (sum)	Sum of polycyclic aromatic hydrocarbons	Benzene	Toluene	Ethylbenzene	Total Xylenes
Unit		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		5	10	1	1	2	5	2	5	5	0.1	2	5	5	0.5	10	50	0.5	0.2	0.5	0.5	0.5
Investigation Level Selected																						
IB105 Level 1		<20	<300	<2	<3	<50	<100	<100	<300	<500	<1	<60	<10	<200	<0.08	<65	<1000	<20	<1	<1	<3	<14
IB105 Level 2		20	300	2	3	50	100	100	300	500	1	60	10	200	0.08	65	1000	20	1	1	3	14
IB105 Level 3		200	3000	40	40	500	2000	200	1200	5000	30	600	50	14000	2	650	5000	40	5	100	100	180
IB105 Level 4		750	30000	400	400	5000	7500	1000	3000	25000	110	3000	200	50000	20	1000	10000	200	50	1000	1080	1800
31/10/2017	BH01 1.5-1.6 X	<5	90	<1	<1	16	22	16	12	456	<0.1	12	<5	32	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH01 2.5-2.6 X	<5	10	<1	<1	14	17	21	8	133	<0.1	19	<5	54	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH01 2.7-2.8 X	<5	10	<1	<1	14	23	29	13	227	<0.1	30	<5	77	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH02 0.7-0.8 X	11	120	<1	<1	15	56	23	875	446	0.8	24	<5	83	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH02 1.5-1.6 X	<5	90	<1	<1	15	21	17	22	108	0.1	16	<5	28	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH02 2.5-2.6 X	<5	70	<1	<1	14	18	11	13	95	<0.1	12	<5	37	<0.5	15	<50	<0.5	<0.2	<0.5	1	1.4
31/10/2017	BH02 2.7-2.8 X	<5	20	<1	<1	11	24	12	15	84	<0.1	16	<5	66	<0.5	62	110	1.6	<0.2	<0.5	3.1	4.6
31/10/2017	BH03 0.5-0.6 X	<5	100	1	<1	12	58	20	15	613	<0.1	25	<5	87	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH03 1.5-1.6 X	7	310	<1	<1	25	124	13	558	422	4.2	17	<5	610	4.2	<10	400	42.1	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH03 2.5-2.6 X	<5	70	<1	<1	25	39	26	11	347	<0.1	33	<5	37	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH03 2.7-2.8 X	<5	60	<1	<1	28	45	23	9	296	<0.1	27	<5	42	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH08 1.5-1.6 X	<5	160	<1	<1	17	27	16	10	117	<0.1	18	<5	23	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH06 0.5-0.6 X	<5	90	<1	<1	16	21	19	10	85	<0.1	18	<5	31	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH06 1.5-1.6 X	<5	10	<1	<1	13	40	26	10	196	<0.1	28	<5	56	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH06 2.4-2.5 X	<5	10	<1	<1	13	37	25	12	213	<0.1	25	<5	73	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH07 0.5-0.6 X	<5	<10	<1	<1	4	<5	<2	<5	19	<0.1	<2	<5	<5	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH07 1.5-1.6 X	<5	60	<1	<1	17	26	18	10	79	<0.1	19	<5	39	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH07 2.5-2.6 X	<5	20	<1	<1	12	55	8	10	83	0.2	13	<5	58	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH04 2.5-2.6 X	<5	100	<1	<1	22	36	17	9	245	<0.1	26	<5	38	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH04 2.9-3.0 X	<5	60	<1	<1	19	33	27	11	142	<0.1	26	<5	52	<0.5	<10	290	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH05 0.5-0.6 X	<5	220	<1	<1	16	83	15	452	474	1.1	18	<5	219	12.6	<10	930	119	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH05 1.5-1.6 X	<5	50	<1	<1	28	36	20	10	144	<0.1	19	<5	32	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH05 2.5-2.6 X	<5	230	<1	<1	29	41	20	8	1060	<0.1	26	<5	34	<0.5	<10	<50	3.3	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH05 3.6-3.7 X	<5	100	<1	<1	24	43	25	10	694	<0.1	27	<5	48	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH04 0.5-0.6 X	<5	130	<1	<1	17	66	23	216	229	0.5	21	<5	226	<0.5	<10	320	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH04 1.5-1.6 X	<5	60	<1	<1	20	30	18	12	179	<0.1	14	<5	34	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH08 3.4-3.5 X	<5	20	<1	<1	12	36	13	13	210	<0.1	15	<5	54	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH09 0.5-0.6 X	<5	<10	<1	<1	4	<5	<2	<5	22	<0.1	<2	<5	13	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH09 1.5-1.6 X	<5	120	<1	<1	12	37	10	120	142	0.9	11	<5	115	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH09 2.5-2.6 X	<5	10	<1	<1	17	24	19	11	148	<0.1	20	<5	76	<0.5	<10	400	<0.5	<0.2	<0.5	<0.5	<0.5
31/10/2017	BH09 2.9-3.0 X	<5	10	<1	<1	15	41	27	12	116	<0.1	25	<5	61	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5

15 CONCEPTUAL SITE MODEL

15.1 Primary Sources of Contamination

15.1.1 Potential Primary Sources

Primary sources of contamination include:

- Leaded and diesel fuel historically stored at the site;
- Heavy metals and hydrocarbons (including PAH's) sourcing from the interceptor trap on the northern corner of the site;
- Residual hydrocarbons including PAH compounds which are likely to source from leaking oils within the former wrecking yard on the northern side of the lot;
- Lead from disused batteries within the former wreckers;
- Zinc from corroding galvanized iron products (corrugated roofing etc); and
- Residual hydrocarbons including PAH compounds as well as heavy metals sourcing from fill at the site.

Upgradient offsite potential primary sources have not been identified in the historical information search.

There may be other unknown potential sources of onsite or offsite impact (outside of the sampling areas) which GES are unaware of and therefore have not been investigated within this assessment.

Contaminates of potential concern associated with these potential sources have already been identified in a previous section.

15.1.2 Confirmed Primary Sources

The following primary sources have been identified:

- Leaded and diesel fuel historically stored at the site;
- Heavy metals and hydrocarbons (including PAH's) sourcing from the interceptor trap on the northern corner of the site; and
- Zinc from corroding galvanized iron products (corrugated roofing etc).

15.2 Potential Secondary Sources of Contamination

Secondary source is contamination which may sources from a primary source (soil, groundwater, surface water and vapour). Secondary sources are typically spatially separated from the primary source, and may have a direct pathway linkage impacting or affecting receptors of interest.

15.2.1 Soil

Potential secondary soil impact may occur because of:

- Leaking underground storage tanks and associated fuel lines; and
- Interceptor traps which may be beyond their service life.

15.2.2 Groundwater

Potential groundwater impact may occur as a result of leaking underground storage tanks or fuel lines. For groundwater impact to occur, the tanks or fuel lines must have perished and be leaking directly to the water table via infiltration through permeable soils.

The aquifer system at the site is expected to be an:

- Tertiary age, poorly-consolidated interbedded claystone, sandstone and pebble conglomerate.

15.3 Identified Secondary Source of Contamination

15.3.1 Soil

The following contaminants have been identified based on the current and historical site investigations:

- PAH compounds (including benzo(a)pyrene) and various heavy metals sourcing from the interceptor trap; and
- Petroleum hydrocarbons sourcing from underground storage tanks.

15.3.2 Groundwater

The following can be summarized about site groundwater impact:

- Historically, hydrocarbon impacted water was encountered on the northeastern side of the site. The impact is not hydraulically downgradient (spread to the northeast as opposed to the east to south/east) of the bowsers and UST's, and it is inferred that the hydrocarbons may have migrated downhill (to then northeast) within perched aquifer on top of the natural clays in the base of the granular fill material; and
- Hydrocarbon impact historically identified in the aquifer at the site is largely depleted to concentrations near the laboratory limits of reporting. BTEX compounds are no longer identified (where they have been historically) and residual hydrocarbon contaminants identified are in the F1 type category (TRH C6 to C10 less BTEX).
- Groundwater impact has not been identified in upgradient wells at the site indicating unlikely upgradient groundwater impact.

15.4 Potential Receptors

The following presents a summary of all potential receptors considered in the assessment.

15.4.1 Potential Onsite Receptors

- Commercial workers developing the site.

The following receptors were included in GES (2018) but have since been ruled out given the revised plans for the site will feature a fully sealed site and no basement:

- Commercial workers inhabiting the site;
- Residential receptors inhabiting all levels above the ground floor level; and
- All people using the basement carpark (visitors, residences, commercial workers)

15.4.2 Potential Offsite Receptors

- Residential receptors downgradient of and immediately adjacent to the site to the east which includes 75, 77, 81 & 83 Patrick Street; and
- Commercial receptors downgradient of the site to the east which includes Audi Centre at 246 Murray Street, and the Tasmanian Key Service at 240-244 Murray Street;

15.5 Transport Mechanisms

Potential contaminant migration pathways for the chemicals of concern include:

- Vertical percolation with rainwater to underlying soils and groundwater;
- Horizontal groundwater flow in the aquifers;
- Vertical movement within the vadose zone through seasonal fluctuations in groundwater levels;
- Volatilization of soil-gas through the vadose zone from impacted soils and groundwater; and,
- Surface runoff.

15.6 Exposure Routes

15.6.1 Incomplete Contaminant Exposure Pathways

Incomplete contaminant exposure pathways relate to present unmanaged risk. Table 36 presents a summary of potential receptors identified in Section 15.4.**Error! Reference source not found.** With incomplete e xposure pathways deducted based on site desktop assessment or soil analysis.

Table 36 Summary of Incomplete Contaminant Exposure Pathways

Medium	Pathways Ruled Out	Specific Receptor	Basis
Soil	Dust inhalation Soil Ingestion	Onsite inhabitants, construction workers & future trench workers	There are no HIL exceedances based land used class D for limited soil access
	Dermal contact	Onsite inhabitants, construction workers & future trench workers	There are no HSL exceedances.
	Plant root absorption & burrowing animals	Ecosystem - Onsite flora and fauna	No sensitive onsite flora and fauna
Groundwater	Groundwater Use	Drinking Water	Not a PEV given groundwater is identified as Class B (State Policy on Water Quality Management EPA Tasmania 1997)
		Stock, Irrigation, industry	No applicable to the land use setting
		Ecosystem	No receptors within 750 m of the site.
Petroleum Hydrocarbon Vapours	Onsite Indoor Vapour Inhalation	Commercial & Residential Spaces	The risk of hazardous vapour migration into indoor commercial and residential spaces is considered low as identified soil vapour analysis and Tier 1 groundwater HSL screening.
	Onsite Trench and Excavation Vapour Inhalation	Trench and construction workers	The risk of hazardous vapour migration into trenches and excavations is considered low as identified soil vapour analysis and Tier 1 groundwater HSL screening.

15.6.2 Potential Pathways

Potential and plausible transport mechanisms and exposure routes are presented in Table 37 and Figure 11 model. Incomplete exposure pathways are not included in Figure 11.

The following potential pathways have been identified:

- GES have not investigated offsite migration of any potential contaminant plume, and therefore a petroleum vapour intrusion risk to offsite residential and commercial receptors has not been identified and therefore remains a plausible pathway unless proven otherwise;
- There is a potential pathway for shallow impacted soil (exceeding ESL's) to erode/discharge offsite. Provided that a soil and water management plan is put in place, the is unlikely to present a risk and become a plausible contaminant exposure pathway.

Table 37 Summary of Potential Complete Contaminant Exposure Pathways

Medium	Specific Pathway	Receptors	Basis
Soil	Soil erosion and water discharge to storm water drains	Ecosystem – Marine environment	ESL's exceeded for benzo(a)pyrene and TRH Fraction 2 (C_{10}-C_{16})
Petroleum Hydrocarbon Vapours	Offsite Indoor Vapour Inhalation	Commercial & Residential Spaces	The risk of hazardous vapour migration into indoor commercial and residential spaces located to the east of the site is unknown, however given that no exceedances of vapour thresholds were observed in the areas tested, we can deduce that this risk is negligible.

15.6.3 Plausible Contaminant Exposure Pathway Details

Provided that the soil is adequately managed as indicated in the recommendations, plausible exposure pathways are not identified at the site.

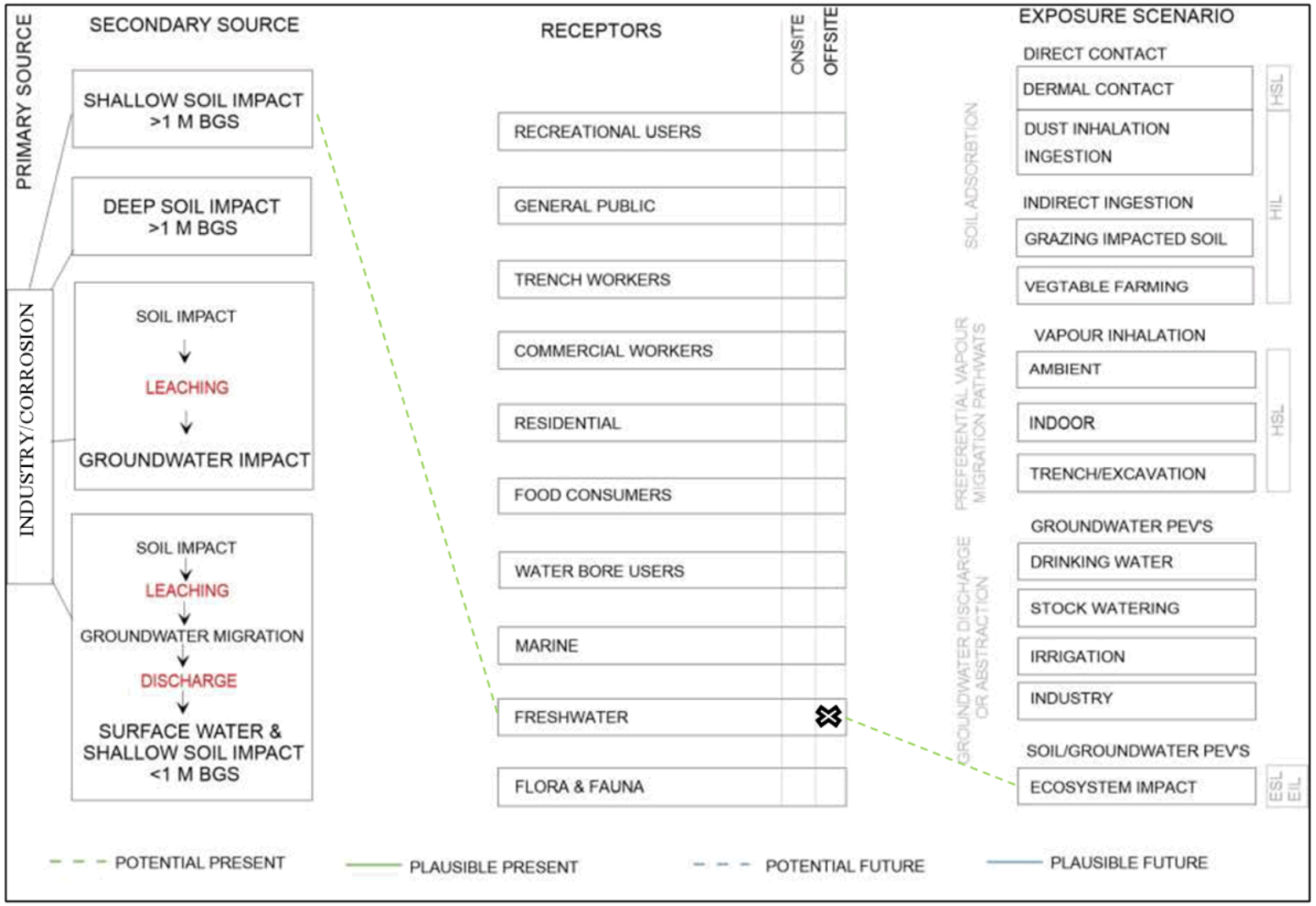


Figure 11 Conceptual Site Model Identifying Contamination Source, Receptors and Transport Mechanisms/Exposure Routes

16 CONCLUSIONS

16.1 Desktop Assessment

From the desktop assessment, it is concluded that:

- Based on a review of previous environmental site assessments, it has been identified that there was historical hydrocarbon impact in both soil and groundwater at the site;
- Historical contaminating activities were identified on the northern three lots which included:
  - The northern two lots were historically used as a vehicle wrecking/storage yard;
  - City Cabs yard in which underground petroleum storage systems were used at the site which is expected to be historical source of hydrocarbons in groundwater and soil;
  - The City Cabs yard had a triple interceptor trap which is likely to be source of heavy metals and hydrocarbons;

16.2 Adopted Guideline Settings

The following investigation limits were adopted for the site:

- Ecosystem – Commercial/industrial land use;
- Future land users access to soil – limited soil access in commercial space (all paved) therefore:
  - HIL D for soil ingestion and inhalation and
  - HSL D for dermal contact;
- Future land users vapour inhalation risk – HSL D for commercial workers
- Site development works & future trench workers
  - HSL D for vapour intrusion risk based on commercial land use;
  - Standard guidelines for assessing dermal contact risk; and
  - HIL D for assessing dust inhalation and soil ingestion risk
- Groundwater at the site is classified as Category B and PEV's need to be protected include Freshwater ecosystems. As the groundwater is not Category A, it is not considered a potable water source. Other PEV's needing to be protected including groundwater use for irrigation, stock watering and industrial purposes are not relevant to the site.

16.3 Soil Assessment

The following can be summarized:

- There were no vapour intrusion risks (PVI HSL) to site development workers, future land users and future trench workers;
- A soil ingestion and dust inhalation risk (HIL) and a dermal contact (HSL) risk has not been identified for site development workers, future land users and future trench workers; and
- EIL's were not exceeded, but given ESL's were exceeded (for benzo(a)pyrene and TRH Fraction 2 C_{10}-C_{16}), management measures need to be put in place during construction to manage offsite sediment transport from stormwater and vehicle trafficking.

16.4 Groundwater Assessment

The following can be summarized:

- Groundwater at the site did not exceed guidelines for assessing risk to freshwater ecosystems;
- Petroleum hydrocarbon concentrations are below threshold investigation limits for assessing petroleum vapour intrusion risk;
- Assessing offsite groundwater impact was not in the scope of works of this assessment. Onsite groundwater quality does not present an impediment to site development works.

16.5 Proposed Development Works

In summary, provided the recommendations herein are implemented, the following conclusions can be made:

- A risk to potential receptors has not been identified during and after development.
- All samples collected at the site are below threshold concentrations for assessing risk to human health;
- No particular health and safety issues are identified which may originate from onsite contamination activities;
- Other than advice provided within the recommendations section of this report, there are no specific remediation and protection measures required to be implemented before site work commences;
- As a result of proposed site infilling, there is a very low human health risk to future users of the site; and
- GES advise that during site excavation works for site redevelopment, there is a low risk that site contamination will present an environmental risk, which can be mitigated with a SWMP.

17 RECOMMENDATIONS

GES recommends that a Soil and Water Management Plan (SWMP) is implemented.

According to IB105 for soil disposal, the soil investigated was predominantly Level 1 material (Clean Fill), with a small number of samples yielding results of Level 2 and Level 3 materials. Given only small volumes of material will be excavated, and given fill will be added to the site, GES recommends that if any materials are excavated below the introduced clean fill on the site, it should be stockpiled and tested in accordance with IB105 to determine suitable disposal or reuse on site in line with IB105.

Yours faithfully,

Mark Downie B.Agr.Sci

Soil Scientist

REFERENCES

SEMF 2007 Heath Risk Assessment, City Cabs, 215-217 Harrington Street, Hobart. Dated 14 August 2007.

Coffey Environments 2007. Former City Cabs Site 215-217 Harrington Street, Hobart, Tasmania. Prepared for BSH Electrical Pty Ltd 213 Harrington Street Hobart, Tasmania 7000, 31 October 2007.

ANZECC, 1992. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand.

ANZECC, 2000. *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*. Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council.

AS/NZS 1726:1993. Geotechnical Site Investigations. Standards Australia, 1993.

AS 4482:2005 Guide to the sampling and investigation of potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds, Standards Australia, 2005.

AS/NZS 5667.1:1998 Water quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples, Standards Australia, 1998.

AS/NZS 5667.11:1998 Water quality – Sampling, Part 11: *Guidance on the sampling of groundwater*, Standards Australia, 1998.

CRC CARE 2013, Petroleum Petroleum Vapour Intrusion assessment: Australian guidance, CRC CARE Technical Report no. 23, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Merrick, NP & McLaughlan, RG 2006, Protocols and techniques for characterising sites with subsurface petroleum hydrocarbons – a review, Technical Report no. 2, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Patterson, BM & Trefry, MG 2009a, Biodegradation of petroleum hydrocarbon vapours, Technical Report no. 12, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Wright, J & Patterson, BM 2009, Field assessment of vapours, CRC CARE Technical Report no. 13, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Enrisks 2013. Review of Site Investigation Reports for 66 Regent Street, Sandy Bay. Environmental Risk Sciences. November 2013.

Freeze, R.A., and Cherry, J.A., 1979, Groundwater: Englewood Cliffs, NJ, Prentice-Hall, 604 p.

Friebel, E & Nadebaum, 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document', CRC for Contamination Assessment and Remediation of the Environment, CRC CARE Technical Report no. 10, Adelaide.

GES 2011. Environmental Site Assessment. 66 Regent Street, Sandy Bay. December 2011.

GES 2015. Remediation Goals Paper. 66 Regent Street, Sandy Bay. Geo-Environmental Solutions. Revised December 2015.

GES 2016. UST Decommissioning Report. 66 Regent Street, Sandy Bay. Geo-Environmental Solutions. October 2016.

GES 2018. Environmental Site Assessment. 209-215 Harrington Street, Hobart. Geo-Environmental Solutions. September 2018.

MCRWBA 2012. Minimum Construction Requirements for Water Bores in Australia. National Uniform Drillers Licensing Committee. National Water Commission's Raising National Water Standards Program. Editing, design, and layout by Robee Bureau Services Pty Ltd, West Lakes, South Australia Printed by Doran Printing Pty Ltd, Braeside, Victoria.

NEPC, 1999. Guideline on Data Collection, Sample Design and Reporting Schedule B (2), National Environmental Protection Measure (Assessment of Site Contamination), National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)

NEPM, 1999.Guideline on Investigation Levels for Soil and Groundwater, Schedule B (1), National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)

NHMRC, 2004. National Water Quality Management Strategy; Australian Drinking Water Guidelines. National Health and Medical Research Council.

Queensland Government Natural Resources and Water 'Land Series' bulletin, Measuring Salinity. 2007. Managing Queensland's natural resources for today and tomorrow.

SGS, 2017: Waterloo Membrane Sampler *Installation Methodology.* SGS Environment, Health and Safety: www.sgs.com.au. 19 June 2017.

LIMITATIONS STATEMENT

This monitoring Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and Joiant Property Group ('the Client'). To the best of GES's knowledge, the information presented herein represents the Client's requirements at the time of printing of the Report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that described in this Report. In preparing this Report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this Report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible soil and groundwater contaminant over the whole area of the site. Samples collected from the investigation area are assumed to be representative of the areas from where they were collected and indicative of the contamination status of the site at that point in time. The conclusions described within this report are based on these samples, the results of their analysis and an assessment of their contamination status.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third party.

Appendix 1 GES Staff

Geo-Environmental Solutions (GES) is a specialist geotechnical and environmental consultancy providing advice on all aspects of soils, geology, hydrology, and soil and groundwater contamination across a diverse range of industries.

Geo Environmental Solutions Pty Ltd:

- ACN – 115 004 834
- ABN – 24 115 004 834

GES STAFF - ENGAGED IN SITE INVESTIGATION WORKS

Dr John Paul Cumming B.Agr.Sc (Hons) Phd CPSS GAICD

- Principle Author and Principle Environmental Consultant
- PhD in Environmental Soil Chemistry from the University of Tasmania in 2007
- 18 years' experience in environmental contamination assessment and site remediation.

Ms Sarah Joyce BSc (Hons)

- Senior Environmental Scientist
- Honours in Geography and Environmental Science at the University of Tasmania in 2003;
- Undergraduate Degree Double Major in Geology and Geography & Environmental Science
- 15 years professional work experience and six years contaminated site assessment

Mr Mark Downie B.Agr.Sc (Hons)

- Soil Scientist
- 8 years' experience in contamination assessment and reporting of soils and groundwater.

Mr Kris Taylor Bsc (Hons)

- Senior Environmental & Engineering Geologist
- Honours in Environmental Geology at the University of Tasmania in 1998
- 18 years' experience in environmental contamination assessments and hydrogeology (including honours in mine site tailing pollution assessment)

Mr Grant McDonald (Adv. cert. hort.)

- Soil Technician
- 6 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

GES STAFF – CONTAMINATED SITES EXPERIENCE

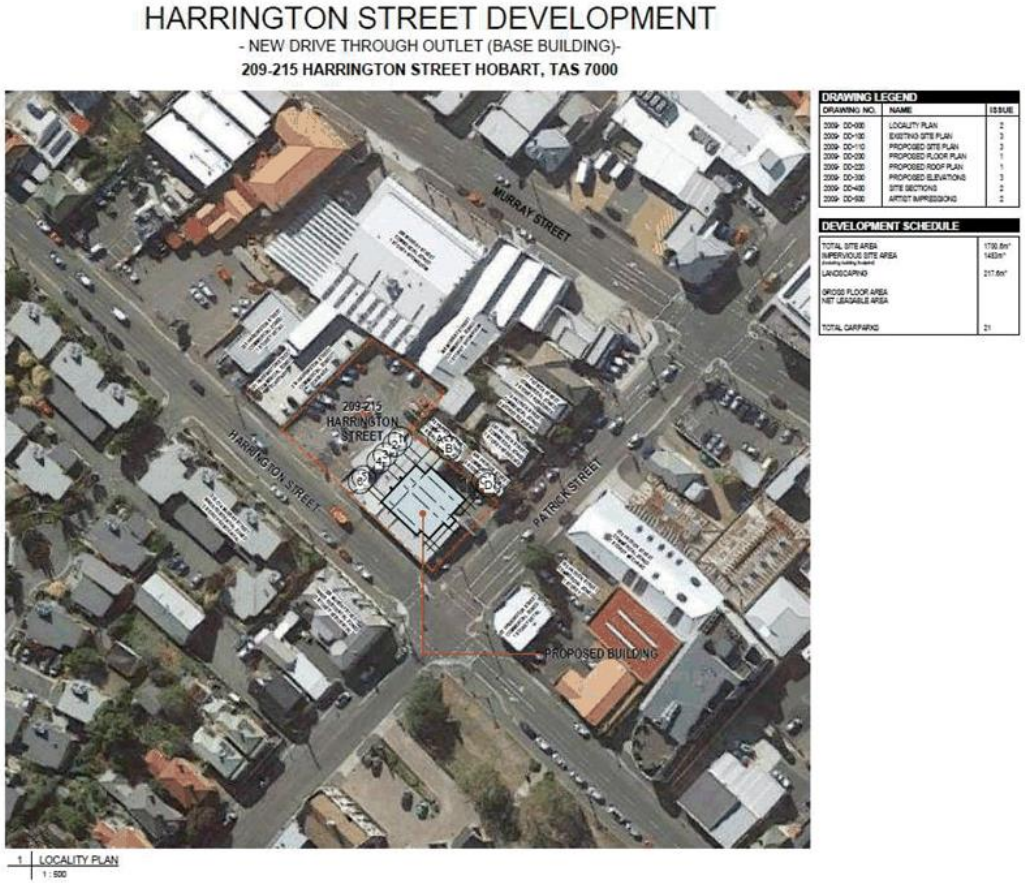
Mr Aaron Plummer(Cert. IV)

- Soil Technician
- 3 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

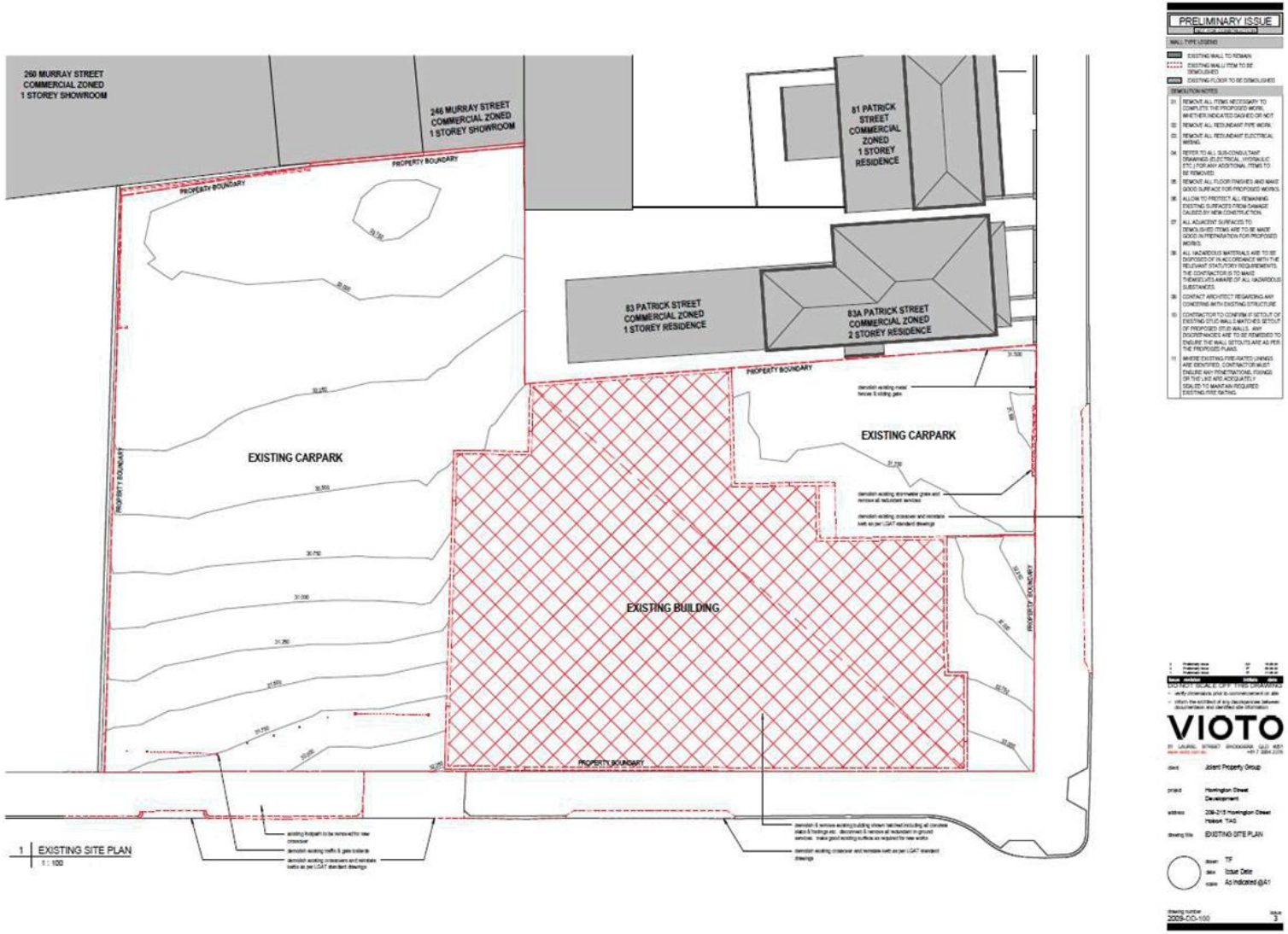
Dr Sam Rees B.Agr.Sc (Phd)

- Soil & Environmental Scientist
- 6 years' experience in hydrocarbon and heavy metal contamination assessment and reporting of soils and groundwater.

Appendix 2 Site Plan for proposed development (source Vioto Architects)

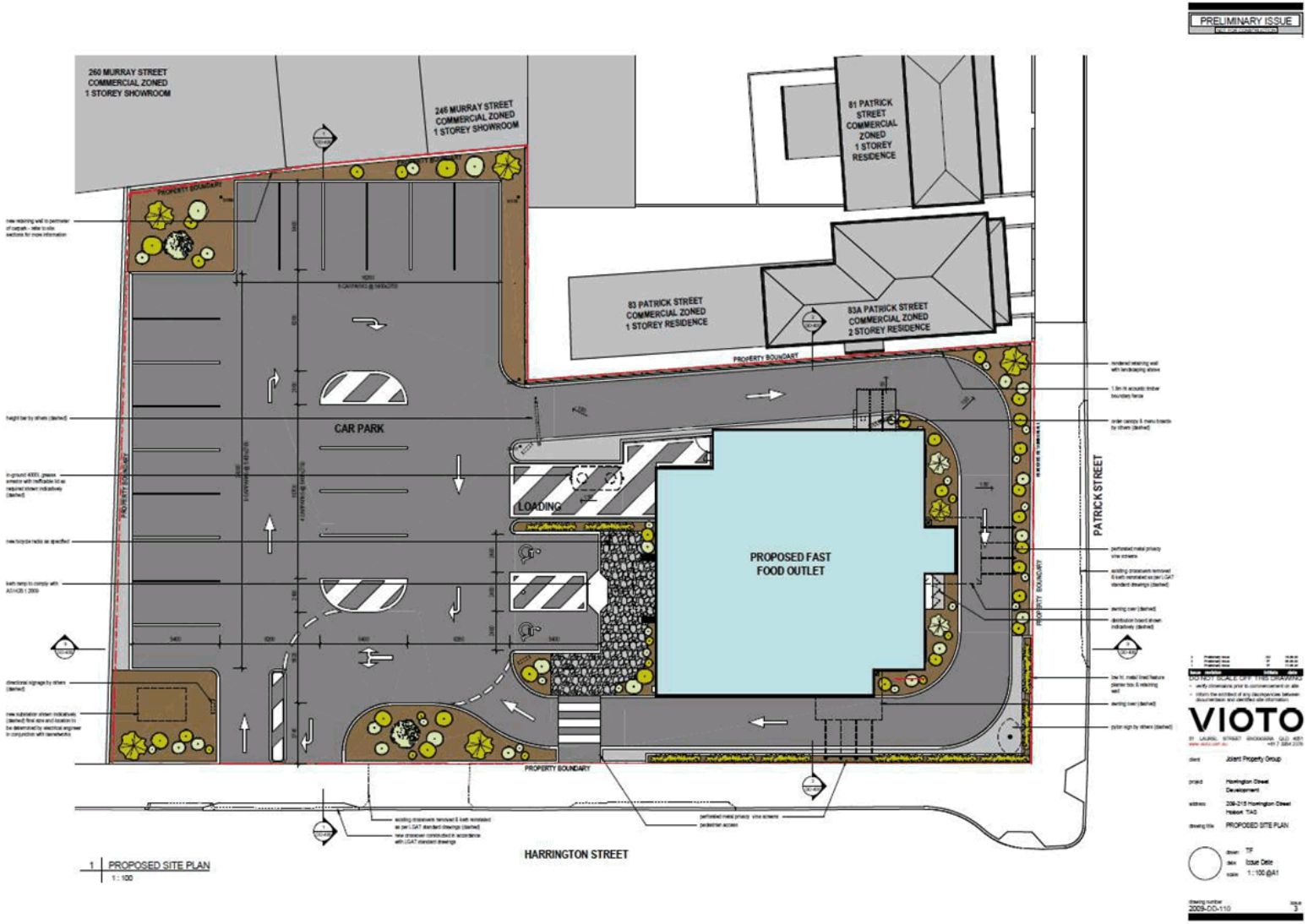


Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020



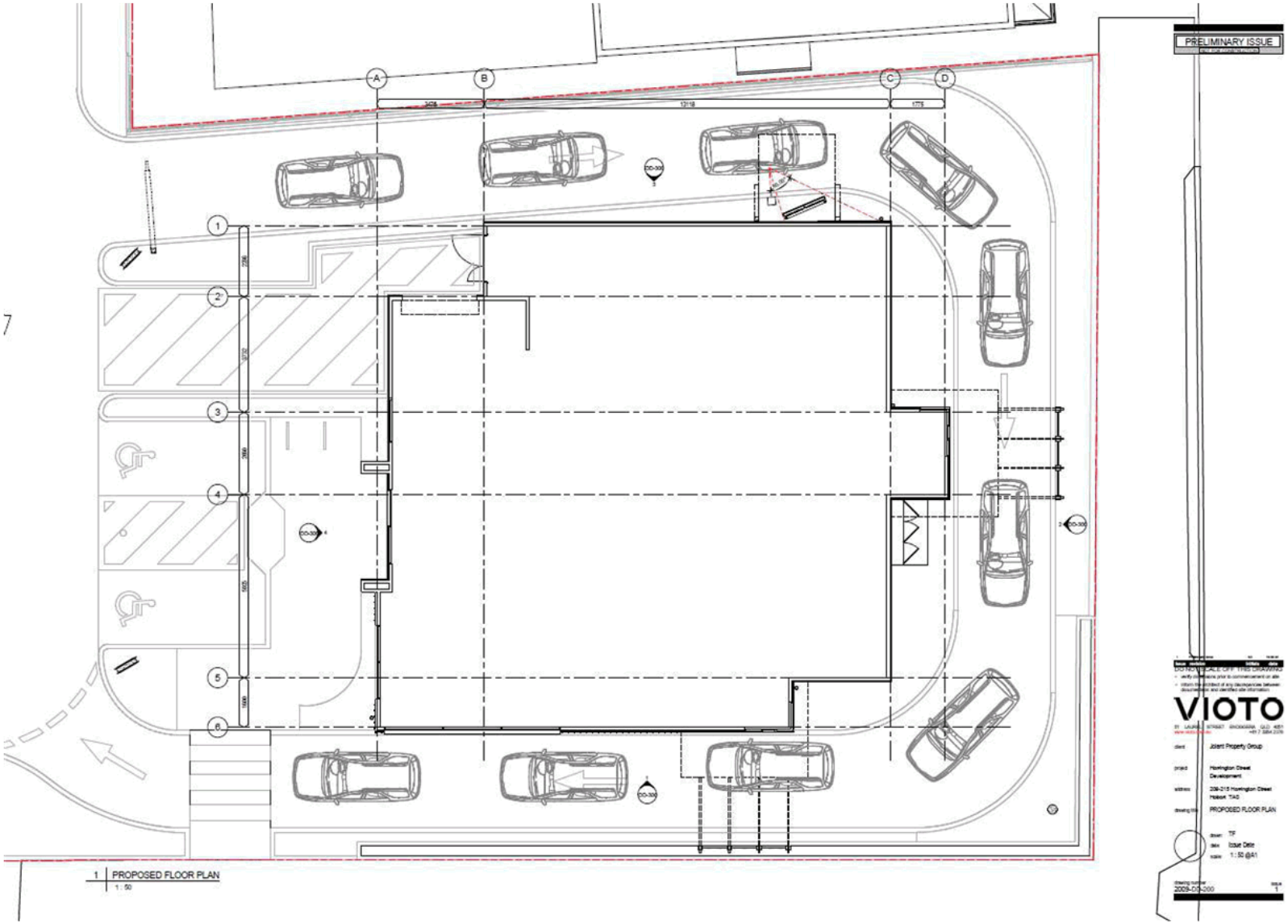
Appendix 2 Site Plan (Vioto Architects)

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020



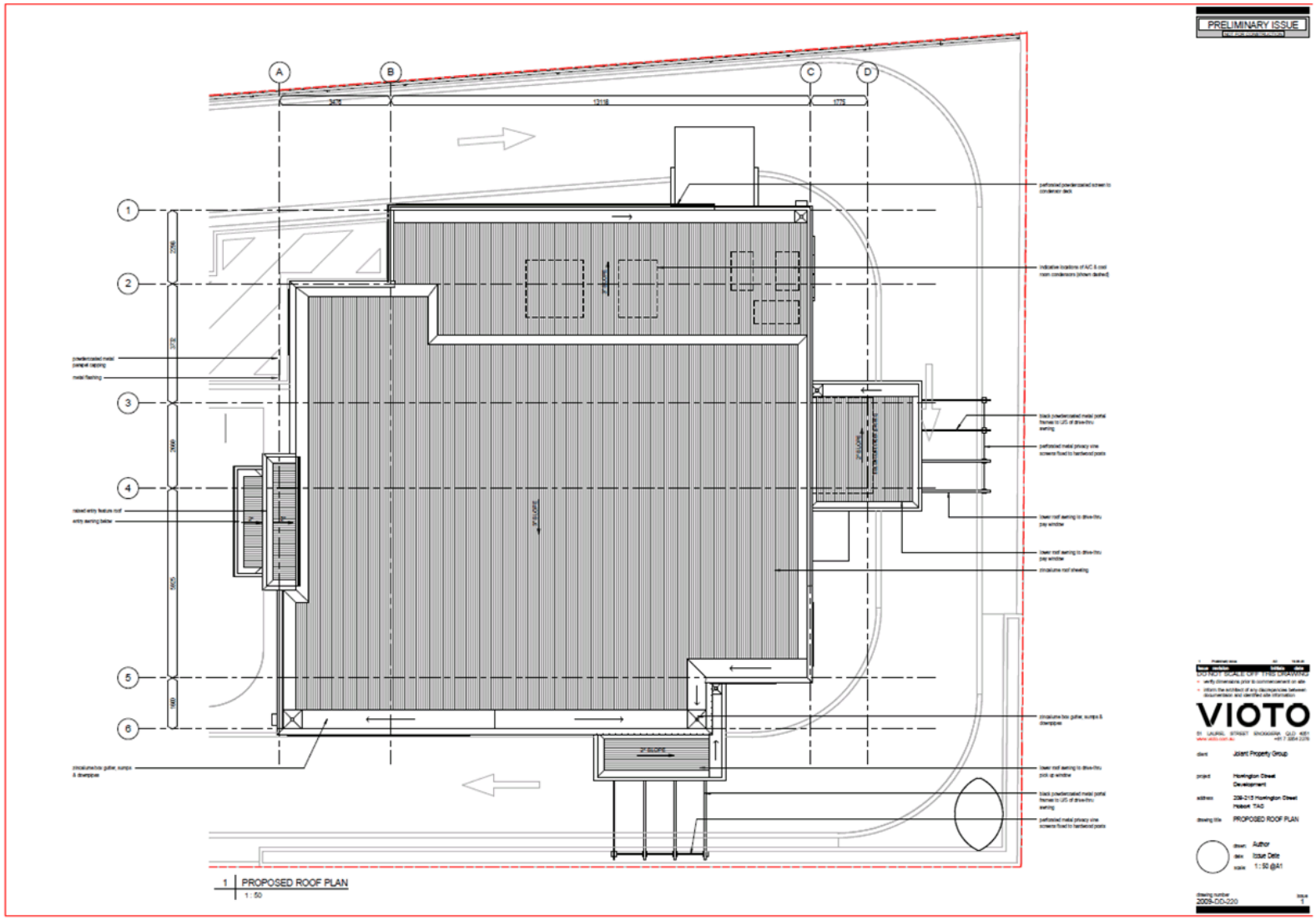
Appendix 2 Site Plan (Vioto Architects)

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020



Appendix 2 Site Plan (Vioto Architects)

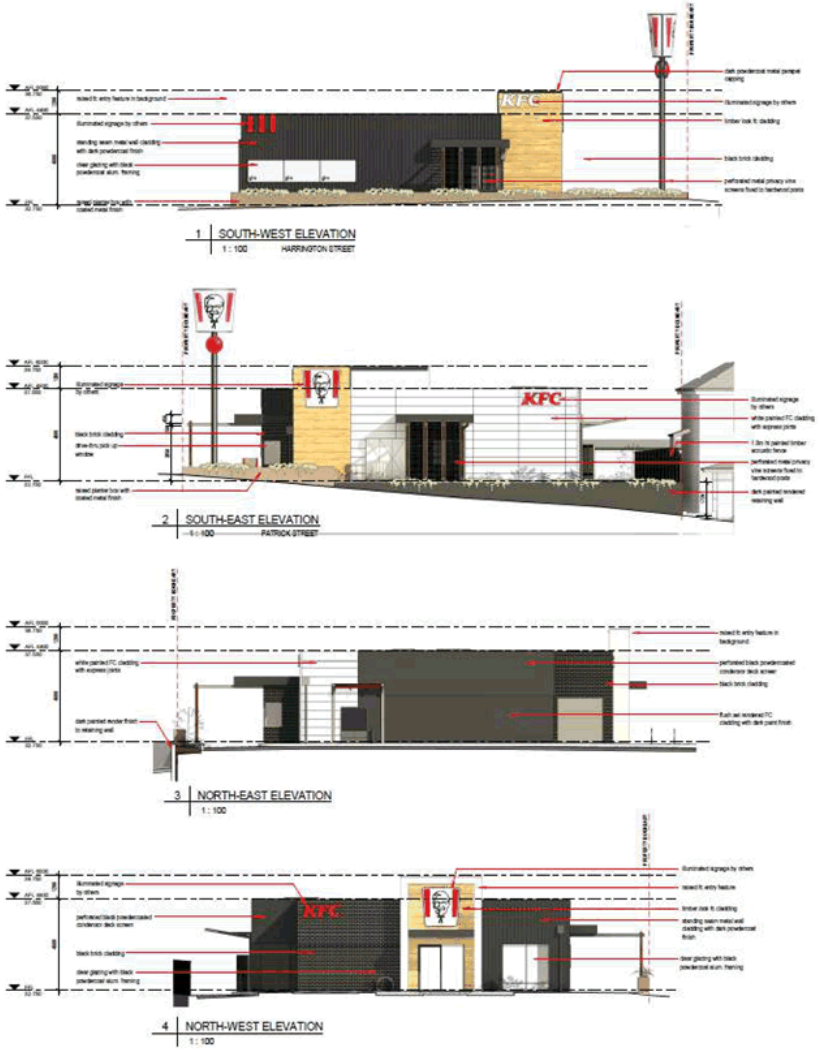
Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020



Appendix 2 Site Plan (Vioto Architects)

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

PRELIMINARY ISSUE



VIOTO

client Joliant Property Group

project Harrington Street Development

address 209-215 Harrington Street Hobart TAS

drawing title PROPOSED ELEVATIONS

drawn TF

date Issue Date

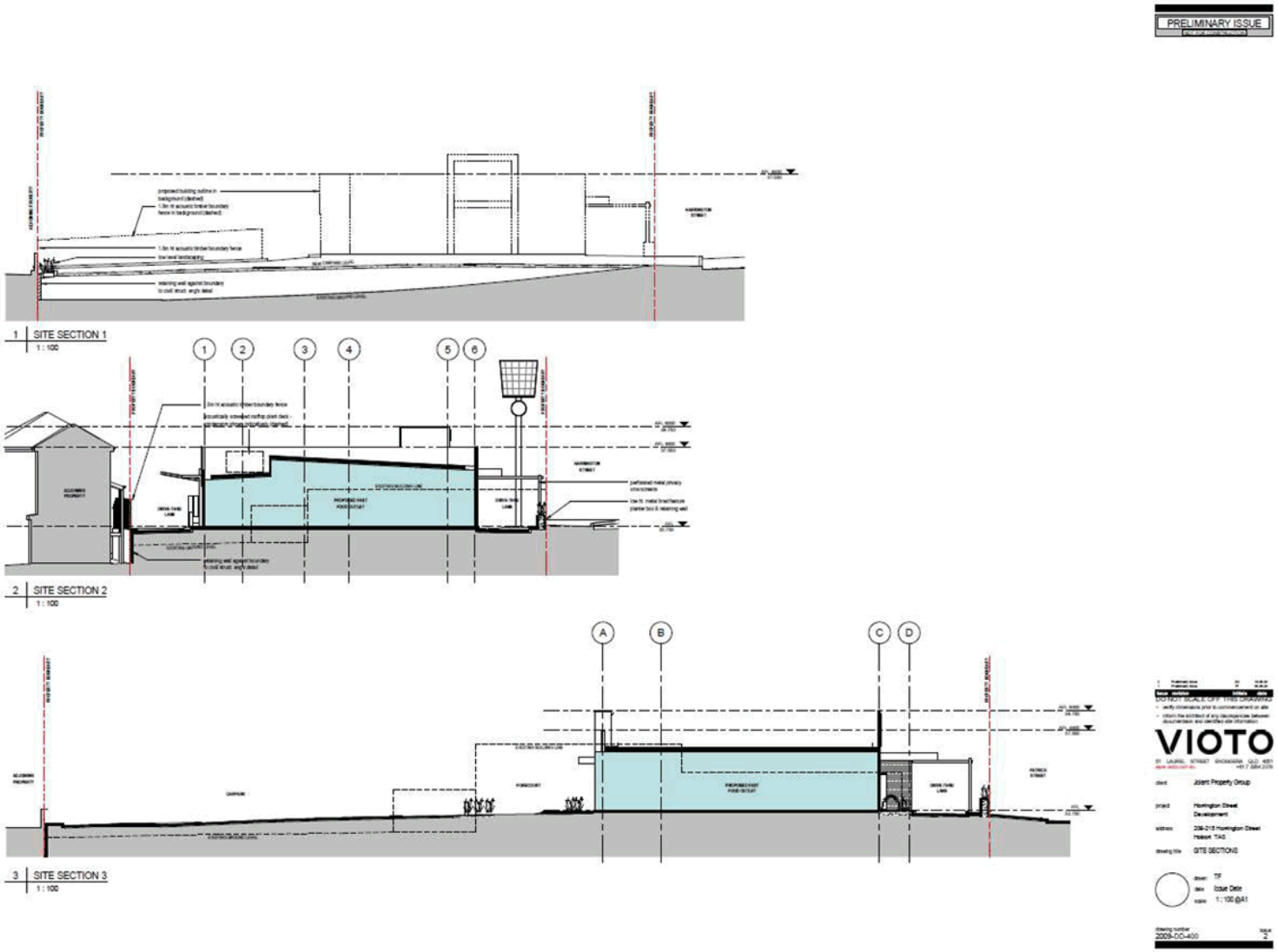
scale 1 : 100 @A1

drawing number 2009-DD-300

issue 3

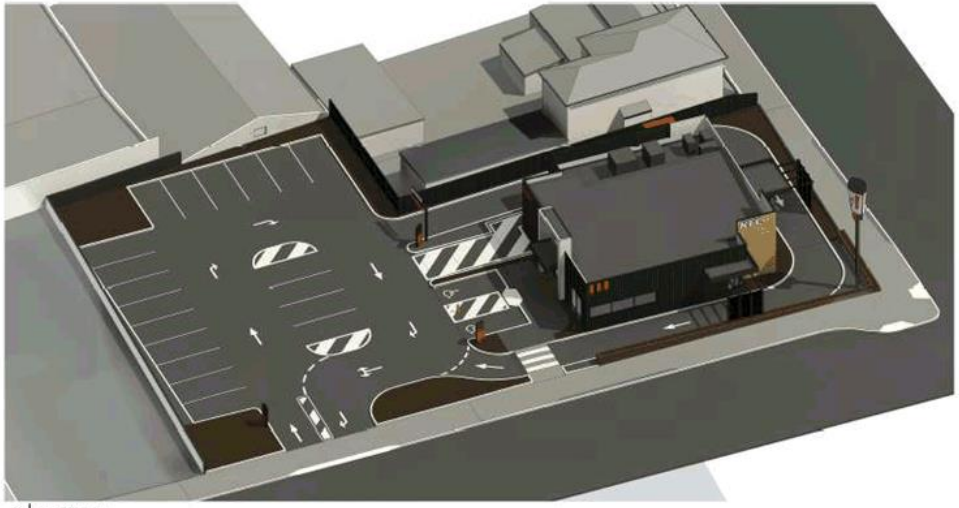
Appendix 2 Site Plan (Vioto Architects)

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020



Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

PRELIMINARY ISSUE



2 AERIAL VIEW

1 ARTIST IMPRESSION

3 ARTIST IMPRESSION

VIOTO

client Joient Property Group

project Harrington Street Development

address 209-215 Harrington Street Hobart TAS

drawing title ARTIST IMPRESSIONS

drawn TF

date Issue Date

scale @A1

drawing number 2009-DD-500

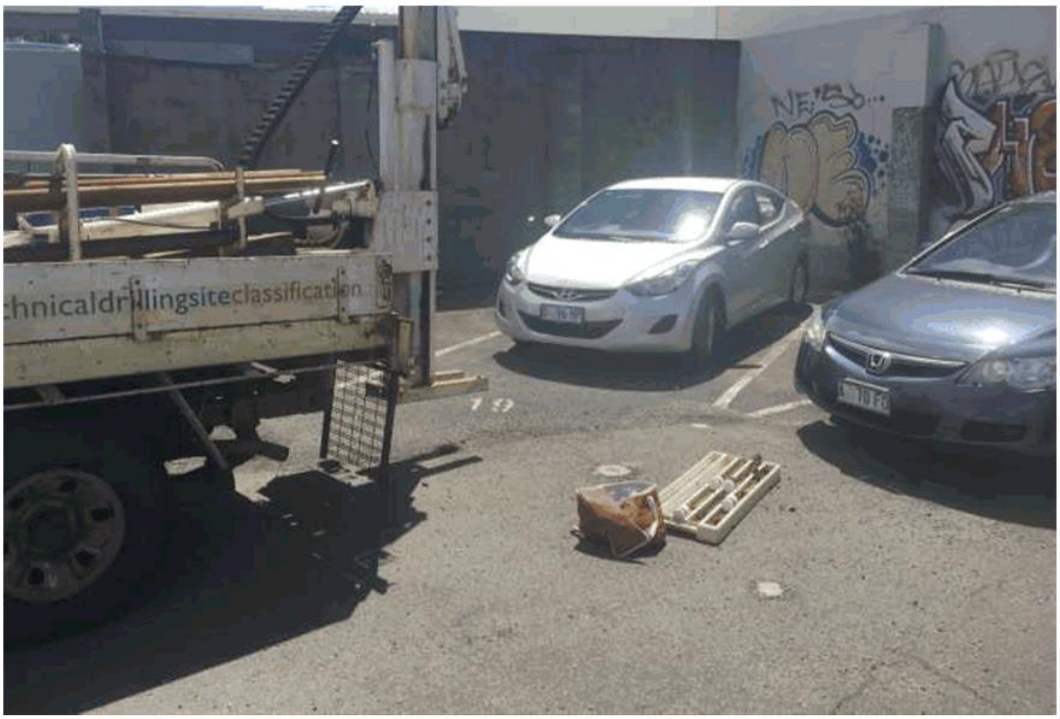
issue 2

Appendix 3 Site Photographs

View of the former City Cabs Carpark From Harrington Street

Small Carpark Fronting on Patrick Street

Small Yard Servicing The Side Entry Door



Northern Corner of the Former City Cabs Site

Northern Corner of the Former City Cabs Site

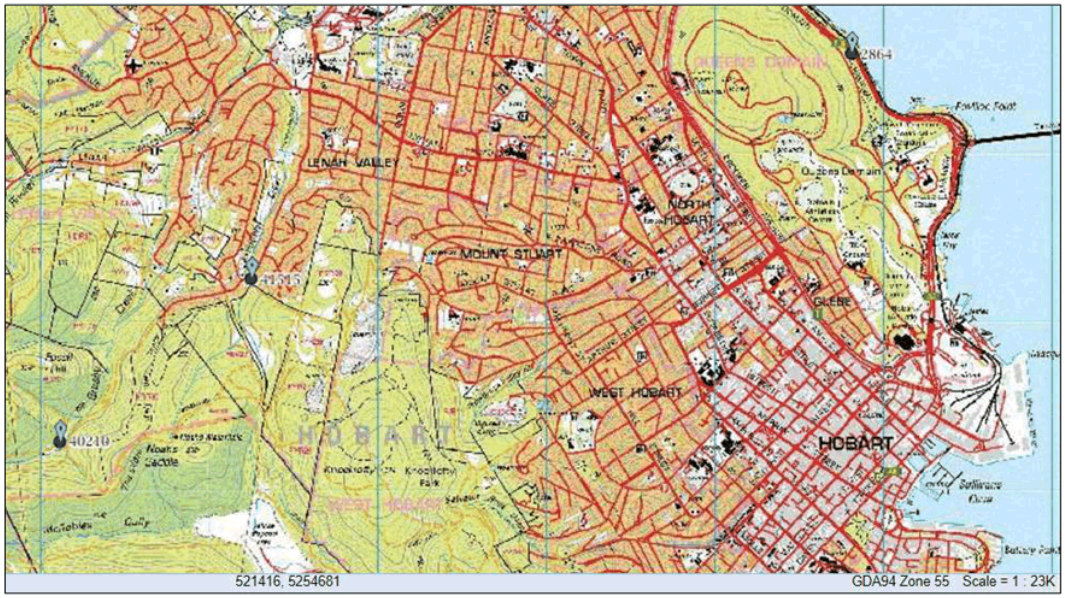
Western Corner and Street Frontage of the Former City Cabs Site

Norther End of the Former City Cabs Call Centre Building

Entrance to The Existing Carpark

View to the Northwest through to the Northeast From the Centre of the Former City Cabs Site

Appendix 4 Registered Water Bore Database



Groundwater Feature Detailed Report

Identification

Feature id: 2864 **Feature type:** Bore

Location

Locality: Hobart
Easting: 526814 **Datum:** GDA94
Northing: 5254583 **Accuracy:** 200
Ground level (m ASL):

Construction

Date drilled: 21/02/1983
Drilling company: Mines Department (=Tasmania Department of Mines)
Depth (metres): 54.00
Initial yield (L/sec): 0.23
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	54.0	54.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	3.0	soil and boulders
3.0	54.0	dolerite

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
21/02/1983	40.0		0.23

Main aquifer geology: Jurassic Dolerite
Final TDS (mg/L): 1800

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

03/07/2017 Page 1

Groundwater Feature Detailed Report

Current status

Last recorded statuses

Type	Value	Date recorded
function	Unknown	21/02/1983

03/07/2017 Page 2

Groundwater Feature Detailed Report

Identification

Feature id: 40210 **Feature type:** Bore

Location

Locality: Lenah Valley
Easting: 522117 **Datum:** GDA94
Northing: 5252281 **Accuracy:** 25
Ground level (m ASL):

Construction

Date drilled: 20/10/2010
Drilling company: Gerald Spaulding Drillers Pty Ltd
Depth (metres): 54.00
Initial yield (L/sec):
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
3.0	54.0	178.00	Downhole Hammer (Rotary Hammer)
0.0	3.0	212.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	1.0	Top soil
1.0	15.0	Clay & mudstone shale
15.0	42.0	Limestone grey
42.0	54.0	Dolerite white

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Permian
Final TDS (mg/L):

03/07/2017 Page 3

Groundwater Feature Detailed Report

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	20/10/2010

03/07/2017 Page 4

Groundwater Feature Detailed Report

Identification

Feature id: 41515 **Feature type:** Bore

Location

Locality: Lenah Valley
Easting: 523252 **Datum:** GDA94
Northing: 5253248 **Accuracy:** 2
Ground level (m ASL):

Construction

Date drilled: 05/03/2015
Drilling company: KMR Drilling Pty Ltd
Depth (metres): 48.00
Initial yield (L/sec): 1.00
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	0.5	225.00	Downhole Hammer (Rotary Hammer)
0.5	48.0	171.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	0.5	185.00	200.00	"unplasticised polyvinylchloride uPVC, Class 9"
0.0	36.0	132.00	140.00	unplasticised polyvinylchloride uPVC
46.0	48.0	132.00	140.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
36.0	46.0	slotted casing

Seals

From (m)	To (m)	Material type
0.0	0.6	cement

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	0.5	Soil Clay
0.5	48.0	Triassic

03/07/2017 Page 5

Groundwater Feature Detailed Report

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
05/03/2015	39.0	39.0	0.30
05/03/2015	45.0	45.0	0.75
05/03/2015	48.0	48.0	1.00

Main aquifer geology: Triassic
Final TDS (mg/L): 1700

Standing Water Levels

Standing water levels

Date	SWL (metres)
05/03/2015	8.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	05/03/2015
purpose	domestic garden	05/03/2015

03/07/2017 Page 6

Appendix 5 Equipment (PID Meter) Calibration Certificates

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration and Service Report – PID

Company:	Geo-Environmental Solutions	**Manufacturer:**	RAE	**Serial #:**	590-902123
Contact:	John-Paul Cumming	**Instrument:**	MINIRAE LITE SN: 590-902123	**Asset #:**	
Address:	86 Queen Street SANDY BAY, TAS	**Model:**	MiniRAE Lite	**Part #:**	-
		Configuration:	VOC	**Sold:**	04.09.2012
		Wireless:	-	**Last Cal:**	18.02.2014
Phone:	03 6223 1839	**Network ID:**	-	**Job #:**	35744
Fax:	03 6223 4539	**Unit ID:**	-	**Cal Spec:**	Standard
Email:	jcumming@geosolutions.net.au	**Details:**	-	**Order #:**	EFT

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	P		
	Cradle, Travel Charger	P		
Pump	Flow	P		
Filter	Filter, fitting, etc	F	Replaced	
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P		
Datalogger	Operation	P		
Monitor Housing	Condition	P		
Case	Condition / Type	P		
Sensors		P		
PID	Sensor	P	Replaced	
PID	Lamp	P		
THP	THP	P		

Engineer's Report

Service and calibration. Found SUnit is moisture sensitive due to corroded PID sensor. Replace sensor. Replace metal filter.Clean pump and adjust stall settings. Check PC communications, configuration settings and data download. Test sensor response-OK- unit is not moisture sensitive. Fit new inlet filter. Calibrate.

Melbourne	**Head Office**	2 Merchant Avenue	THOMASTOWN VIC 3074	T: +(613) 9464 2300	F:+ (613) 9464 3421
Sydney	S14 Lvl 2	6-8 Holden Street	ASHFIELD NSW 2131	T: +(612) 9716 5966	F:+ (612) 9716 5988
Perth	Unit 6	41 Holder Way	MALAGA WA 6090	T: +(618) 9249 5663	F:+ (618) 9249 5362
Brisbane	Unit 17	23 Ashtan Place	BANYO QLD 4014	T: +(617) 3267 1433	F:+ (617) 3267 3559

sales@aesolutions.com.au | ISO Certified 9001:2008 | www.aesolutions.com.au

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6eV	1062N322047	Isobutylene	100ppm	S110317-1		0	100

Calibrated/Repaired by: MATTHEW WEIGHT Date: 21.06.2017 Next Due: 21.12.2017

Melbourne	**Head Office**	2 Merchant Avenue	THOMASTOWN VIC 3074	T: +(613) 9464 2300	F: + (613) 9464 3421
Sydney	S14 Lvl 2	6-8 Holden Street	ASHFIELD NSW 2131	T: +(612) 9716 5966	F: + (612) 9716 5988
Perth	Unit 6	41 Holder Way	MALAGA WA 6090	T: +(618) 9249 5663	F: + (618) 9249 5362
Brisbane	Unit 17	23 Ashtan Place	BANYO QLD 4014	T: +(617) 3267 1433	F: + (617) 3267 3559

sales@aesolutions.com.au ISO Certified 9001:2008 www.aesolutions.com.au

Appendix 6 Laboratory Chain of Custody (COC)

CHAIN OF CUSTODY

ALS Laboratory: please tick →

Sydney: 277 Woodpark Rd, Smithfield NSW 2170 Ph: 02 8784 9555 E: samples.sydney@alsenviro.com
Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com
Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com
Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com
Adelaide: 2-4 Burnett Rd, Pooraka SA 5095 Ph: 03 8549 9600 E: adelaide@alsenviro.com
Perth: Ph: 08 9251 7200 E: samples.perth@alsenviro.com
Launceston: Ph: 03 8549 9600 E: launceston@alsenviro.com

FREIGHT

CLIENT:	Geo-Environemtnal Solutions	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	86 Queen Street Sandy Bay		
PROJECT:	215-217 Harrington Street (H'Ton)	ALS QUOTE NO.:	N/A
ORDER NUMBER:			
PROJECT MANAGER:	Sarah Joyce	CONTACT PH:	0438 255 259
SAMPLER:	Sarah Joyce	SAMPLER MOBILE:	0438255259
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	
Email Reports to:	jcumming@geosolutions.net.au, sjoyce@geosolutions.net.au & PM		
Email Invoice to:	jcumming@geosolutions.net.au		

COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7; OF: 1 2 3 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Sarah Joyce			Mawn (Au)
DATE/TIME: 25/9/17	DATE/TIME:	DATE/TIME:	DATE/TIME: 26/9 10-00

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TRH/TPH/PAH	BTEXN	Lead				Hold	Extract & Hold	Additional Information
	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	CC1 ✓	25/09/2017	W			X	X	X						
2	CC2 ✓	25/09/2017	W			X	X	X						
	~~CC3~~	~~25/09/2017~~	~~W~~			~~X~~	~~X~~	~~X~~						
3	CC4 ✓	25/09/2017	W			X	X	X						
	~~CC5~~	~~25/09/2017~~	~~W~~			~~X~~	~~X~~	~~X~~						
4	Duplicate (Dup 1)	25/09/2017	W			X	X	X						
5	Rinse Blank	25/09/2017	W			X	X							
					TOTAL									

Environmental Division
Melbourne
Work Order Reference
EM1713195

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CHAIN OF CUSTODY
ALS Laboratory: please tick →

★ **FREIGHT**

CLIENT:	Geoenvironmental Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005		
PROJECT:	Harrington St (H'Ton)	ALS QUOTE NO.:	N/A
ORDER NUMBER:			COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
PROJECT MANAGER:	Sarah Joyce	CONTACT PH: 0438255259	
SAMPLER:		SAMPLER MOBILE:	
COC emailed to ALS? (YES / (NO))		EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au		
Email Invoice to:	jcumming@geosolutions.net.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 26/9/17	DATE/TIME:	DATE/TIME:	DATE/TIME: 27/9 9.05

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

SAMPLE DETAILS MATRIX: Solid(S) Water(W)				CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (full filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					Hold	Extract & Hold	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	CC6	26/9/17	W	2V, 1P, 1Amber	4	✓	✓							
					TOTAL									

Environmental Division
Melbourne
Work Order Reference
EM1713260

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CHAIN OF CUSTODY

ALS Laboratory: please tick →

Sydney | Brisbane | ★ Melbourne | Newcastle | Townsville | Adelaide | Launceston

URGENT

CLIENT:	Geoenvironmental Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): 3 DAY TAT ☐ Non Standard or urgent TAT (List due date):
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005		
PROJECT:	Harrington street	ALS QUOTE NO.:	NIA
ORDER NUMBER:			COC SEQUENCE NUMBER (Circle) COC: (1) 2 3 4 5 6 7 OF: 1 2 (3) 4 5 6 7
PROJECT MANAGER:	Sarah Joyce	CONTACT PH: 0438255259	
SAMPLER:	Grant	SAMPLER MOBILE:	
COC emailed to ALS? (YES / (NO))		EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au		
Email Invoice to:	jcumming@geosolutions.net.au; miran@geosolutions.net.au; sjoyce@geosolutions.net.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 1·11·17 1500	DATE/TIME:	DATE/TIME:	DATE/TIME: 3/11 9-30

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					Hold	Cancel & Hold	Additional Information
1	BH01 1·5-1·6	31·10·17 1130	S	1 Soil Jar	1	✓	✓							
2	BH01 2·5-2·6	1135	S		1	✓	✓							
3	BH01 2·7-2·8	1140	S		1	✓	✓							
4	BH02 0·7-0·8	1150	S		1	✓	✓							
5	BH02 1·5-1·6	1155	S		1	✓	✓							
6	BH02 2·5-2·6	1200	S		1	✓	✓							
7	BH02 2·7-2·8	1205	S		1	✓	✓							
8	BH03 0·5-0·6	1220	S		1	✓	✓							
9	BH03 1·5-1·6	1230	S		1	✓	✓							
10	BH03 2·5-2·6	1237	S		1	✓	✓							
11	BH03 2·7-2·8	1247	S		1	✓	✓							
12	BH04 0·5-0·6	1300	S		1	✓	✓							
				TOTAL										

Environmental Division
Melbourne
Work Order Reference
EM1715132

Telephone : - 61-3 8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SF = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	Geoenvironmental Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date): 3 DAY TAT
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005		
PROJECT:	HARRINGTON ST	ALS QUOTE NO.:	N/A
ORDER NUMBER:			
PROJECT MANAGER:	Sarah Joyce	CONTACT PH:	0438255259
SAMPLER:	Grant	SAMPLER MOBILE:	
COC emailed to ALS? (YES / (NO))		EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au		
Email Invoice to:	jcumming@geosolutions.net.au, miran@geosolutions.net.au, sjoyce@geosolutions.net.au		

COC SEQUENCE NUMBER (Circle): COC: 1 (2) 3 4 5 6 7; OF: 1 2 (3) 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
[signature]			Narra (Am)
DATE/TIME: 1·11·17 1500	DATE/TIME:	DATE/TIME:	DATE/TIME: 3/11 9-50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					HAH	Extract & Hold	Additional Information: Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	BH04 1.5-1.6	31.10.17 1307	S	[illegible] / Soil Jar		✓	✓							
14	BH04 2.5-2.6	1317				✓	✓							
15	BH04 2.9-3.0	1325				✓	✓							
16	BH05 0.5-0.6	1340				✓	✓							
17	BH05 1.5-1.6	1348				✓	✓							
18	BH05 2.5-2.6	1356				✓	✓					[illegible]		
19	BH05 3.6-3.7	1405				✓	✓							
20	BH06 0.5-0.6	1420				✓	✓							
21	BH06 1.5-1.6	1430				✓	✓							
22	BH06 2.4-2.5	1437				✓	✓							
23	BH07 0.5-0.6	1450				✓	✓							
24	BH07 1.5-1.6	1459				✓	✓							
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Appendix 6 Laboratory Chain of Custody (COC) 90

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	Geoenvironmental Solutions
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005
PROJECT:	HARRINGTON ST
ORDER NUMBER:	
PROJECT MANAGER:	Sarah Joyce — CONTACT PH: 0438255259
SAMPLER:	Ciraud — SAMPLER MOBILE:
COC emailed to ALS? (YES / (NO))	EDD FORMAT (or default):
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au
Email Invoice to:	jcumming@geosolutions.net.au, miran@geosolutions.net.au, sjoyce@geosolutions.net.au

TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)
★ Standard TAT (List due date):
Non Standard or urgent TAT (List due date): 3 Day TAT

ALS QUOTE NO.: N/A

COC SEQUENCE NUMBER (Circle)
COC: 1 (2) 3 4 5 6 7
OF: 1 2 (3) 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 31·10·17 1500	DATE/TIME:	DATE/TIME:	Warren (ALS) DATE/TIME: 3/11 9-50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					Hold	Extract & Hold	Additional Information
25	BH07 2·5-2·6	31·10·17 1515	S	1 Soil Jar		✓	✓							
26	BH07 2·8-2·9	1526										✓		
27	BH08 0·5-0·6	1545										✓		Brick
28	BH08 1·5-1·6	1551				✓	✓							
29	BH08 2·5-2·6	1559										✓		
30	BH08 3·4-3·5	1607				✓	✓							
31	Rinsate 1	31·10·17 1620	W	1P, 2V, 1A		✓	✓							
32	BH09 0·5-0·6	1625	S	1 Soil Jar		✓	✓							
33	BH09 1·5-1·6	1630				✓	✓							
34	BH09 2·5-2·6	1640				✓	✓							
35	BH09 2·9-3·0	1645				✓	✓							
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CHAIN OF CUSTODY

ALS Laboratory: please tick ✓

CLIENT: GEOENVIRONMENTAL SOLUTIONS

OFFICE:

PROJECT: HARRINGTON STREET PROJECT NO.:

ORDER NUMBER: PURCHASE ORDER NO.:

PROJECT MANAGER: CONTACT PH:

SAMPLER: SAMPLER MOBILE:

COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):

Email Reports to (will default to PM if no other addresses are listed):

Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date) ☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.:

COUNTRY OF ORIGIN:

COC SEQUENCE NUMBER (Circle)

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB: Suite Codes must be listed to attract suite price)	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
	Extra Samples:						
36	Dup 1	31/10/17					
37	Dup 2	31/10/17					
				TOTAL			

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide/Cd Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP - Airtight Unpreserved Plastic
V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl preserved Plastic, HS = HCl preserved Speciation bottle, SP = Sulfuric Preserved Plastic, F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottle, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag, U = Liquid Nitrogen Preserved Bottles, STT = Sterile Sodium Thiosulfate Preserved Bottles

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

ALS Sydney

CHAIN OF CUSTODY

CLIENT:
OFFICE:
PROJECT:
ORDER:
CONTACT PH: 0438255259
SAMPLER MOBILE:
EDD FORMAT (or default):
EMAIL: @geosolutions.net.au, sjoyce@geosolutions.net.au

TURNAROUND REQUIREMENTS: ☒ Standard TAT (List due date): 3 Day Turn Around
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):
ALS QUOTE NO.: N/A
COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 1-11-17 1500	DATE/TIME: 3/11 9-50	DATE/TIME:	DATE/TIME: 7/11/17 12:30

SAMPLE DETAILS	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					HOLD	Cancel & Hold	Additional Information
1	31.10.17 1405	S	1 Soil Jar	1	✓	✓							
2	1551	S	1	1	✓	✓							
* PLEASE FORWARD FOR TRIPLICATE ANALYSIS *													
TOTAL													

TAT

Environmental Division Sydney
Work Order Reference
ES1727873

Telephone : + 61-2-8784 8555

Appendix 6 Laboratory Chain of Custody (COC)

Appendix 7 Quality Control

Duplicate Comparrison		EG005T: Total Metals by ICP-AES												EG035T	EP075(SIM)B: Polyr	
		Arsenic	Barium	Beryllium	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Vanadium	Zinc	Mercury	Naphthalene	Acenaphthylene
31/10/2017	TRIPLICATE 1	<5	120	<1	<1	19	24	40	9	424	24	70	44	<0.1	<0.5	<0.5
31/10/2017	BH01 1.5-1.6	<5	90	<1	<1	16	16	22	12	456	12	66	32	<0.1	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	28.6	NA	NA	17.1	40.0	58.1	28.6	7.3	66.7	5.9	31.6	NA	NA	NA
Method Detection Limit (MDL)		NA	200	NA	NA	40	40	100	100	>500	40	500	100	NA	NA	NA
MDL Class		NONE	LOW	NONE	NONE	LOW	LOW	LOW	LOW	HIGH	LOW	MED	LOW	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	21	NONE	NONE	33	10	-8	21	8	-17	44	18	NONE	NONE	NONE
31/10/2017	TRIPLICATE 2	<5	140	<1	<1	13	10	25	10	78	13	68	20	<0.1	<0.5	<0.5
31/10/2017	BH06 0.5-0.6	<5	90	<1	<1	16	19	21	10	85	18	60	31	<0.1	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	43.5	NA	NA	20.7	62.1	17.4	0.0	8.6	32.3	12.5	43.1	NA	NA	NA
Method Detection Limit (MDL)		NA	200	NA	NA	40	40	100	100	500	40	100	100	NA	NA	NA
MDL Class		NONE	LOW	NONE	NONE	LOW	LOW	LOW	LOW	MED	LOW	LOW	LOW	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	7	NONE	NONE	29	-12	33	50	21	18	38	7	NONE	NONE	NONE

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Duplicate Comparrison		Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Sum of polycyclic aromatic hydro	Benzo(a)pyrene TEQ (WHO)
31/10/2017	TRIPLICATE 1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH01 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Method Detection Limit (MDL)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MDL Class		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
31/10/2017	TRIPLICATE 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Method Detection Limit (MDL)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MDL Class		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Date Collected	Water Sample	Benzene	Toluene	Ethyl-benzene	Xylene			BTEX Total	Napth-alene	TPH Carbon Chain Fractions					Metal
					M, P	O	Total			6 - 9	10 - 14	15 - 28	29 - 36	10 - 36	Pb
Blanks															
25/09/2017	Rinse Blank	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	----
Groundwater Splits - Fixed RPD Method															
25/09/2017	Duplicate	<1	<2	<2	<2	<2	<2	<1	<5	140	<50	<100	<50	<50	<0.001
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	<0.001
RPD		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	<0.001
RPD		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Date Collected	Water Sample	Benzene	Toluene	Ethyl-benzene	Xylene			BTEX Total	Napth-alene	TPH Carbon Chain Fractions					Metal
					M, P	O	Total			6 - 9	10 - 14	15 - 28	29 - 36	10 - 36	Pb
Groundwater Splits - MDL Method															
Mean Detection Limit		<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	0.001
Duplicate															
Level Calculation		NONE	NONE	NONE	NONE	NONE	NONE		NONE	LOW	NONE	NONE	NONE	NONE	NONE
Compliance?		**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**FALSE**	**YES**	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**
Triplicate															
Hide This Row															
Hide This Row		1	2	2	2	2	2	0	5	20	50	100	50	50	<0.001
Level Calculation		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Compliance?		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: EM1715132	Page	: 1 of 17
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: SARAH JOYCE	Contact	: Shirley LeComu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: Harrington Street	Date Samples Received	: 03-Nov-2017
Order number	: ----	Date Analysis Commenced	: 03-Nov-2017
C-O-C number	: ----	Issue Date	: 09-Nov-2017
Sampler	: Grant		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 37		
No. of samples analysed	: 32		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1220163)									
EM1715130-034	Anonymous	EA055: Moisture Content	----	1	%	8.9	9.1	1.77	No Limit
EM1715132-010	BH03 2.5-2.6	EA055: Moisture Content	----	1	%	21.9	21.2	2.95	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1220164)									
EM1715132-020	BH06 0.5-0.6	EA055: Moisture Content	----	1	%	20.1	19.9	0.777	0% - 20%
EM1715132-034	BH09 2.5-2.6	EA055: Moisture Content	----	1	%	16.2	16.1	0.00	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1220251)									
EM1715132-004	BH02 0.7-0.8	EG005T: Lead	7439-92-1	5	mg/kg	875	# 286	101	0% - 20%
EM1715118-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	270	260	0.00	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	35	36	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	48	51	6.23	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	21	22	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	22	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	52	50	4.67	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	389	386	0.794	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	85	82	4.08	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	46	47	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	322	323	0.390	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	120	130	12.6	0% - 50%

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 3 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG005T: Total Metals by ICP-AES (QC Lot: 1220251) - continued									
EM1715132-004	BH02 0.7-0.8	EG005T: Chromium	7440-47-3	2	mg/kg	15	15	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	23	22	4.92	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	24	26	5.53	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	14	29.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	56	54	3.78	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	446	429	3.84	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	73	70	4.01	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	83	82	1.92	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1220253)									
EM1715132-015	BH04 2.9-3.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	24	21.4	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	27	21	22.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	26	26	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	33	39	15.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	8	26.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	142	170	18.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	63	79	22.6	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	52	44	16.0	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	16	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	18	17	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	18	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	26	26	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	79	83	4.85	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	63	58	8.09	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	39	37	4.44	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1220252)									

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 4 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1220252) - continued									
EM1715118-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.9	1.1	21.7	0% - 50%
EM1715132-004	BH02 0.7-0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.8	0.8	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1220254)									
EM1715132-015	BH04 2.9-3.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1220226)									
EM1715132-001	BH01 1.5-1.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1715132-011	BH03 2.7-2.8	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 5 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1220228)									
EM1715121-020	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220108)									
EM1715130-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220109)									
EM1715132-014	BH04 2.5-2.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 6 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220227)									
EM1715132-001	BH01 1.5-1.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-011	BH03 2.7-2.8	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220229)									
EM1715121-020	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220108)									
EM1715130-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220109)									
EM1715132-014	BH04 2.5-2.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220227)									
EM1715132-001	BH01 1.5-1.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-011	BH03 2.7-2.8	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220229)									
EM1715121-020	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Page : 7 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220229) - continued									
EM1715132-024	BH07 1.5-1.6	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1220108)									
EM1715130-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1220109)									
EM1715132-014	BH04 2.5-2.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1222778)									
EM1715132-031	Rinsate 1	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 8 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1222778) - continued									
EM1715132-031	Rinsate 1	EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1715165-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.059	0.062	4.10	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.032	0.031	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.05	0.05	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.09	0.09	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1222779)									
EM1715132-031	Rinsate 1	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1715165-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220557)									
EM1715160-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1222454)									
EM1715121-030	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1715196-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220557)									
EM1715160-004	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1222454)									
EM1715121-030	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 9 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1222454) - continued									
EM1715196-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1222454)									
EM1715121-030	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1715196-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 10 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1220251)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.3	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	89.9	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	105	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	102	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	91.3	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	99.0	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	91.8	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	89.6	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	99.3	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.1	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	94.1	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	92.1	82	111
EG005T: Total Metals by ICP-AES (QCLot: 1220253)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.0	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	93.9	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	106	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	102	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.5	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	102	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	94.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.2	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	102	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.7	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	96.6	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	94.2	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220252)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	95.0	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220254)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.1	77	104
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220226)								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 11 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220226) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	97.6	80	121
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	85.0	70	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	107	80	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	108	70	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	110	80	122
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	121	80	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	116	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	120	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	104	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	111	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	101	70	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	107	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	90.5	65	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	83.8	65	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	84.4	65	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	77.5	65	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220228)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	109	80	121
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	118	70	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	112	80	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	120	70	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	116	80	122
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	116	80	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	118	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	120	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	119	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	115	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	112	70	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	111	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	99.2	65	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	99.2	65	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	107	65	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	89.8	65	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220108)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	36 mg/kg	82.9	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220109)								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 12 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220109) - continued								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	98.5	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220227)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	98.2	65	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	101	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	96.7	70	122
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220229)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	117	65	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	119	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	120	70	122
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220108)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	80.1	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220109)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	96.7	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220227)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	98.4	68	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	101	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	99.2	38	132
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220229)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	118	68	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	116	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	119	38	132
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1220108)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	86.6	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	90.2	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	84.7	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	89.7	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	93.7	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	91.2	66	130
EP080: BTEXN (QCLot: 1220109)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	95.7	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	97.3	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	96.9	73	125

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 13 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 1220109) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	98.3	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	101	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	90.0	66	130

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1222778)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.0	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.3	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100.0	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.5	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.9	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.8	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	95.4	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.4	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.4	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	97.1	84	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1222779)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	85.2	81	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220559)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	62.5	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.7	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	71.4	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	79.9	51	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.3	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	2.5 µg/L	68.0	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	92.4	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	85.4	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	85.8	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	91.5	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	92.5	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	94.9	57	126

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 14 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220559) - continued								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	88.8	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	92.8	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	92.0	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	92.2	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220557)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	82.1	53	123
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	93.6	57	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	93.1	55	141
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1222454)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	109	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220557)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	87.1	54	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	92.6	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	95.1	51	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1222454)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	105	65	125
EP080: BTEXN (QCLot: 1222454)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	109	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	110	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	111	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	111	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	116	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.5	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1220251)							
EM1715121-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	106	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	108	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	102	79	121

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 15 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1220251) - continued							
EM1715121-003	Anonymous	EG005T: Copper	7440-50-8	50 mg/kg	110	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	96.1	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	97.7	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	94.8	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	98.8	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	105	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	95.0	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1220253)							
EM1715132-016	BH05 0.5-0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	105	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	95.3	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	105	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	95.8	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	94.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	96.0	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	91.6	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	93.5	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	83.1	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220252)							
EM1715121-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	100	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220254)							
EM1715132-016	BH05 0.5-0.6	EG035T: Mercury	7439-97-6	5 mg/kg	91.0	76	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220226)							
EM1715132-002	BH01 2.5-2.6	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	116	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	121	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220228)							
EM1715121-021	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	107	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	120	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220108)							
EM1715130-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	89.5	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220109)							
EM1715132-015	BH04 2.9-3.0	EP080: C6 - C9 Fraction	----	28 mg/kg	86.4	42	131

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 16 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220227)							
EM1715132-003	BH01 2.7-2.8	EP071: C10 - C14 Fraction	----	806 mg/kg	95.4	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	98.4	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	93.5	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220229)							
EM1715121-022	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	113	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	110	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	103	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220108)							
EM1715130-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	85.4	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220109)							
EM1715132-015	BH04 2.9-3.0	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	83.8	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220227)							
EM1715132-003	BH01 2.7-2.8	EP071: >C10 - C16 Fraction	----	1160 mg/kg	95.9	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	97.9	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	93.2	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220229)							
EM1715121-022	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	113	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	108	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	101	44	126
EP080: BTEXN (QCLot: 1220108)							
EM1715130-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	92.3	50	136
		EP080: Toluene	108-88-3	2 mg/kg	92.3	56	139
EP080: BTEXN (QCLot: 1220109)							
EM1715132-015	BH04 2.9-3.0	EP080: Benzene	71-43-2	2 mg/kg	122	50	136
		EP080: Toluene	108-88-3	2 mg/kg	118	56	139

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1222778)							
EM1715132-031	Rinsate 1	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	96.1	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	104	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	96.4	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.6	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	94.0	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	95.8	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.4	76	130

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 17 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1222778) - continued							
EM1715132-031	Rinsate 1	EG020A-F: Lead	7439-92-1	0.2 mg/L	94.3	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	95.0	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.4	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	95.4	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.4	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1222779)							
EM1715163-037	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	92.6	70	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220557)							
EM1715160-004	Anonymous	EP071: C10 - C14 Fraction	----	3368 µg/L	87.6	50	130
		EP071: C15 - C28 Fraction	----	14735 µg/L	101	54	136
		EP071: C29 - C36 Fraction	----	7856 µg/L	101	50	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1222454)							
EM1715132-031	Rinsate 1	EP080: C6 - C9 Fraction	----	280 µg/L	96.9	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220557)							
EM1715160-004	Anonymous	EP071: >C10 - C16 Fraction	----	5225 µg/L	93.1	50	128
		EP071: >C16 - C34 Fraction	----	19994 µg/L	99.8	50	150
		EP071: >C34 - C40 Fraction	----	1449 µg/L	103	51	159
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1222454)							
EM1715132-031	Rinsate 1	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	93.2	44	122
EP080: BTEXN (QCLot: 1222454)							
EM1715132-031	Rinsate 1	EP080: Benzene	71-43-2	20 µg/L	109	68	130
		EP080: Toluene	108-88-3	20 µg/L	112	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1715132	Page	: 1 of 12
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: SARAH JOYCE	Telephone	: +61-3-8549 9630
Project	: Harrington Street	Date Samples Received	: 03-Nov-2017
Site	: ----	Issue Date	: 09-Nov-2017
Sampler	: Grant	No. of samples received	: 37
Order number	: ----	No. of samples analysed	: 32

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	EM1715132--004	BH02 0.7-0.8	**Lead**	7439-92-1	101 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1715132--016	BH05 0.5-0.6	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1715132--016	BH05 0.5-0.6	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	1	17	5.88	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 3 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	----	----	----	03-Nov-2017	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	03-Nov-2017	29-Apr-2018	✓	03-Nov-2017	29-Apr-2018	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 4 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**03-Nov-2017**	28-Nov-2017	✓	**03-Nov-2017**	28-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**06-Nov-2017**	14-Nov-2017	✓	**06-Nov-2017**	16-Dec-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 5 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	03-Nov-2017	14-Nov-2017	✓	03-Nov-2017	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
Soil Glass Jar - Unpreserved (EP071)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	16-Dec-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 6 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**03-Nov-2017**	14-Nov-2017	✓	**03-Nov-2017**	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
Soil Glass Jar - Unpreserved (EP071)								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**06-Nov-2017**	14-Nov-2017	✓	**06-Nov-2017**	16-Dec-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 7 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	03-Nov-2017	14-Nov-2017	✓	03-Nov-2017	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)							
Rinsate 1	31-Oct-2017	----	----	----	08-Nov-2017	29-Apr-2018	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)							
Rinsate 1	31-Oct-2017	----	----	----	06-Nov-2017	28-Nov-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
Rinsate 1	31-Oct-2017	06-Nov-2017	07-Nov-2017	✓	08-Nov-2017	16-Dec-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate 1	31-Oct-2017	06-Nov-2017	07-Nov-2017	✓	08-Nov-2017	16-Dec-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate 1	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	14-Nov-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate 1	31-Oct-2017	06-Nov-2017	07-Nov-2017	✓	08-Nov-2017	16-Dec-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate 1	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	14-Nov-2017	✓

Page : 8 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate 1	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	14-Nov-2017	✓

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 9 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	31	12.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	38	13.16	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 10 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page	: 11 of 12
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: ES1727873	Page	: 1 of 7
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Sydney
Contact	: SARAH JOYCE	Contact	: Shirley LeComu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: HARRINGTON ST	Date Samples Received	: 07-Nov-2017
Order number	: ----	Date Analysis Commenced	: 08-Nov-2017
C-O-C number	: ----	Issue Date	: 10-Nov-2017
Sampler	: GRANT M		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 2		
No. of samples analysed	: 2		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 2 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1229329)									
ES1727873-001	TRIPLICATE 1	EA055: Moisture Content	----	1	%	19.8	19.9	0.00	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1229386)									
ES1727929-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	150	120	22.2	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	12	10	16.5	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	6	15.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	36	33.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	32	31.3	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	219	209	4.66	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	33	25	29.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	35	46	27.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
ES1727873-001	TRIPLICATE 1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	120	120	0.00	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	19	18	7.42	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	24	23	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	24	24	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	40	43	5.42	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.00	No Limit

Page : 3 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1229386) - continued									
ES1727873-001	TRIPLICATE 1	EG005T: Manganese	7439-96-5	5	mg/kg	424	404	4.78	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	70	74	5.20	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	44	43	2.39	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1229387)									
ES1727873-001	TRIPLICATE 1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1226921)									
ES1727851-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.9	0.9	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.9	1.1	20.6	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.6	0.7	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.5	0.6	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	3.4	4.4	25.6	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.6	0.7	24.1	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1226923)									
ES1727851-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	160	180	13.7	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1228535)									
ES1727856-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1727857-023	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1226923)									
ES1727851-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	180	200	9.17	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	150	190	22.6	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Page : 4 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1228535)									
ES1727856-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1727857-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 1228535)									
ES1727856-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1727857-023	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Page : 5 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1229386)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	86	126
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	95.7	85	115
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	90	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.5	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	89.7	76	128
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	104	88	120
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	107	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.3	80	114
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	101	85	117
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	101	87	123
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	106	75	131
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	104	92	122
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1229387)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.4	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1226921)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	96.0	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	87.9	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	89.4	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	90.2	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	88.3	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	97.6	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	93.4	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	90.1	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.2	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	91.6	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.4	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	97.4	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.9	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	88.4	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	89.4	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	84.9	63	121

Page : 6 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1226923)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	102	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	106	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1228535)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.0	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1226923)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	100	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	110	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	101	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1228535)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	82.0	68	128
EP080: BTEXN (QCLot: 1228535)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	85.9	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.6	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.3	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.6	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.0	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1229386)							
ES1727873-001	TRIPLICATE 1	EG005T: Arsenic	7440-38-2	50 mg/kg	84.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.3	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.7	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	98.4	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.5	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	98.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1229387)							
ES1727873-001	TRIPLICATE 1	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70	130

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 7 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1226921)							
ES1727851-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	89.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1226923)							
ES1727851-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	100	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	112	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	112	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1228535)							
ES1727856-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	93.7	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1226923)							
ES1727851-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	98.5	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	116	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	105	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1228535)							
ES1727856-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.7	70	130
EP080: BTEXN (QCLot: 1228535)							
ES1727856-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	91.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.6	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	92.0	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	91.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	92.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1727873	Page	: 1 of 4
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Sydney
Contact	: SARAH JOYCE	Telephone	: +61-3-8549 9630
Project	: HARRINGTON ST	Date Samples Received	: 07-Nov-2017
Site	: ----	Issue Date	: 10-Nov-2017
Sampler	: GRANT M	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

RIGHT SOLUTIONS | RIGHT PARTNER

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 2 of 4
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	----	----	----	08-Nov-2017	14-Nov-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	29-Apr-2018	✓	08-Nov-2017	29-Apr-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	28-Nov-2017	✓	09-Nov-2017	28-Nov-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	08-Nov-2017	18-Dec-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	08-Nov-2017	18-Dec-2017	✓
Soil Glass Jar - Unpreserved (EP080)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	09-Nov-2017	14-Nov-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	08-Nov-2017	18-Dec-2017	✓
Soil Glass Jar - Unpreserved (EP080)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	09-Nov-2017	14-Nov-2017	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	09-Nov-2017	14-Nov-2017	✓

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 3 of 4
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 4 of 4
Work Order	: ES1727873
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: HARRINGTON ST

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: EM1713195	Page	: 1 of 4
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Contact	: Shirley LeComu
Address	: 86 QUEEN STREET SANDY BAY TASMANIA, AUSTRALIA 7005	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: 215-217 Harrington Street	Date Samples Received	: 26-Sep-2017
Order number	: ----	Date Analysis Commenced	: 27-Sep-2017
C-O-C number	: ----	Issue Date	: 02-Oct-2017
Sampler	: SARAH JOYCE		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 5		
No. of samples analysed	: 5		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 4
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1138496)									
EM1713195-001	CC1	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1713240-003	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1136433)									
EM1713074-022	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713193-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1136433)									
EM1713074-022	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1713193-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1136433)									
EM1713074-022	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1713193-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 3 of 4
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1138496)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83	105
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1136433)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	360 µg/L	98.3	67	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1136479)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	3368 µg/L	95.8	53	123
EP071: C15 - C28 Fraction	---	100	µg/L	<100	14735 µg/L	99.5	57	133
EP071: C29 - C36 Fraction	---	50	µg/L	<50	7856 µg/L	93.4	55	141
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1136433)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	95.1	65	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1136479)								
EP071: >C10 - C16 Fraction	---	100	µg/L	<100	5225 µg/L	95.9	54	122
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	19994 µg/L	95.0	56	132
EP071: >C34 - C40 Fraction	---	100	µg/L	<100	1449 µg/L	99.2	51	137
EP080: BTEXN (QCLot: 1136433)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.9	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	102	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	107	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	106	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	91.2	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1138496)							
EM1713195-001	CC1	EG020A-F: Lead	7439-92-1	0.2 mg/L	92.0	75	133
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1136433)							
EM1713074-020	Anonymous	EP080: C6 - C9 Fraction	---	280 µg/L	64.8	43	125

Page : 4 of 4
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1136433)							
EM1713074-020	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	64.0	44	122
EP080: BTEXN (QCLot: 1136433)							
EM1713074-020	Anonymous	EP080: Benzene	71-43-2	20 µg/L	82.1	68	130
		EP080: Toluene	108-88-3	20 µg/L	88.8	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1713195**	Page	: 1 of 5
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Telephone	: +61-3-8549 9630
Project	: 215-217 Harrington Street	Date Samples Received	: 26-Sep-2017
Site	: ----	Issue Date	: 02-Oct-2017
Sampler	: SARAH JOYCE	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 5
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)								
CC1, CC4,	CC2, Duplicate	25-Sep-2017	----	----	----	27-Sep-2017	24-Mar-2018	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	25-Sep-2017	27-Sep-2017	02-Oct-2017	✓	28-Sep-2017	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	25-Sep-2017	27-Sep-2017	09-Oct-2017	✓	27-Sep-2017	09-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	25-Sep-2017	27-Sep-2017	02-Oct-2017	✓	28-Sep-2017	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	25-Sep-2017	27-Sep-2017	09-Oct-2017	✓	27-Sep-2017	09-Oct-2017	✓

Page : 3 of 5
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
CC1,	CC2,	**25-Sep-2017**	**27-Sep-2017**	09-Oct-2017	✓	**27-Sep-2017**	09-Oct-2017	✓
CC4,	Duplicate,							
Rinse Blank								

Page : 4 of 5
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	5	40.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 5 of 5
Work Order	: EM1713195
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: 215-217 Harrington Street

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1713260**	Page	: 1 of 6
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Contact	: Shirley LeComu
Address	: 86 QUEEN STREET SANDY BAY TASMANIA, AUSTRALIA 7005	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: 115 Harrington Street	Date Samples Received	: 27-Sep-2017
Order number	: ----	Date Analysis Commenced	: 27-Sep-2017
C-O-C number	: ----	Issue Date	: 03-Oct-2017
Sampler	: ----		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1141440)									
EM1713222-001	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1713222-012	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	0.006	0.006	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1139218)									
EM1713222-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EM1713222-012	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	204	178	13.9	0% - 20%
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit

Page : 3 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1139218) - continued									
EM1713222-012	Anonymous	EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1139219)									
EM1713222-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	120	14.7	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EM1713222-012	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	210	180	17.6	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	6280	6030	4.06	0% - 20%
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1139526)									
EM1713222-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713222-013	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1139219)									
EM1713222-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	130	24.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EM1713222-012	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	1600	1420	11.7	0% - 50%
		EP071: >C16 - C34 Fraction	----	100	µg/L	190	160	16.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1139526)									
EM1713222-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1713222-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1139526)									
EM1713222-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit

Page : 4 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1139526) - continued									
EM1713222-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1713222-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Page : 5 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1141440)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.6	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1139218)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	54.8	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	57.6	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	57.4	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	61.0	51	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	65.9	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	64.8	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	65.5	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	62.0	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	58.5	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	63.9	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	62.4	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	65.7	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	62.4	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	62.4	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	63.8	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	62.1	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139219)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	3368 µg/L	63.2	53	123
EP071: C15 - C28 Fraction	---	100	µg/L	<100	14735 µg/L	68.4	57	133
EP071: C29 - C36 Fraction	---	50	µg/L	<50	7856 µg/L	66.2	55	141
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139526)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	360 µg/L	80.5	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139219)								
EP071: >C10 - C16 Fraction	---	100	µg/L	<100	5225 µg/L	64.0	54	122
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	19994 µg/L	70.3	56	132
EP071: >C34 - C40 Fraction	---	100	µg/L	<100	1449 µg/L	68.9	51	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139526)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	79.2	65	125
EP080: BTEXN (QCLot: 1139526)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	86.5	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	83.2	76	124

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 6 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1139526) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	81.6	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	80.8	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	85.2	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	86.0	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1141440)							
EM1713222-001	Anonymous	EG020A-F: Lead	7439-92-1	0.2 mg/L	95.4	75	133
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1139218)							
EM1713222-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	5 µg/L	57.8	42	122
		EP075(SIM): Pyrene	129-00-0	5 µg/L	57.4	40	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139219)							
EM1713222-003	Anonymous	EP071: C10 - C14 Fraction	----	3368 µg/L	69.2	50	130
		EP071: C15 - C28 Fraction	----	14735 µg/L	76.2	54	136
		EP071: C29 - C36 Fraction	----	7856 µg/L	74.1	50	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139526)							
EM1713222-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	62.4	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139219)							
EM1713222-003	Anonymous	EP071: >C10 - C16 Fraction	----	5225 µg/L	70.4	50	128
		EP071: >C16 - C34 Fraction	----	19994 µg/L	78.5	50	150
		EP071: >C34 - C40 Fraction	----	1449 µg/L	79.4	51	159
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139526)							
EM1713222-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	62.1	44	122
EP080: BTEXN (QCLot: 1139526)							
EM1713222-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	85.2	68	130
		EP080: Toluene	108-88-3	20 µg/L	79.8	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1713260**	Page	: 1 of 4
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Telephone	: +61-3-8549 9630
Project	: 115 Harrington Street	Date Samples Received	: 27-Sep-2017
Site	: ----	Issue Date	: 03-Oct-2017
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

RIGHT SOLUTIONS | RIGHT PARTNER

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 2 of 4
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)							
CC6	26-Sep-2017	----	----	----	28-Sep-2017	25-Mar-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
CC6	26-Sep-2017	27-Sep-2017	03-Oct-2017	✓	02-Oct-2017	06-Nov-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
CC6	26-Sep-2017	27-Sep-2017	03-Oct-2017	✓	02-Oct-2017	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
CC6	26-Sep-2017	27-Sep-2017	10-Oct-2017	✓	28-Sep-2017	10-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
CC6	26-Sep-2017	27-Sep-2017	03-Oct-2017	✓	02-Oct-2017	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
CC6	26-Sep-2017	27-Sep-2017	10-Oct-2017	✓	28-Sep-2017	10-Oct-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
CC6	26-Sep-2017	27-Sep-2017	10-Oct-2017	✓	28-Sep-2017	10-Oct-2017	✓

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 3 of 4
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Appendix 8 Soil Bore Logs

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH01

EASTING: 526057.7 GDA94
NORTHING: 5252470.7 GDA94
ELEVATION: 29.8 m AHD
TOTAL DEPTH (m): 3
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class.	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–0.9	FILL - Mixed CLAY/GRAVEL: brown/grey, slightly moist to moist, loose, fine to coarse angular gravel, some FCR,	GC	FILL	M													
1.0–1.7	SANDY CLAY: dark grey-brown/olive-brown, moist, firm to stiff, high plasticity	CH	Tcbd		BH01 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.8–2.9	SANDY CLAY: green, slightly moist, very stiff, low plasticity	CL		SM	BH01 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
					BH01 2.7-2.8	SAND*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH02

EASTING: 526048.6 GDA94
NORTHING: 5252474.8 GDA94
ELEVATION: 29.8 m AHD
TOTAL DEPTH (m): 3
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–0.9	FILL - Mixed CLAYEY GRAVEL: brown/grey, slightly moist to moist, loose, fine to coarse angular gravel, some FCR,	GC	FILL		BH02 0.7-0.8	SAND*	D		<	<	<	<	<	<	<		
1.0–2.0	SANDY CLAY: dark grey-brown/olive-brown, moist, firm to stiff, high plasticity	CH	Tcbd	M	BH02 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.1–2.9	SILTY CLAY: pale olive-brown/trace grey, moist, stiff, high plasticity				BH02 2.5-2.6	SAND*	D		<	<	–	–	<	–	<		
					BH02 2.7-2.8	SAND*	D		<	<	–	–	–	–	–		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH03

EASTING: 526043.1 GDA94
NORTHING: 5252477.9 GDA94
ELEVATION: 30 m AHD
TOTAL DEPTH (m): 3
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0–0.1	FILL - Bitumen																
0.1–0.2	FILL - CLAYEY SAND: dark brown/black, moist, meidum dense	SC	FILL	M													
0.2–1.0	FILL - CLAYEY GRAVEL: yellow-brown, slightly moist, dense, fine to coarse angular Dolerite gravel, some small pockets of sandy	GC	FILL	SM	BH03 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
1.0–1.2	FILL - GRAVELLY CLAYEY SAND: dark brown/red, slightly moist, dense, fine to coarse angular gravel & red brick fragments	SC	FILL	SM													
1.2–1.6	CLAYEY SAND: dark grey-brown/black, slightly moist, dense	SC	FILL	SM	BH03 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.6–1.9	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M													
1.9–2.9	SILTY CLAY: pale olive-brown/trace green, moist, stiff, high plasticity	CH	Tcbd	M	BH03 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
					BH03 2.7-2.8	SAND*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH04

EASTING: 526038 GDA94
NORTHING: 5252472.5 GDA94
ELEVATION: 30.3 m AHD
TOTAL DEPTH (m): 3
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–0.5	FILL - Mixed CLAY/GRAVEL: brown/grey, slightly moist to moist, loose, fine to coarse angular Dolerite gravel	GC	FILL	SM	BH04 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.6–1.0	FILL - SANDY GRAVEL: grey, dry, very dense, fine to coarse angular Dolerite gravel	GW	FILL	D													
1.0–1.2	FILL - GRAVELLY CLAY: brown/grey, moist, stiff, medium plasticity, fine to coarse angular Dolerite gravel	CI	FILL	M													
1.3–1.4	CLAYEY SAND: dark grey-brown/black, slightly moist, dense	SC	FILL	SM													
1.5–1.9	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M	BH04 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.0–2.9	SILTY CLAY: pale olive-brown/trace green, moist, stiff, high plasticity	CH	Tcbd	M	BH04 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
					BH04 2.9-3.0	SAND*	D		<	<	<	<	<	<	–		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH05

EASTING: 526023.8 GDA94
NORTHING: 5252460.9 GDA94
ELEVATION: 31.5 m AHD
TOTAL DEPTH (m): 4
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Naphtalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–0.6	FILL - GRAVELLY CLAYEY SAND: dark brown/black, slightly moist, dense	SC	FILL	SM	BH05 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.6–1.1	FILL - CLAYEY SAND: dark brown/black, slightly moist, dense, some red brick fragments	SC	FILL	SM													
1.1–1.3	CLAYEY SAND: dark grey-brown/black, slightly moist, dense	SC	FILL	SM													
1.3–2.5	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M	BH05 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.5–3.6	SILTY CLAY: pale olive-brown/trace green, moist, stiff, high plasticity	CH	Tcbd	M	BH05 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
3.6–3.9		CH	Tcbd	M	BH05 3.6-3.7	CLAY*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions

* PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH05

EASTING: 526023.8 GDA94
NORTHING: 5252460.9 GDA94
ELEVATION: 31.5 m AHD
TOTAL DEPTH (m): 4
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene Toluene Ethylbenz. Xylene Naptralene F1 F2	MONITORING WELL	ELEVATION (metres)

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH06

EASTING: 526050 GDA94
NORTHING: 5252462.5 GDA94
ELEVATION: 30.3 m AHD
TOTAL DEPTH (m): 2.5
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Naptralene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.4	FILL - GRAVELLY CLAYEY SAND: dark brown/black, slightly moist, dense	SC	FILL														
0.5–0.8	SANDY CLAY: pale olive-brown, slightly moist, very stiff, high plasticity	CH			BH06 0.5-0.6	SAND1	D		<	<	<	<	<	<	<		
0.8–1.2	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, high plasticity	CH															
1.2–1.5			Tcbd	SM	BH06 1.5-1.6	SAND1	D		<	<	<	<	<	<	<		
1.5–2.4	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, medium plasticity. Refusal	CI			BH06 2.4-2.5	SAND1	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH07

EASTING: 526034.5 GDA94
NORTHING: 5252453.1 GDA94
ELEVATION: 31.5 m AHD
TOTAL DEPTH (m): 2.8
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Naphtalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.3	FILL - GRAVELLY CLAYEY SAND: olive-brown, slightly moist, dense	SC															
0.3–0.7	FILL - SAND: pale yellow-brown, slightly moist to dry, loose	SW	FILL		BH07 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.7–1.4	SANDY CLAY: pale olive-brown, slightly moist, very stiff, high plasticity	CH	Tcbd	SM													
1.4–2.0	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, high plasticity	CH	Tcbd	SM	BH07 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.0–2.7	SANDY SILTY CLAY: dark olive-grey, slightly moist, very stiff, high plasticity. Refusal on likely gravels	CH	Tcbd	SM	BH07 2.5-2.6	CLAY*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions

* PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH08

EASTING: 526067.2 GDA94
NORTHING: 5252445.5 GDA94
ELEVATION: 31.9 m AHD
TOTAL DEPTH (m): 3.5
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.9	FILL - SANDY GRAVEL: red/grey, dry, dense, many red brick fragments	GW2	FILL														
1.0–1.9	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M	BH08 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.0–2.8	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, high plasticity	CH	Tcbd	SM													
2.9–3.4	SANDY SILTY CLAY: dark olive-grey, slightly moist, very stiff, high plasticity. Refusal on likely gravels	CH	Tcbd		BH08 3.4-3.5	CLAY*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH09

EASTING: 526044 GDA94
NORTHING: 5252469.1 GDA94
ELEVATION: 30.3 m AHD
TOTAL DEPTH (m): 3
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.3	FILL - GRAVEL: grey/yellow-brown, slighty moist to dry, dense	GW															
0.3–0.7	FILL - SAND: pale yellow-brown, slightly moist to dry, loose	SW		SM	BH09 0.5-0.6	SAND1	D		<	<	<	<	<	<	<		
0.7–1.6	FILL - SANDY CLAY: dark grey, moist, stiff, high plasticity	CH	FILL	M	BH09 1.5-1.6	SAND1	D		<	<	<	<	<	<	<		
1.6–2.0	SANDY SILTY CLAY: dark olive-grey, slightly moist, very stiff, high plasticity	CH															
2.0–2.9	SANDY SILTY CLAY: pale olive-grey, slightly moist, very stiff, low to medium plasticity. Refusal on likely gravels	CI	Tcbd	SM	BH09 2.5-2.6	SAND1	D		<	<	<	<	<	<	–		
					BH09 2.9-3.0	SAND1	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions | * PVI HSL EXCEEDANCE: X: EXCAVATION; < IL; - NL; A: 1-2; B: 2-5; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Appendix 9 Groundwater Purge Records

GES GEO-ENVIRONMENTAL SOLUTIONS — **GROUNDWATER MONITORING LOG**

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC1 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 9.52 A 31.26ft
Groundwater Depth (m): 6.22 B 20.42 ft.
Water Column Volume: 3.3 (A-B) x F 2.6 x3 = 19.8 Volume to be Purged (L): 19.8
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3 (Min. x3 Water Volume)

Bore Water Purging:
Purging Method: Waterra
Sampling Method: ?

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time			
Finish Time			
Minutes			
Volume (L)			
Recovery Time Minutes			

Dry @ 20L
Total Volume Purged (L):
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	18.5	16.2			
pH (units)	7.42	7.38			
Redox Potential (mV)	197	186		Sampled @ 1045	
Conductivity (uS/cm)	3.76mS	4.36mS			
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity	✓				
Odour					
Colour	Light B/Beigh				
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:
Well full H_2O under gas. Good Sat'n on well. Good. Syringed water out. Sandy, Silty Sediment

GES GEO-ENVIRONMENTAL SOLUTIONS — **GROUNDWATER MONITORING LOG**

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC2 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature: 1/01/1900
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (35/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 9.49 A 31.15
Groundwater Depth (m): 3.30 B 10.85 ft
Water Column Volume: 6.19 (A-B) x F 13 x3 = 37.14 Volume to be Purged (L):
35mm: F=0.5; 50mm: F=3; 65mm: F=x3.3 (Min. x3 Water Volume)

Bore Water Purging:
Purging Method: ?
Sampling Method: ?

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time	1058	1106	1113
Finish Time	1102	1111	1115
Minutes	4		
Volume (L)	13		
Recovery Time Minutes			

Purged 36L.
Total Volume Purged (L):
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	15.9	15.7	15.5		
pH (units)	7.00	7.7	7.26		
Redox Potential (mV)	82.9		103.7	Sampled @	
Conductivity (uS/cm)	2420	3790	2443		1125.
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC3 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m) ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m) ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): A
Groundwater Depth (m): B
Water Column Volume: (A-B) x F x3 =
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ?
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time			
Finish Time			
Minutes			
Volume (L)			
Recovery Time Minutes			

Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)					
pH (units)					
Redox Potential (mV)					
Conductivity (uS/cm)					
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments: Gatic Damaged.

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC4 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m) ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m) ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 6.5 A 21.45 ft.
Groundwater Depth (m): 3.01 B 9.88 ft
Water Column Volume: 3 (A-B) x F 6 x3 = 20.5 L
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ? Waterra
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time	1302		
Finish Time	1302		1311
Minutes	~1		
Volume (L)	6		
Recovery Time Minutes			

Sampled @
Total Volume Purged (L) 1320
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	14.4	13.9	13.9		
pH (units)	7.24	7.37	7.35		Duplicate
Redox Potential (mV)	161.6	69.9	10.5		collected
Conductivity (uS/cm)	1711	1926	1798		= Dup 1
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity	✓		✓		
Odour	Beige	✓	✓		
Colour	✓	Light Brown			
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:
420 ingate. PID read 125ppm when opened well. H_2O, sediment in bottom of well.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC5 MISSING | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): A
Groundwater Depth (m): B
Water Column Volume: (A-B) x F x3 =
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ?
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time			
Finish Time			
Minutes			
Volume (L)			
Recovery Time Minutes			

Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)					
pH (units)					
Redox Potential (mV)					
Conductivity (uS/cm)					
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC6 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 6.37 A 20.96
Groundwater Depth (m): 3.27 B 10.75 Ft.
Water Column Volume: 3.1 (A-B) x F 6.2 x3 = 18.6
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ?
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time	1150		
Finish Time			1205
Minutes			
Volume (L)			
Recovery Time Minutes			

Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	16.2	14.8	14.6		
pH (units)	7.0	7.16	7.15		Sampled
Redox Potential (mV)	10	-23	11.1		@ 1215
Conductivity (uS/cm)	1426	1460	1474		26/9/17
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:
Gatic Damaged. PID 567 ppm when well cap removed.
Triplicate Sample Collected HCO.
Sampled for natural attenuation

Appendix 10 Soil & Groundwater Certificate of Analysis

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: EM1715132	Page	: 1 of 27
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: SARAH JOYCE	Contact	: Shirley LeCornu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: Harrington Street	Date Samples Received	: 03-Nov-2017 09:50
Order number	: ----	Date Analysis Commenced	: 03-Nov-2017
C-O-C number	: ----	Issue Date	: 09-Nov-2017 12:57
Sampler	: Grant		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 37		
No. of samples analysed	: 32		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 27
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG005T: EM1715132 #4; Poor duplicate precision for lead due to sample heterogeneity. Confirmed by re-digestion and re-analysis. It's been noticed that repeated results vary greatly. Results obtained were 147mg/kg, 286 mg/kg, 386mg/kg and 875mg/kg.
- EG005T: EM1715132 #4; Poor duplicate precision for lead due to sample heterogeneity. Confirmed by re-digestion and re-analysis. It's been noticed that repeated results vary greatly. Results obtained were 147mg/kg,286 mg/kg, 386mg/kg and 875mg/kg.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 3 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH01 1.5-1.6	BH01 2.5-2.6	BH01 2.7-2.8	BH02 0.7-0.8	BH02 1.5-1.6
			Client sampling date / time	31-Oct-2017 11:30	31-Oct-2017 11:35	31-Oct-2017 11:40	31-Oct-2017 11:50	31-Oct-2017 11:55
Compound	CAS Number	LOR	Unit	EM1715132-001	EM1715132-002	EM1715132-003	EM1715132-004	EM1715132-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.4	16.3	13.4	18.9	16.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	11	<5
Barium	7440-39-3	10	mg/kg	90	10	10	120	90
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	14	14	15	15
Cobalt	7440-48-4	2	mg/kg	16	21	29	23	17
Copper	7440-50-8	5	mg/kg	22	17	23	56	21
Lead	7439-92-1	5	mg/kg	12	8	13	875	22
Manganese	7439-96-5	5	mg/kg	456	133	227	446	108
Nickel	7440-02-0	2	mg/kg	12	19	30	24	16
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	66	46	56	73	75
Zinc	7440-66-6	5	mg/kg	32	54	77	83	28
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.8	0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 4 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 1.5-1.6	BH01 2.5-2.6	BH01 2.7-2.8	BH02 0.7-0.8	BH02 1.5-1.6
				Client sampling date / time	31-Oct-2017 11:30	31-Oct-2017 11:35	31-Oct-2017 11:40	31-Oct-2017 11:50	31-Oct-2017 11:55
Compound	CAS Number	LOR	Unit		EM1715132-001	EM1715132-002	EM1715132-003	EM1715132-004	EM1715132-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		106	98.1	101	90.6	105
2-Chlorophenol-D4	93951-73-6	0.5	%		101	94.9	96.6	85.8	101
2.4.6-Tribromophenol	118-79-6	0.5	%		99.0	81.5	96.4	74.7	72.1

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 5 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH01 1.5-1.6	BH01 2.5-2.6	BH01 2.7-2.8	BH02 0.7-0.8	BH02 1.5-1.6
			Client sampling date / time	31-Oct-2017 11:30	31-Oct-2017 11:35	31-Oct-2017 11:40	31-Oct-2017 11:50	31-Oct-2017 11:55
Compound	CAS Number	LOR	Unit	EM1715132-001	EM1715132-002	EM1715132-003	EM1715132-004	EM1715132-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	115	108	104	110	109
Anthracene-d10	1719-06-8	0.5	%	111	122	120	114	114
4-Terphenyl-d14	1718-51-0	0.5	%	120	130	130	119	117
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	79.3	83.3	83.6	80.7	85.4
Toluene-D8	2037-26-5	0.2	%	76.5	77.7	78.3	77.6	81.1
4-Bromofluorobenzene	460-00-4	0.2	%	84.4	84.6	89.6	83.5	86.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 6 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH02 2.5-2.6	BH02 2.7-2.8	BH03 0.5-0.6	BH03 1.5-1.6	BH03 2.5-2.6
			Client sampling date / time	31-Oct-2017 12:00	31-Oct-2017 12:05	31-Oct-2017 12:20	31-Oct-2017 12:30	31-Oct-2017 12:37
Compound	CAS Number	LOR	Unit	EM1715132-006	EM1715132-007	EM1715132-008	EM1715132-009	EM1715132-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.7	16.2	18.2	26.8	21.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	7	<5
Barium	7440-39-3	10	mg/kg	70	20	100	310	70
Beryllium	7440-41-7	1	mg/kg	<1	<1	1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	14	11	12	25	25
Cobalt	7440-48-4	2	mg/kg	11	12	20	13	26
Copper	7440-50-8	5	mg/kg	18	24	58	124	39
Lead	7439-92-1	5	mg/kg	13	15	15	558	11
Manganese	7439-96-5	5	mg/kg	95	84	613	422	347
Nickel	7440-02-0	2	mg/kg	12	16	25	17	33
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	48	25	79	42	78
Zinc	7440-66-6	5	mg/kg	37	66	87	610	37
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	4.2	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.6	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	2.4	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	0.9	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	6.2	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	6.9	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	4.0	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	3.9	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	5.4	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	2.0	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	4.2	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	2.2	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 7 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH02 2.5-2.6	BH02 2.7-2.8	BH03 0.5-0.6	BH03 1.5-1.6	BH03 2.5-2.6
				Client sampling date / time	31-Oct-2017 12:00	31-Oct-2017 12:05	31-Oct-2017 12:20	31-Oct-2017 12:30	31-Oct-2017 12:37
Compound	CAS Number	LOR	Unit		EM1715132-006	EM1715132-007	EM1715132-008	EM1715132-009	EM1715132-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	2.8	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	1.6	<0.5	42.1	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	6.2	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	6.2	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	6.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		15	62	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	110	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	220	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	180	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	110	<50	400	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		18	81	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		16	74	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	120	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	350	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	120	<50	350	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	120	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		1.0	3.1	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		1.4	4.6	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		2.4	7.7	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		1.4	4.6	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	2	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.1	106	101	103	104
2-Chlorophenol-D4	93951-73-6	0.5	%		89.1	101	96.7	98.6	99.0
2.4.6-Tribromophenol	118-79-6	0.5	%		76.4	80.5	62.2	81.6	68.8

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 8 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH02 2.5-2.6	BH02 2.7-2.8	BH03 0.5-0.6	BH03 1.5-1.6	BH03 2.5-2.6
			Client sampling date / time	31-Oct-2017 12:00	31-Oct-2017 12:05	31-Oct-2017 12:20	31-Oct-2017 12:30	31-Oct-2017 12:37
Compound	CAS Number	LOR	Unit	EM1715132-006	EM1715132-007	EM1715132-008	EM1715132-009	EM1715132-010
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	112	111	105	94.1	108
Anthracene-d10	1719-06-8	0.5	%	127	120	114	120	125
4-Terphenyl-d14	1718-51-0	0.5	%	128	129	116	120	122
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	89.1	82.8	75.2	78.7	81.0
Toluene-D8	2037-26-5	0.2	%	90.8	74.4	74.5	75.9	74.8
4-Bromofluorobenzene	460-00-4	0.2	%	98.4	90.5	82.8	81.3	86.3

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 9 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH03 2.7-2.8	BH04 0.5-0.6	BH04 1.5-1.6	BH04 2.5-2.6	BH04 2.9-3.0
			Client sampling date / time	31-Oct-2017 12:47	31-Oct-2017 13:00	31-Oct-2017 13:07	31-Oct-2017 13:17	31-Oct-2017 13:25
Compound	CAS Number	LOR	Unit	EM1715132-011	EM1715132-012	EM1715132-013	EM1715132-014	EM1715132-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.7	20.0	26.3	20.2	17.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	60	130	60	100	60
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	28	17	20	22	19
Cobalt	7440-48-4	2	mg/kg	23	23	18	17	27
Copper	7440-50-8	5	mg/kg	45	66	30	36	33
Lead	7439-92-1	5	mg/kg	9	216	12	9	11
Manganese	7439-96-5	5	mg/kg	296	229	179	245	142
Nickel	7440-02-0	2	mg/kg	27	21	14	26	26
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	84	91	78	76	63
Zinc	7440-66-6	5	mg/kg	42	226	34	38	52
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 10 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH03 2.7-2.8	BH04 0.5-0.6	BH04 1.5-1.6	BH04 2.5-2.6	BH04 2.9-3.0
				Client sampling date / time	31-Oct-2017 12:47	31-Oct-2017 13:00	31-Oct-2017 13:07	31-Oct-2017 13:17	31-Oct-2017 13:25
Compound	CAS Number	LOR	Unit		EM1715132-011	EM1715132-012	EM1715132-013	EM1715132-014	EM1715132-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	110
C15 - C28 Fraction	----	100	mg/kg		<100	150	<100	<100	180
C29 - C36 Fraction	----	100	mg/kg		<100	170	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	320	<50	<50	290
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	160
>C16 - C34 Fraction	----	100	mg/kg		<100	280	<100	<100	120
>C34 - C40 Fraction	----	100	mg/kg		<100	100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	380	<50	<50	280
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	160
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.1	92.6	106	93.2	100
2-Chlorophenol-D4	93951-73-6	0.5	%		86.9	89.1	102	89.2	95.1
2.4.6-Tribromophenol	118-79-6	0.5	%		66.8	77.6	78.6	74.8	89.0

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 11 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH03 2.7-2.8	BH04 0.5-0.6	BH04 1.5-1.6	BH04 2.5-2.6	BH04 2.9-3.0
			Client sampling date / time	31-Oct-2017 12:47	31-Oct-2017 13:00	31-Oct-2017 13:07	31-Oct-2017 13:17	31-Oct-2017 13:25
Compound	CAS Number	LOR	Unit	EM1715132-011	EM1715132-012	EM1715132-013	EM1715132-014	EM1715132-015
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	108	109	93.7	96.3	120
Anthracene-d10	1719-06-8	0.5	%	123	124	121	123	124
4-Terphenyl-d14	1718-51-0	0.5	%	122	123	127	127	126
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	77.5	83.2	80.6	83.3	80.1
Toluene-D8	2037-26-5	0.2	%	74.1	84.8	76.9	86.5	80.9
4-Bromofluorobenzene	460-00-4	0.2	%	83.1	91.1	83.7	90.0	84.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 12 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH05 0.5-0.6	BH05 1.5-1.6	BH05 2.5-2.6	BH05 3.6-3.7	BH06 0.5-0.6
			Client sampling date / time	31-Oct-2017 13:40	31-Oct-2017 13:48	31-Oct-2017 13:56	31-Oct-2017 14:05	31-Oct-2017 14:20
Compound	CAS Number	LOR	Unit	EM1715132-016	EM1715132-017	EM1715132-018	EM1715132-019	EM1715132-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	17.4	26.2	17.5	18.3	20.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	220	50	230	100	90
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	28	29	24	16
Cobalt	7440-48-4	2	mg/kg	15	20	20	25	19
Copper	7440-50-8	5	mg/kg	83	36	41	43	21
Lead	7439-92-1	5	mg/kg	452	10	8	10	10
Manganese	7439-96-5	5	mg/kg	474	144	1060	694	85
Nickel	7440-02-0	2	mg/kg	18	19	26	27	18
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	52	86	83	82	60
Zinc	7440-66-6	5	mg/kg	219	32	34	48	31
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	1.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	1.0	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	3.4	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	1.3	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	9.9	<0.5	1.2	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	3.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	15.9	<0.5	1.1	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	17.7	<0.5	1.0	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	9.4	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	9.4	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	13.7	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	5.9	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	12.6	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	6.2	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	1.8	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 13 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH05 0.5-0.6	BH05 1.5-1.6	BH05 2.5-2.6	BH05 3.6-3.7	BH06 0.5-0.6
				Client sampling date / time	31-Oct-2017 13:40	31-Oct-2017 13:48	31-Oct-2017 13:56	31-Oct-2017 14:05	31-Oct-2017 14:20
Compound	CAS Number	LOR	Unit		EM1715132-016	EM1715132-017	EM1715132-018	EM1715132-019	EM1715132-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		7.7	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		119	<0.5	3.3	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		18.1	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		18.1	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		18.1	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		530	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		400	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		930	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		820	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		220	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		1040	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		100	104	103	92.4	87.5
2-Chlorophenol-D4	93951-73-6	0.5	%		95.0	101	96.7	88.6	83.8
2.4.6-Tribromophenol	118-79-6	0.5	%		100	76.5	72.4	66.1	62.2

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 14 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH05 0.5-0.6	BH05 1.5-1.6	BH05 2.5-2.6	BH05 3.6-3.7	BH06 0.5-0.6
			Client sampling date / time	31-Oct-2017 13:40	31-Oct-2017 13:48	31-Oct-2017 13:56	31-Oct-2017 14:05	31-Oct-2017 14:20
Compound	CAS Number	LOR	Unit	EM1715132-016	EM1715132-017	EM1715132-018	EM1715132-019	EM1715132-020
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	120	94.8	110	112	104
Anthracene-d10	1719-06-8	0.5	%	126	114	125	112	128
4-Terphenyl-d14	1718-51-0	0.5	%	128	124	117	129	118
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	59.8	71.6	69.9	65.6	79.4
Toluene-D8	2037-26-5	0.2	%	69.4	73.5	64.8	63.2	77.5
4-Bromofluorobenzene	460-00-4	0.2	%	68.7	76.4	72.3	70.7	80.6

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 15 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH06 1.5-1.6	BH06 2.4-2.5	BH07 0.5-0.6	BH07 1.5-1.6	BH07 2.5-2.6
			Client sampling date / time	31-Oct-2017 14:30	31-Oct-2017 14:37	31-Oct-2017 14:50	31-Oct-2017 14:59	31-Oct-2017 15:15
Compound	CAS Number	LOR	Unit	EM1715132-021	EM1715132-022	EM1715132-023	EM1715132-024	EM1715132-025
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	18.2	16.0	4.9	22.6	23.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	10	10	<10	60	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	13	13	4	17	12
Cobalt	7440-48-4	2	mg/kg	26	25	<2	18	8
Copper	7440-50-8	5	mg/kg	40	37	<5	26	55
Lead	7439-92-1	5	mg/kg	10	12	<5	10	10
Manganese	7439-96-5	5	mg/kg	196	213	19	79	83
Nickel	7440-02-0	2	mg/kg	28	25	<2	19	13
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	66	70	8	63	58
Zinc	7440-66-6	5	mg/kg	56	73	<5	39	58
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 16 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH06 1.5-1.6	BH06 2.4-2.5	BH07 0.5-0.6	BH07 1.5-1.6	BH07 2.5-2.6
				Client sampling date / time	31-Oct-2017 14:30	31-Oct-2017 14:37	31-Oct-2017 14:50	31-Oct-2017 14:59	31-Oct-2017 15:15
Compound	CAS Number	LOR	Unit		EM1715132-021	EM1715132-022	EM1715132-023	EM1715132-024	EM1715132-025
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		111	100	100	102	96.8
2-Chlorophenol-D4	93951-73-6	0.5	%		109	98.5	99.0	100.0	95.8
2.4.6-Tribromophenol	118-79-6	0.5	%		73.3	67.0	65.9	66.6	64.1

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 17 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH06 1.5-1.6	BH06 2.4-2.5	BH07 0.5-0.6	BH07 1.5-1.6	BH07 2.5-2.6
			Client sampling date / time	31-Oct-2017 14:30	31-Oct-2017 14:37	31-Oct-2017 14:50	31-Oct-2017 14:59	31-Oct-2017 15:15
Compound	CAS Number	LOR	Unit	EM1715132-021	EM1715132-022	EM1715132-023	EM1715132-024	EM1715132-025
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	118	121	120	124	119
Anthracene-d10	1719-06-8	0.5	%	119	111	111	112	112
4-Terphenyl-d14	1718-51-0	0.5	%	124	126	125	126	125
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	84.3	77.7	78.9	73.7	68.8
Toluene-D8	2037-26-5	0.2	%	75.6	67.1	70.4	65.4	63.1
4-Bromofluorobenzene	460-00-4	0.2	%	85.6	77.1	79.7	73.9	69.6

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 18 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH08 1.5-1.6	BH08 3.4-3.5	BH09 0.5-0.6	BH09 1.5-1.6	BH09 2.5-2.6
			Client sampling date / time	31-Oct-2017 15:51	31-Oct-2017 16:07	31-Oct-2017 16:25	31-Oct-2017 16:30	31-Oct-2017 16:40
Compound	CAS Number	LOR	Unit	EM1715132-028	EM1715132-030	EM1715132-032	EM1715132-033	EM1715132-034
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.7	20.1	2.8	22.4	16.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	160	20	<10	120	10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	17	12	4	12	17
Cobalt	7440-48-4	2	mg/kg	16	13	<2	10	19
Copper	7440-50-8	5	mg/kg	27	36	<5	37	24
Lead	7439-92-1	5	mg/kg	10	13	<5	120	11
Manganese	7439-96-5	5	mg/kg	117	210	22	142	148
Nickel	7440-02-0	2	mg/kg	18	15	<2	11	20
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	78	75	15	45	48
Zinc	7440-66-6	5	mg/kg	23	54	13	115	76
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.9	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 19 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 1.5-1.6	BH08 3.4-3.5	BH09 0.5-0.6	BH09 1.5-1.6	BH09 2.5-2.6
				Client sampling date / time	31-Oct-2017 15:51	31-Oct-2017 16:07	31-Oct-2017 16:25	31-Oct-2017 16:30	31-Oct-2017 16:40
Compound	CAS Number	LOR	Unit		EM1715132-028	EM1715132-030	EM1715132-032	EM1715132-033	EM1715132-034
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	**140**
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	**260**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**400**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	**230**
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	**170**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**400**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	**230**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**99.8**	**97.2**	**98.7**	**92.5**	**96.8**
2-Chlorophenol-D4	93951-73-6	0.5	%		**98.4**	**97.4**	**96.2**	**90.3**	**94.9**
2.4.6-Tribromophenol	118-79-6	0.5	%		**68.4**	**64.3**	**68.5**	**68.6**	**63.5**

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 20 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH08 1.5-1.6	BH08 3.4-3.5	BH09 0.5-0.6	BH09 1.5-1.6	BH09 2.5-2.6
			Client sampling date / time	31-Oct-2017 15:51	31-Oct-2017 16:07	31-Oct-2017 16:25	31-Oct-2017 16:30	31-Oct-2017 16:40
Compound	CAS Number	LOR	Unit	EM1715132-028	EM1715132-030	EM1715132-032	EM1715132-033	EM1715132-034
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	122	119	119	115	107
Anthracene-d10	1719-06-8	0.5	%	114	110	110	110	112
4-Terphenyl-d14	1718-51-0	0.5	%	131	121	124	119	125
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	74.8	73.6	75.7	65.7	76.7
Toluene-D8	2037-26-5	0.2	%	69.6	68.3	67.3	55.2	63.9
4-Bromofluorobenzene	460-00-4	0.2	%	77.8	76.9	75.6	60.7	73.7

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 21 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH09 2.9-3.0	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:45	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-035	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.7	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	15	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	27	----	----	----	----
Copper	7440-50-8	5	mg/kg	41	----	----	----	----
Lead	7439-92-1	5	mg/kg	12	----	----	----	----
Manganese	7439-96-5	5	mg/kg	116	----	----	----	----
Nickel	7440-02-0	2	mg/kg	25	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	61	----	----	----	----
Zinc	7440-66-6	5	mg/kg	61	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 22 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH09 2.9-3.0	----	----	----	----
				Client sampling date / time	31-Oct-2017 16:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715132-035	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**93.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**92.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**61.9**	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 23 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH09 2.9-3.0	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:45	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-035	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	114	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	104	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	119	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	72.0	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	67.4	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	73.5	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 24 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinsate 1	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-031	--------	--------	--------	--------
				Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L	<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.6	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 25 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinsate 1	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-031	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.6	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	33.8	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	70.8	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	80.4	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	84.3	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	98.9	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	94.2	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

Page : 26 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate 1	----	----	----	----
				Client sampling date / time	31-Oct-2017 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715132-031	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		92.5	----	----	----	----
Toluene-D8	2037-26-5	2	%		88.0	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		105	----	----	----	----

Page	: 27 of 27
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Appendix 11 CRC CARE Technical Report 10 HSL Application Checklist

HSL APPLICATION CHECKLIST

INTRODUCTION

This checklist is designed to allow assessors to conceptualise potential issues with contaminated land, and how to apply the HSLs. The checklist is designed to trigger responses from the assessor in determining whether the HSLs are applicable or whether consideration should be given to a more site-specific determination of risk. It highlights the key limitations and considerations that are common to contamination assessments and risk assessment.

The checklist summarises the key items from this Application Document.
It is recommended that the Application Document be read in conjunction with the use of this Checklist.

	Summary of Steps
Step 1	Identification of key limitations to the application of health screening levels
Step 2	Identification of key receptors and scenarios
Step 3	Identification of relevant soil type
Step 4	Identification of impacted media and depths
Step 5	Identification of source concentrations to be compared with health screening levels
Step 6	Selecting appropriate HSL and consideration of combining vapour intrusion and direct contact exposure
Step 7	Applying adjustments to the HSLs based on vapour biodegradation, soil organic carbon content, air exchange rate, and soil moisture content Consideration given to soil saturation and water solubility limits
Step 8	Adjustments for cancer risk assessment - modification of acceptable cancer risk level, assessment of cumulative cancer risk

CRC CARE

Step 1 – Limitations to HSLs		
Assessing contamination in soil and groundwater should only be carried out by a qualified professional. **Are guidelines relevant for site? Check the following limitations:**		
Have chemicals other than petroleum hydrocarbons been identified at the site?	n	May consider site-specific risk assessment (refer to Section 5.2 of the Application Document)
Is the groundwater to be used for irrigation purposes?	n	May consider site-specific risk assessment (refer to Section 2.4.5 of the Application Document)
Is the site conservation land?	n	May be required to also assess ecological values (refer to Section 2.4.6 of the Application Document)
Is the depth to groundwater impact less than 2m bgs ?	n	May consider site-specific risk assessment for direct contact May consider soil vapour sampling for vapour intrusion (refer to Section 2.4.2 of the Application Document)
Has significant odour been observed at the site?	n	May be required to also assess odour for sensitive land uses (refer to Section 5.4 of the Application Document)
Is the identified chemical a result of a solvent spill rather than petroleum spill/leak?	n	HSLs may be used where saturation point is not considered (refer to Section 5.3 of the Application Document)
Is the identified contamination an atypical petroleum mixture?	n	May consider site-specific risk assessment to consider cumulative effects between chemicals (refer to Section 3.6 of the Application Document)
Is the soil source thickness significantly different than 2 m?	n	For small source thicknesses, HSLs may be overly conservative if source fully depletes. For larger thicknesses HSLs may not adequately characterise risk, however lateral extent of contamination should also be considered. A site-specific HRA may be considered. (refer to Section 2.4.7 of the Application Document)
Does the building have a crawl space rather than slab-on-ground construction?	y	HSLs may be used as likely to be conservative. However, for situations where habitants may be exposed in crawl space area such as spaces under dwellings which incorporate garages/workshop then consideration may be given to ambient air sampling. (refer to Section 2.3.4 of the Application Document)
Does the building have or is likely to have a habitable basement?	n	May consider site-specific risk assessment (refer to Section 2.3.3 of the Application Document)

Note that the HSLs may be used for assessing health risk. In addition to this assessment, legislation requirements still need to be fulfilled which may include other considerations and assessments. Such considerations may include:

- Assessment of environmental values and ecological impacts
- Consideration of sustainability issues
- Risks for extraction and use of groundwater
- Soil source ongoing source to groundwater contamination
- Local planning requirements, such as sensitive uses under commercial zones, or future land use zones
- Social impacts and consultation with stakeholders

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CRC CARE

Step 2 – Identify receptors and scenarios to be considered

Check the receptors and scenarios to be assessed. Note that receptors and scenarios may require consideration of future land use planning and local regulations pertaining to site redevelopment.

	y	Residential use (refer to Sections 2.1.1 and 2.3.1 of the application Document)
HSL-A	n	Low-Density Residential – assumes access to soils with no management controls on site. Assessment may consider surface soils with direct contact, intrusive maintenance worker protection, and consider using surface soil HSL for all soils down to 3 m depth to protect uncontrolled excavation of contamination.
HSL-B	n	High-Density Residential – assumes limited access to surface soils with management controls on site. Assessment may consider surface soils/dust with limited direct contact. Intrusive maintenance workers may be protected under suitable site management plan.
HSL-A	n	Medium-Density Residential with grassed open space – assumes access to soils with management controls on site. Assessment may consider surface soils with direct contact and subsurface soils through vapour intrusion. Intrusive maintenance workers may be protected under suitable site management plan.
HSL-B	n	Medium-Density Residential with permanent paving open space – assumes limited access to soils with management controls on site. Assessment may consider surface soils/dust with limited direct contact. Intrusive maintenance workers may be protected under suitable site management plan.
HSL-A (for VI) *HSL-A or HSL-B (for DC)*	n	Low- or Medium-Density Residential with single basement garage – for vapour intrusion, low-density residential (HSL-A) may apply due to low air exchange rate for basement garage. HSL depth is displaced by depth of basement. For soil direct contact HSLs, select from above medium density scenarios based on access to soils. Intrusive maintenance workers may be protected under suitable site management plan (refer to Section 2.3.3 of the Application Document).
HSL-D (for VI) *HSL-B (for DC outside footprint)*	y	Medium- or High-Density Residential with communal basement car park – assumes no access to soils with management controls on site. HSL depth is displaced by depth of basement. Intrusive maintenance workers may be protected under suitable site management plan. Note that areas outside of the basement footprint may be required to be assessed as a building without basement and with limited direct contact with soil. Also, limited exposure time for basement users and therefore HSL for Commercial Worker may be used for vapour intrusion (refer to Section 2.3.3 of the Application Document)
HSL-C	n	Recreational / Public Open Space (refer to Section 2.1.2 of the Application Document)
		Parks, ovals, pedestrian areas
		National parks, conservation areas – may be required to also assess ecological values (refer to Section 2.4.6 of the Application Document)
HSL-D	n	Commercial / Industrial Workers (refer to Section 2.1.3 of the Application Document) – considers only healthy adults under normal working conditions. Does not consider sensitive commercial uses such as schools, day care centres and medical practices.
		Commercial sensitive users – may consider using residential HSLs or a site-specific HRA (refer to Section 2.4.1of the Application Document)
		Agricultural land – may consider a site specific HRA (refer to Section 2.4.5 of the Application Document)
	n	Shallow intrusive workers down to 1 m deep. May require assessment of direct contact for soils surface to <2 m (refer to Sections 2.1.4 and 2.4.3 of the Application document)
		Deep intrusive workers down to >1 m deep, such as sewer. Should be managed with appropriate procedures and work practices for confined spaces (refer to Section 2.4.4 of the Application Document)

Is a site management plan (that includes specific occupational hazard management for works on the site) to be implemented on the site (controlled site)? → n May not need to consider health risks to intrusive workers

CRC CARE

Step 3 – Identify soil type relevant to site (soils above impacts in soil and/or groundwater)

Note the following before selecting soil type for use in assessment:

1. The prime parameter that influences the value of the HSL is the air filled porosity and volatility of the specific chemical. The higher the air filled porosity the greater the potential for volatile chemicals to migrate vertically through the soil profile.
2. The selection of a generic soil type requires knowledge of the soil profile across the site.
3. The selection of generic soil types should take into account the predominant characteristics of the soil profile and depth of contamination. The generic soil types assume a uniform profile, which at many, if not all, sites will not be the case. Where the overlying profile is predominantly fine materials (clays) (i.e. > 50% for soil column), these may be considered as the generic soil type. If the profile has a significant proportion of loose/coarse materials (including backfill) (i.e. > 50%), these materials may be considered as the generic soil type.
4. Air filled porosity is affected by moisture content. The wetter the soil, the lower the air filled porosity. Generic soil types have assumed a typical moisture content for the profile typical of average soil conditions occurring at depth. Moisture content will vary greatly by location and season. Moisture content will also vary between sub-categories of soil, e.g. between sand and clayey sand. HSLs may be adjusted based on moisture content. This is done in Step 7.
5. The selection of appropriate soil type is discussed in Section 3.2 of the Application Document.

Is there one dominant soil type on the site (> 50% of soil column)?
Or can a geological setting be conservatively identified (i.e. allowing greater vapour transport)?

- [ ] Y - Proceed
- [x] N - Consideration may be given to assuming the more conservative soil type, or may be given to a site-specific HRA (refer to Section 4.6 of the Application Document)

Has excavated area(s) been backfilled with more porous materials ?

- [ ] Y - Consideration should be given to adopting a more porous soil type (refer to Section 3.2 of the Application Document)
- [x] N - Proceed

Does the site lithology contain rock formations or soil with large cracks that can form preferential pathways?

- [ ] Y - The derived HSLs do not include lithologies with rock formations. Consideration may be given to using soil-vapour sampling or carrying out a site-specific HRA (refer to Section 4.6 of the Application Document)
- [x] N - Proceed

Identify HSL soil type relevant to site and assessment (above impacts)

The soil profile properties have been based on a predominant soil texture grouping developed by the US Department of Agriculture. The 12 texture classes have been grouped into 3 groups: sand, silt and clay. The groupings of the classes are based on mean particle size and saturation porosities. Refer to Section 3.2 for further discussion on the soil properties.

HSL soil type selected:

- [ ] **Sand** – Properties selected to be representative of a coarse textured undisturbed soil profile. Consists of texture classes sand, sandy clay.
- [ ] **Silt** – Properties selected to be representative of a coarse textured undisturbed soil profile. Consists of texture classes silt, silty clay.
- [ ] **Clay** – Properties selected to be representative of a fine textured undisturbed soil profile. Consists of texture classes clay.
- [x] **Other** – Including soil with large cracks (preferential pathways) and fractured rock (basalt, sandstone, siltstone, limestone) - refer to Section 4.6 of the Application Document. Soil vapour measurement is preferred to soil or groundwater. Due to fractures and preferential vapour pathways in rock, consideration should be given to overlying weathered soil, or to using HSLs for surface soil in sand.

For soil assessment (texture classification) undertaken in accord with AS 1726 the classifications of sand, silt and clay may be applied as coarse, fine with liquid limit less than 50%, and fine with liquid limit greater than 50% respectively.
Where there is uncertainty, laboratory analysis should be carried out. This may include parameters for detailed particle analysis and exact soil texture sub-class, and saturation porosity.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. Revised September 2020

CRC CARE

Step 4 – Impact media

Are there impacts to media other than soil and groundwater? (e.g surface water, biota, odours etc)
Note: aesthetic issues (odours/staining/ecological impacts etc.) to be addressed separately

[n] As well as human health assessment, consideration of other issues such as ecological, aesthetics, etc. may be required.

Soils

Are there soil impacts remaining on the site?

[x] Y - Proceed
[ ] N - Go to groundwater section

Depth to soil impacts. Note if considering basements, depths need to be displaced e.g. a 3 m deep basement means surface to <1 m represents 3 m to <4 m.

(refer to Section 2.3.3 of the Application Document)

[x] surface to <1 m
[x] 1 m to <2 m
[x] 2 m to <4 m
[ ] 4 m and deeper

[ ] Displacement due to basement
Distance of displacement (m) **1 to 3 m**

Is the site of interest an uncontrolled site where excavation activities such as construction may result in subsurface soil contamination brought to surface in the future?

[y] Consideration may be given to use of HSLs for direct contact and surface HSLs for vapour intrusion, for deeper soils. A site management plan may be used to address uncontrolled excavation at a site. (refer to Sections 2.3.1, 3.4.1, and 4.7 of the Application Document)

Groundwater

Are there groundwater impacts beneath the site?

[ ] Y - Proceed
[n] N - Go to soil vapour section

Is the depth to groundwater less than 2 m?

[n] Y - The HSL values may not adequately address this scenario. A site-specific HRA may be considered.
Soil vapour sampling may be used to assess vapour intrusion.
(refer to Section 2.3.3 of the Application Document)

Depth to groundwater impacts. Note if considering basements, depths should be displaced e.g. a 3 m deep basement means surface to 2 m represents 5 m (refer to Sections 2.3.3 of the Application Document). With basements, groundwater HSLs may not adequately characterise risks where the groundwater level is within 2 m of basement foundation.

[ ] 2 m to <4 m
[y] 4 m to <8 m
[ ] 8 m and deeper

[y] Displacement due to basement
Distance of displacement (m) 1 to 3

Step 4 – Impact media (cont.)

Soil vapour

Has soil vapour sampling been used to characterise vapour intrusion at the site? →

- [ ] Y - Proceed
- [x] N - Proceed to Step 5

Depth to soil impacts. Note if considering basements, depths need to be displaced e.g. a 3 m deep basement means surface to <1 m represents 3 m to <4 m.
(Refer to Section 2.3.3 of the Application Document.)

- [ ] surface to <1 m
- [ ] 1 m to <2 m
- [ ] 2 m to <4 m
- [ ] 4 m to <8 m
- [ ] 8 m and deeper

- [ ] Displacement due to basement
  Distance of displacement (m) _____

In using soil vapour sampling, please note the following:
1) It is recommended that soil vapour samples be taken as laterally close to a vapour source as possible (within or above).
2) Any sample taken within 1 m of the open air is subject to high levels of uncertainty due to atmospheric and meteorological effects. This includes the base and wall of excavation pits.
3) For sites subject to redevelopment with residential or commercial buildings, the soil vapour profiles are subject to change due to presence of concrete slabs. Caution is required on the use of soil vapour samples that are not within a soil source and in locations where buildings currently do not exist (refer to Section 1.6 of the Application Document).

Step 5 – Selection of relevant source concentrations

Soil concentrations

1. Is the investigation site likely to be subdivided into smaller lots? →
   - [ ] Y - Statistical analysis using entire data set may not be applicable. Consideration may be given to using the maximums or using a sub-set for statistical analysis (refer to Section 3.4.1 of the Application Document)
   - [x] N - Statistical analysis using entire data set may be applicable

2. Is the site public open space / recreational land where users are unlikely to be in the same location for extended period? →
   - [ ] Y - Statistical analysis using entire data set may not be applicable. Consideration may be given to using the maximums or using a sub-set for statistical analysis (refer to Section 3.4.1 of the Application Document)
   - [x] N - Statistical analysis using entire data set may be applicable

If statistical analysis is appropriate consideration should be given to the following methodology (refer to Section 3.4.1 of the Application Document):

1. Samples should be sub-divided into appropriate depth ranges as defined by HSLs (i.e. surface to <1 m, 1 m to <2 m, 2 m to <4 m, 4 m+). Note if considering basement, the appropriate displacement distance should be accounted for.
2. For each depth range, the statistical mean (e.g. 95% UCL arithmetic mean) soil concentration should be calculated for each chemical. One approach is described in the NSW EPA *Contaminated sites: Sampling design guidelines* (1995). The coefficient of variance test described in the document may be used to determine if the distribution is normal or lognormal. Consideration of other statistical methods may be adopted if justified (e.g. distribution does not fit a normal or lognormal distribution).
3. For samples with no detection, it is recommended to use half the detection limit during statistical analysis.
4. If the standard deviation is very large (due to outliers or low number of samples) the statistical mean may be higher than the maximum concentrations. In this case it is recommended to use the maximum.
5. It is recommended to keep note of maximum concentrations as well as statistical mean concentrations. Maximum concentrations may be required to address potential acute exposure issues.

Groundwater concentrations

Has floating product been identified in any well? →
- [n] Y - Refer to point (a)

(a) If PSH is identified, dissolved phase is likely to contain chemicals at solubility limits. Proceed with HSL comparison, noting that if there is at least one chemical for which HSLs in groundwater is limiting (i.e. not all chemical HSLs are NL) then presence of PSH may be a potential vapour risk to site users (refer to Section 3.4.2 of the Application Document). Also note that the presence of PSH may trigger other legislative requirements for remediation/monitoring.

Is the area of interest represented by a single groundwater location or multiple ? →
- [ ] Single - small area of interest such as residential dwelling may be represented by the maximum groundwater concentration if the dwelling location is unknown, otherwise if the building footprint is known, the groundwater well nearest to the point of interest may be used.
- [x] Multiple - where exposure may occur over larger areas such as recreational parkland, consideration may be given to averaging the concentrations across the area of interest.

In deciding which set of monitoring data is most useful for analysis consideration may also be given to:
- Historical results to determine trends in groundwater concentrations (i.e. the likelihood that concentrations may increase)
- Upgradient wells and background concentrations
- Groundwater flow direction

(Refer to Section 3.4.2 of the Application Document.)

Step 5 – Selection of relevant source concentrations (cont)

Soil vapour concentrations

Is the area of interest represented by a single or multiple vapour location?	Single - small area of interest such as residential dwelling may be represented by the maximum soil vapour concentration if the dwelling location is unknown, otherwise if the building footprint is known, the groundwater well nearest to the point of interest may be used. Multiple - where exposure may occur over larger areas such as recreational parkland, consideration may be given to averaging the concentrations across the area of interest.
Are soil vapour samples measured in shallow soil less than 1 m from the surface where there is no existing slab or concrete paving?	Y - Measurements are subject to influence from weather and atmospheric conditions and may not be considered reliable.
Are soil vapour samples measured in areas where there is no existing slab or concrete paving, and the site is planned to be redeveloped where a building will exist (residential/commercial/ industrial use)?	Y - Soil vapour samples not measured within a soil or groundwater source, may not be representative of the soil vapour in the future when a building is located on site. The placement of an impermeable barrier such as a concrete slab can cause build-up of soil vapour within the soil and sub-slab, above levels measured where there is no slab present. Note soil vapour measurements from within soil and groundwater sources are not subject to vapour build-up as the soil vapour is likely to be at its maximum concentration when located within the source.

Soil vapour measurements may be taken at multiple depths, including within the source zone, above the source zone, and directly under a building foundation. Each of the measurement depths should be considered individually.

Refer to Sections 3.4.3 and 1.6 of the Application Document.

CRC CARE

Step 6 – HSL determination and combined vapour intrusion and direct contact

HSL determination

HSLs and satuaration/solubility limits are presented in the Appendix B HSL tables. Select the appropriate HSLs for vapour intrusion from tables for:
1) Each selected receptor listed in Step 2
2) Dominant soil texture classification listed in Step 3
3) Source depth listed in Step 4
HSLs may be compared to soil/groundwater/soil vapour source concentrations determined in Step 5.
Note for TPH C6 to C10, BTEX should be subtracted from analytical result prior to comparing with HSL

1. Is the HSL value Not Limiting 'NL'? →
   - [ ] Y - Indicates that vapour reaches saturation point and cannot increase to a point which would result in an unacceptable health risk
   - [x] N - Continue with Question 2 for groundwater, or proceed to Question 3

2. Is groundwater HSL not 'NL' and PSH identified in water? →
   - [ ] Y - May indicate potential vapour risk (refer to Section 3.4.2 of Application Document)
   - [x] N - Proceed to Question 3

3. Are comparisons being made against soil HSLs? →
   - [x] Y - Proceed to Question 4
   - [ ] N - Proceed to Question 5

4. Does direct contact need to be considered as well as vapour intrusion? →
   - [n] HSL-A Low-Density Residential - surface soils, and possibly subsurface soils if determined to be relevant (refer to Section 4.7 of Application Document). Proceed to 'Combined pathways exposure'
   - [n] HSL-B High-Density Residential – surface soils. Proceed to 'Combined pathways exposure'
   - [n] HSL-C Open Space Recreational – surface soils. Proceed to 'Combined pathways exposure'
   - [y] HSL-D Commercial / Industrial – surface soils. Proceed to 'Combined pathways exposure'
   - [y] Intrusive Maintenance Worker – down to 2 m. Proceed to 'Combined pathways exposure'
   - [ ] N - Proceed to Question 5

5. Do cross-scenario exposure need to be considered? →
   (eg. adjacent residential and open space)
   - [ ] Y - Proceed to 'Combined pathways exposure'
   - [n] N - Proceed to Step 7

Combined pathways exposure
Refer to Section 3.3 of the Application Document.
Combined exposures may occur on the same property where indoor vapour intrusion occurs concurrently with outdoor direct contact.
Combined exposure may also occur on adjacent properties, e.g. vapour intrusion on residential property and direct contact on adjacent open space (park).
For the given scenarios/chemicals, list the HSLs.
Where a vapour intrusion HSL is Not Limiting (NL) the chemical / scenario does not need to be considered in the combined pathway exposure.
The combined exposure is assessed as follows:

Multiple exposure pathways: $$\text{Cumulative Fraction} = \frac{C_{UnderBuilding}}{HSL_{VapourIntrusion}} + \frac{C_{OutsideBuilding}}{HSL_{DirectContact}}$$ where vapour intrusion can refer to soil, groundwater or soil vapour source

Multiple exposure scenarios: $$\text{Cumulative Fraction} = \frac{C_{Land\ use\ 1}}{HSL_{Land\ use\ 1}} + \frac{C_{Land\ use\ 2}}{HSL_{Land\ use\ 2}}$$ where the HSLs may refer to HSLs for vapour intrusion or direct contact

If a given C/HSL fraction is less than 0.1, the contribution of risk may be considered insignificant and the cumulative exposure need not be assessed for this scenario.
Where a cumulative fraction is less than 1 risk is normally acceptable. Where the value exceeds 1 a site-specific assessment should be undertaken, or proceed to Step 7.

Step 7 – HSLs and adjustments (vapour intrusion)

HSL adjustments (vapour intrusion only)
For each adjustment, careful consideration and justification is required.

1. Vapour biodegradation (refer to Section 4.2 of Application Document)
Prior to applying attenuation factor for vapour degradation, it is recommended to read the source documentation (Davis et al. 2009).
The minimum requirements for allowing attenuation factors for vapour degradation are as follows:

1. Is there evidence of oxygen penetration? (refer to Section 4.2.1 of Application Document)		Y - Requires measurement of oxygen in soil gas with at least 5% at 1 m depth
	x	N - Attenuation factor may not be applicable
2. Is the source depth 2 m or deeper? (refer to Section 4.2.2 of Application Document)	x	Y - Continue to Question 3
		N - Attenuation factor may not be applicable
3. Does the slab have one side less than 15m length? (refer to Section 4.2.3 of Application Document)	x	Y - Degradation factor may apply. Less than 4 m depth, a factor of 10 may apply. 4 m and deeper, a factor of 100 may apply.
		N - Attenuation factor may not be applicable

2. Soil organic carbon content (refer to Section 4.3 of Application Document)
May be used to adjust soil HSLs only. Soil HSLs were based on fraction organic carbon content of 0.003.
HSL may be adjusted if background levels of organic carbon content at the same depth as source is different from baseline. Background sample must not be contaminated with hydrocarbons. If surface soil, background sample in open space may not be appropriate to use if comparing for soil under slab.

Adjustment is linear, i.e. doubling the organic carbon will double the HSL. Applies only to soil HSL for vapour intrusion.

3. Air exchange rate (refer to Section 4.4 of Application Document)
HSLs are based on air exchange rate (AER) of 0.6 h^{-1} for residential and 0.83 h^{-1} for commercial.
Careful justification may be required prior to changing AER. Consideration should be given to weather conditions, practice of leaving doors/windows open, or closed in climate controlled building. New buildings tend to be more air tight to comply with energy saving regulations.

For soil and groundwater, adjustment is linear with respect to AER.
For soil vapour, adjustment is variable depending on soil type and depth.
Refer to the charts in Appendix D to determine the adjustment factor.

4. Moisture content (refer to Section 4.5 of Application Document)
HSLs may be adjusted if moisture content in soil is significantly different from baseline HSLs. The baseline moisture contents used were (dry wt) for sand 8%, silt 22% and clay 20%.
Moisture content should be representative of long-term moisture content and not short-term result from recent rain event. Also note that for a development with future building where no building currently exists, moisture contents on site may not be representative for the future state of the site.
HSL scaling factors for different land use/chemicals/soils are presented in Appendix C of the Application Document and may be applied as described in Section 4.5.

CRC CARE

Step 7 – HSLs and adjustments (vapour intrusion) (cont.)

Saturation/solubility limits (soil and groundwater HSLs only)

Apply the adjustments to the HSLs for vapour intrusion by multiplying by the determined factors.

After applying the adjustments to the HSLs, is the revised HSL greater than the solubility / saturation limit? →

- [ ] Y - Indicates that the predicted source concentration to produce an unacceptable vapour risk is higher than the saturation point. The revised HSL is not limiting to vapour (NL). Note this does not apply to soils with direct contact.
- [x] N - Revised HSL may be compared with measured source concentrations.

Multi-Pathway Exposure

1. Is inclusion of direct contact with soils required? →
   - [ ] Y - Repeat Step 6 with Adjusted Vapour Intrusion HSLs and Direct Contact HSLs
   - [x] N - Proceed to Question 2
2. Is cross-scenario exposure required to be assessed?
   - [ ] Y - Repeat Step 6 with Adjusted Vapour Intrusion HSLs and Direct Contact HSLs
   - [x] N - Proceed to 'Screening assessment'

Screening assessment

Is the adjusted HSL less than source concentration? →

- [ ] Y - Indicates potential health risk
- [x] N - Considered within acceptable health risks. If cancer endpoint (benzene) may also need to assess cancer risk level and cumulative cancer risk in Step 8

Is the maximum soil, groundwater or soil-vapour concentration greater than the HSL by more than one or two orders of magnitude? →

- [ ] Y - Indicates potential acute risk around hotspot
- [x] N - Considered within acceptable health risks

If the screening assessment indicates the potential for unacceptable health risk, consideration may be given to further investigations such as further contamination delineation, site-specific health risk assessment or site management. Before deciding the appropriate form of action considerations should include:

- The magnitude of HSL exceedance
- The nature of the source
- The time frame required for managing health risks
- Other statutory requirements

CRC CARE

Step 8 – Cancer risk assessment
Acceptable cancer risk (Refer to Section 5.1 of Application Document) HSLs for benzene have been based on 1 x 10^{-5} cancer risk. In some jurisdictions it may be required to assess carcinogenic risks based on 1 x 10^{-6} cancer risk. 1) The HSLs are linearly related to acceptable risk. HSLs based on a cancer risk of 1 x 10^{-6} may be calculated by dividing the HSLs in Appendix B by a factor of 10. 2) If the HSL is NL (vapour only HSL), it is possible that it may become limiting if the HSL is within a factor of 10 of the soil saturation concentration (or solubility limit for groundwater). 3) If soil or groundwater source concentration is less than an order of magnitude of the saturation concentration / solubility limit (in Appendix B), then even dividing the non-limiting HSL by 10 would result in an acceptable risk. Hence there is no need to proceed further. 4) If soil or groundwater source concentration is within an order of magnitude of the saturation concentration / solubility limit it is recommended to calculate the revised HSL from the non-limiting HSL. This process is outlined as follows: **Calculating revised HSL for 10^{-6} cancer risk from non-limiting HSL.** 1) The non-limiting HSLs are presented in Friebel & Nadebaum 2011 (Part 1). 2) The derived HSLs are presented in Appendix F. 3) Find the pages that correspond to the source type (soil, groundwater, soil vapour) for the given scenario (residential / commercial / recreational / intrusive maintenance). Note indicator chemicals and TPH have been separated. 4) For the corresponding soil category, depth and chemical, the Vapour Intrusion HSL and saturation/solubility concentration is presented in the columns on the right. 5) If this HSL is divided by 10 and the result is greater than Csat (for soil) or saturation limit (for groundwater), then the revised HSL is still NL. Otherwise the result is the revised Vapour HSL.
Cumulative cancer risk (Refer to Section 3.6.1 of Application Document) HSLs for benzene have been based on 1 x 10^{-5} cancer risk. In most jurisdictions it is required to assess total carcinogenic risks based on 1 x 10^{-5} cancer risk. If HSLs are not NL for benzene and another carcinogenic chemical is identified, such as PAHs, follow the proedure outlined in Section 3.6.1. The cumulative fraction may also be applied to more than two chemicals. Note that multiple sources should be considered. For example, a resident may be exposed through direct contact with PAHs in surface soil, but also benzene vapours from soil and groundwater. For vapour risk (benzene), the risk contribution should consider the greatest risk for the receptor from all vapour sources. Because multiple sources do not have an additive effect, the source with the greatest risk needs to be identified (refer to Section 3.5 for discussion on multiple vapour sources). This means that for all sources/depths the source concentration should be divided by their respective HSLs to calculate the benzene contribution to cumulative risk. The highest fraction determines which source poses the greatest risk to receptors. The same may be carried out for carcinogenic PAHs. The sum of the highest benzene fraction and the highest PAH fraction results in the highest possible cumulative fraction.

praxisenvironment
heritage | planning | archaeology
po box 338
north hobart
tasmania 7002
0418 303184
info@prax.com.au

Mr. George Walker
6ty°
Tamar Suite 103, The Charles
287 Charles Street,
LAUNCESTON TAS 7250

25th February 2018

Dear George

Further to our discussions and previous correspondence, I provide the current document as a *preliminary statement of historic archaeological potential* (SoHAP) for 209-215 Harrington Street, Hobart. This does not negate the need to formulate a more detailed SoHAP however is intended for use by the planning authority in consideration of the current application for development at that site – and it is likely that greater detail may be required at a later stage in implementing any development.

The table below details the archaeological management process as will need to be applied to any proposed development of the subject site:

Methodology for formulation of the statement of archaeological potential		
	If 'no'	**If 'yes'**
1. Archaeological potential. Are you likely to find something if you dig here? (i.e. a Statement of Archaeological Potential).	Further action may not be required, although a contingency plan may be required for unexpected finds.	The significance of the archaeological potential should be investigated.
2. Significance. Could anything you find here greatly contribute to our understanding of the site or related significant theme?	Further action may not be required.	The likely integrity of the archaeological remains should be investigated.
3. Integrity. Are any archaeological remains likely to be intact?	Further action may not be required, although a contingency plan is required for unexpected integrity.	The likelihood of significant archaeological remains is confirmed.
4. Impact Will proposed works impact upon the significant archaeological remains? i.e. an Archaeological Impact Assessment.	Further action may not be required, although a contingency plan may be required for unexpected impacts.	An Archaeological Method Statement will be required to detail how impact will be managed/mitigated.

The subject site is included in Table E.13.4 (Places of Archaeological Potential), as defined by Figure E.13.4.1 of the scheme, therefore Clause E.13.10.1 of the scheme applies:

	Acceptable Solution	**Performance Criteria**
E.13.10.1 – Building and Works other than Demolition	*A1. Building and works do not involve excavation or ground disturbance.*	*P1. Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:* *a) the nature of the archaeological evidence, either known or predicted;* *b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;* *c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;* *d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;* *(a) measures proposed to preserve significant archaeological evidence 'in situ'.*
E.13.10.2 – Subdivision	*A1. Subdivision provides for building restriction envelopes on titles over land defined as the Place of Archaeological Potential in Table E13.4.*	*P1. Subdivision must not impact on archaeological resources at Places of Archaeological Potential through demonstrating either of the following:* *(a) that no archaeological evidence exists on the land;* *(b) that there is no significant impact upon archaeological potential.*

Accordingly, the site requires such a detailed SoHAP in order to guide any future development. In the absence of such, I provide the following brief pictorial site background as a means of understanding the historical background of the site as per Step (1) of the methodology table and to very broadly understand the possible archaeological potential of the site. Note that this does not include:

- An assessment of disturbance history between, and after, the known historical phases which may have impacted the archaeological resource.
- Detailed historical assessment of building function, persons associated (etc.).

- Consideration of whether any of the possible archaeological remains are significant and/or contribute to relevant historical/archaeological research frameworks.

All of the above would need to form part of an expanded and more comprehensive SoHAP.

Similarly, this document does not consider the current application and possible archaeological impact, not does it propose any management strategies to protect, conserve, investigate or interpret any significant remains – which would be required in an archaeological impact and method statement.

It is expected that the planning authority, in any approval, would require the above to be completed prior to the commencement of works. This would likely include:

- An expanded *SoHAP* which would include a more comprehensive site history, consideration of disturbance events, consideration of the significance of any remains within various thematic, regional and temporal research frameworks – culminating in a detailed *archaeological zoning plan* for the site.
- Consideration of the likely impact of the proposed development via an *archaeological method statement* which would also need to consider the feasibility of avoiding impact and preserving any significant archaeological remains.
- Formulation of an *archaeological method statement* which would detail how any archaeological remains which cannot be feasibly preserved are to be managed in order to mitigate that impact.
- Detail of any public benefit initiatives arising from the archaeology of the site (such as interpretation etc.).

Ahead of the above, the following is a brief pictorial overview of the site development history, which gives an indication of historical development of the site (note that in all images the *approximate* subject site is outlined or depicted in red, and unless otherwise noted, Harington Street is to the bottom of the image Figures 1 & 2 depict the subject site:

Figure 1 – The subject site, 209-215 Harrington Street, Hobart. www.thelist.tas.gov.au

Figure 2 – The subject site, 209-215 Harrington Street, Hobart. www.thelist.tas.gov.au

Figure 3 depicts the subject site in c1832, which shows a masonry building (pink) on the corner of Harrington and Patrick Street and a timber building (grey) facing Harrington Street. The subject site at that time comprised of parts of three titles. Further research through grants records, titles (etc.) are likely to ascertain owners of these buildings and may allude to their use, although these were *probably* domestic. Whilst this map is known to be reasonably accurate in the approximate location and size of buildings, the precise rate of error is unclear (based on actual archaeological observations that have ground-truthed this map.

Figures 4 and 5 are from the c1839 Frankland Survey and the c1841 census map (which was largely based on Frankland's survey with some additions). These show a similar configuration of buildings as per the c1832 survey, however they do show what is probably an adjacent building being within the subject site (shown as outside the site on the earlier survey). The accuracy of both these surveys is not high and can be only relied upon for approximate locations of buildings, so it is unclear whether that third building was within the subject site.

Sprent's c1845 survey (Figure 6) shows the similar configuration of masonry building on the corner and timber building on Harrington Street as per the c1832 survey, with each having a timber addition (or another building) near/against them, as well as a masonry building partly within the subject site further up Harrington Street. This survey is known to have a very high level of accuracy. Again, the precise nature/function of these buildings is unknown ahead of further research, but probably domestic.

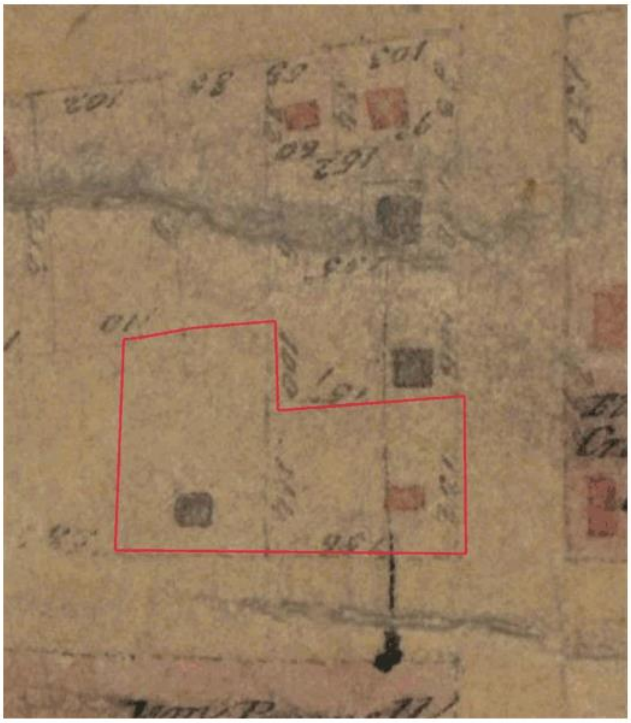


Figure 3 - c1832 – DPIPWE Hobart 5.

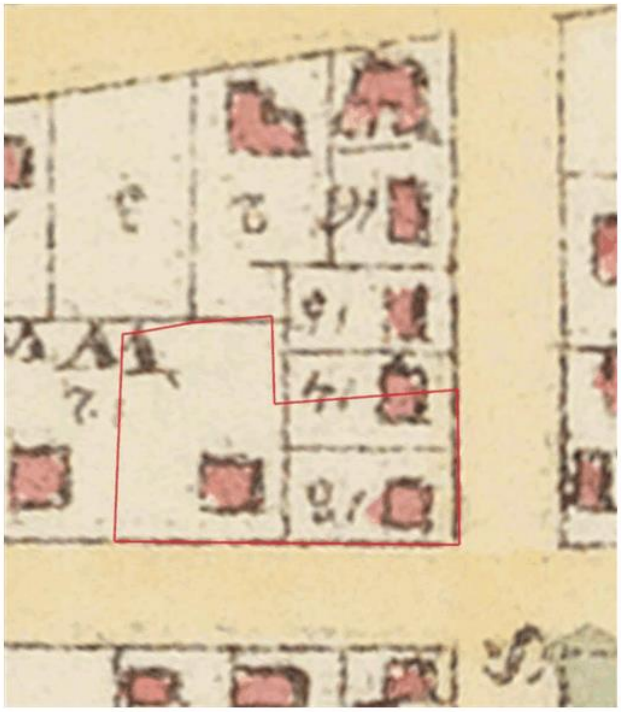


Figure 4 - c1839 Frankland survey (Tasmanian Archive and Heritage Office, PH-30-1-693-1).

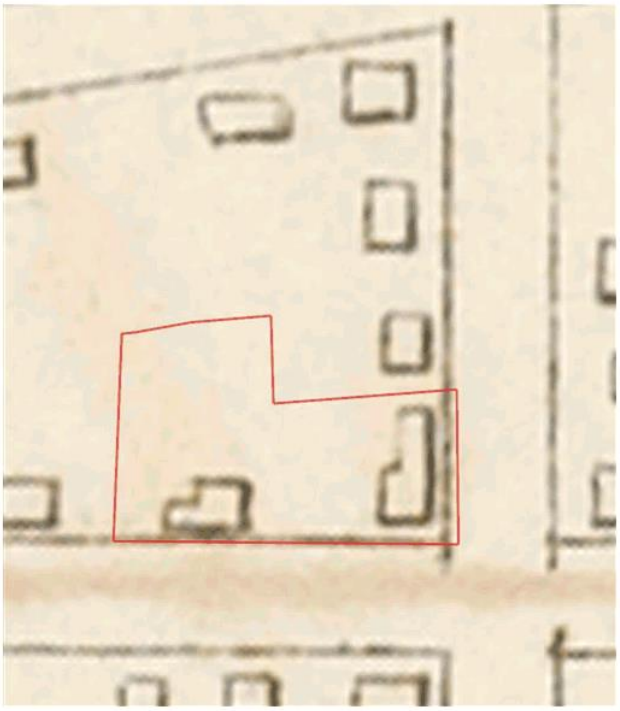


Figure 5 - c1841 Census map of Hobart.

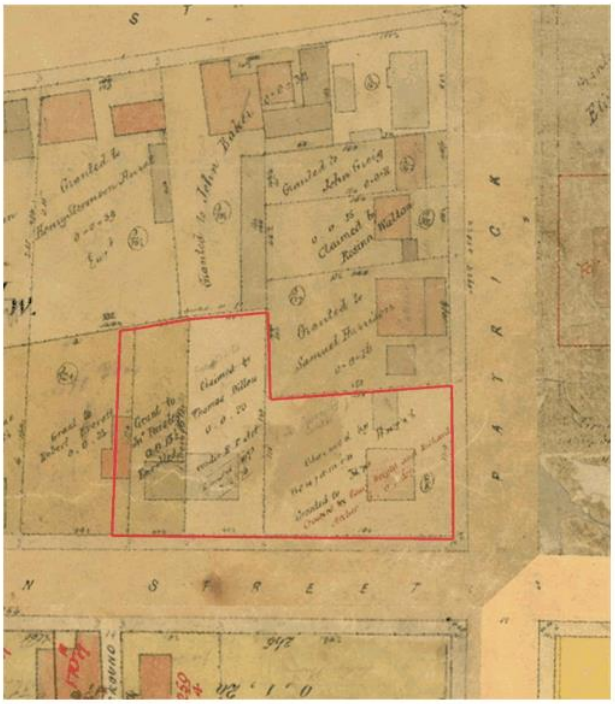


Figure 6 - Sprent's c1846 map survey of Hobart (www.thelist.tas.gov.au).

Photographs from the later nineteenth-century show that arrangement similar to that as depicted on the Sprent survey, with two main buildings fronting Patrick Street two facing Harrington Street, however by the 1880s a cottage with a steeply-pitched roof and veranda onto the street was added to the Harrington Street frontage on the site of an earlier shed in that location (see difference between Figures 6 and 7). Figure 8 shows in more detail the two buildings facing Patrick Street (the corner of Patrick/Harrington denoted by the red line).

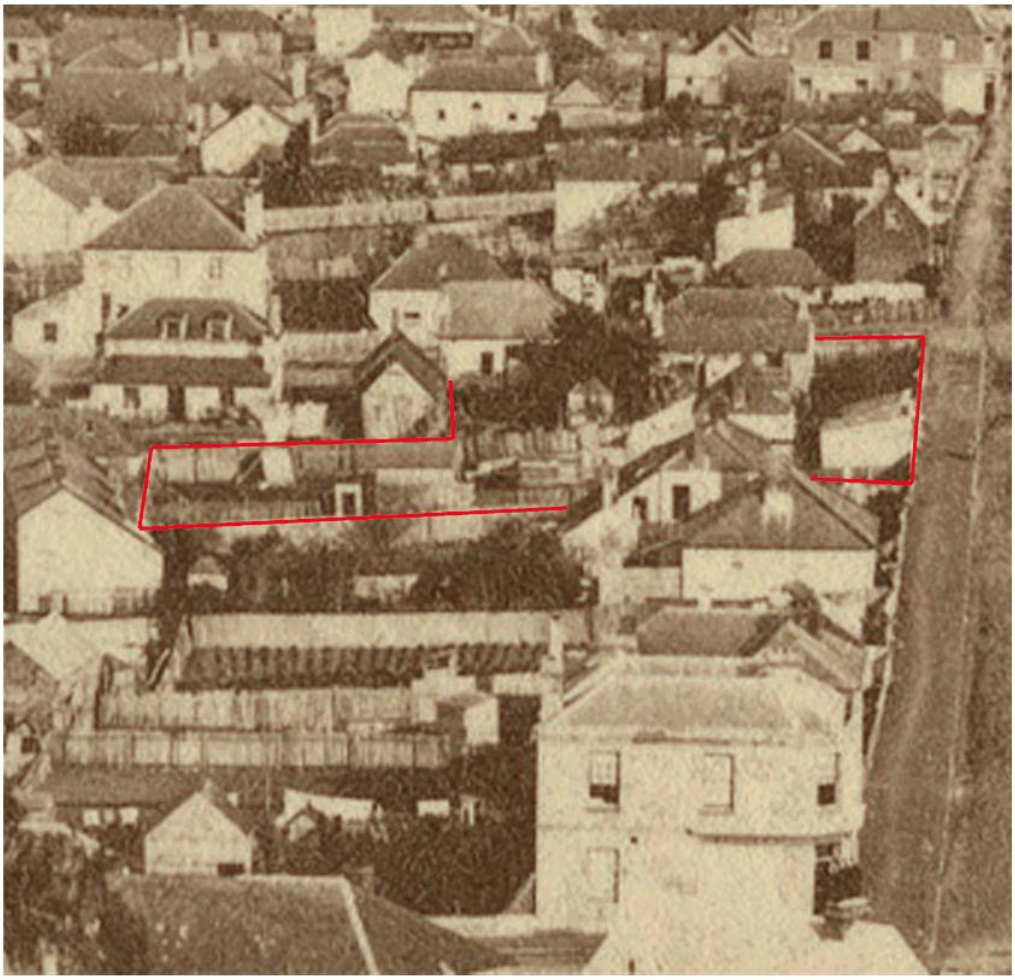


Figure 6 - Part of an 1865 stereoscope photograph across Hobart. State Library of Tasmania LPIC147-3-124.

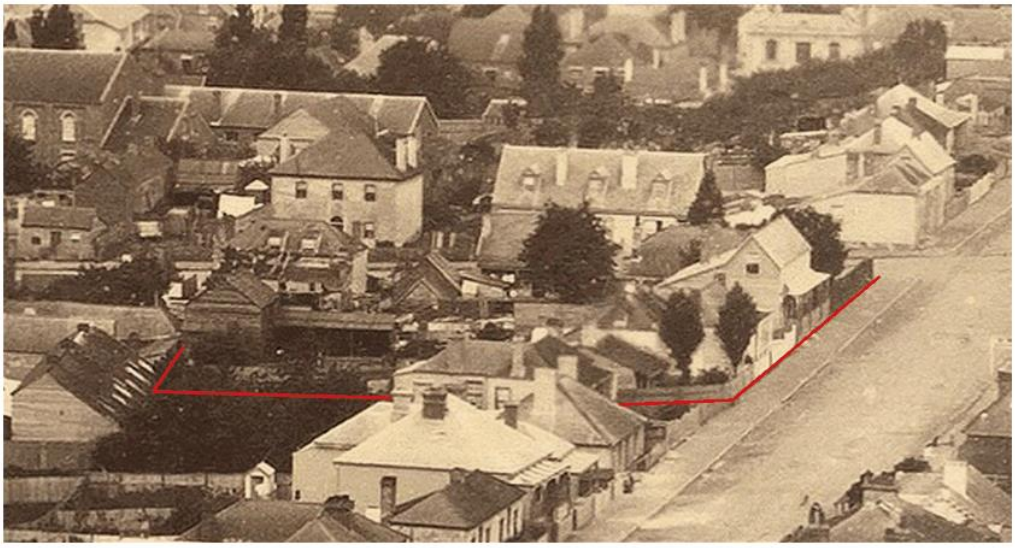


Figure 7 - Excerpt from a c1880s panorama of Hobart. Tasmanian Archive and Heritage Office NS2906-1-3.

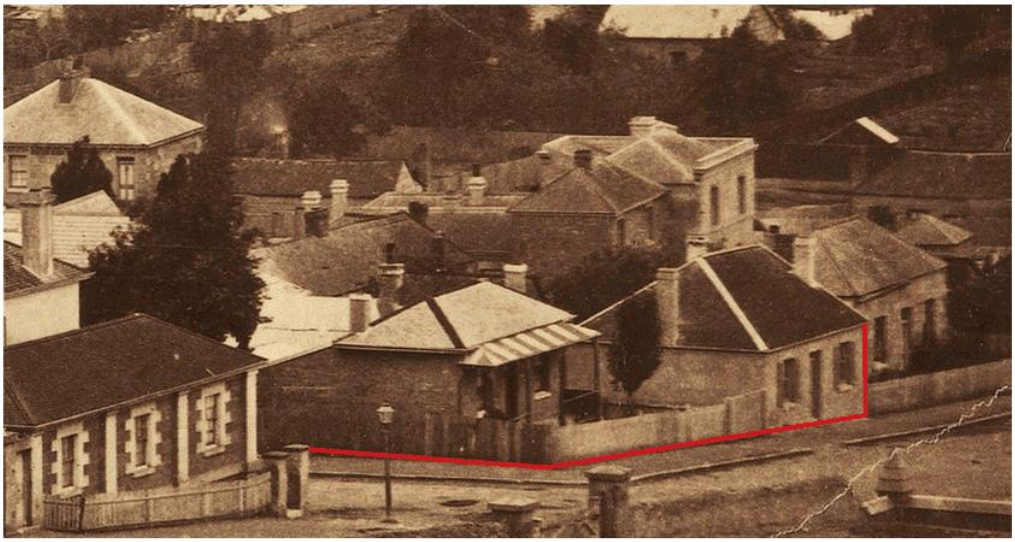


Figure 8 - Excerpt from a c1880s panorama of Hobart. Tasmanian Archive and Heritage Office PH6-1-64.

The 1890s photograph in Figure 8 depicts a similar configuration, essentially with three houses facing Harrington Street and two facing Patrick Street within the subject site. Those facing Patrick Street are small double-fronted cottages as best depicted on Figure 8, those facing Harrington Street are the two earlier conjoined houses (one much smaller and set back from the street) as well as the steeply pitched-roof cottage as seen in Figure 7. The 1908 Metropolitan Drainage Board survey shows again that similar arrangement, however by that time it appears that the pre-c1880 cottage (steep roof and veranda) fronting Harrington Street had been replaced by three narrow terrace houses (marked on Figure 10 as 209-213 Harrington Street). That survey also shows a series of outbuildings, some depicted in earlier photographs (sheds and privies).

Figure 9 - Excerpt from a c1890 panorama of Hobart. Tasmanian Archive and Heritage Office NS1013-1-522.

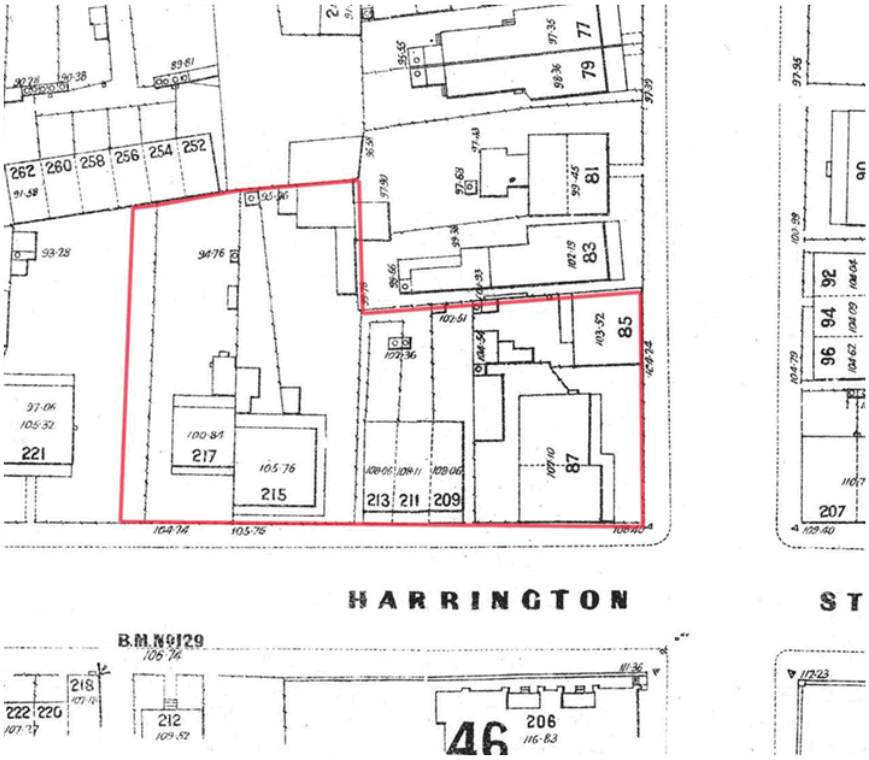


Figure 10 - c1908 Metropolitan Drainage Board plan of Hobart (Hobart Map 16 - State Library of Tasmania TL.MAP 881.11).

Figure 11, from the 1946 aerial run of Hobart shows the same arrangement of buildings as per the 1908 MDB survey.

Figure 11 – 1946 aerial photograph of Hobart. DPIPWE Hobart 1946 Run 5 10892.

Figure 12 depicts the overlay footprints of pre-1846 surveys of Hobart showing the earliest locations of development fronting Patrick Street and further up Harrington Street. Figure 13, drawn from the 1908 MDB survey, shows those similar building footprints, indicating that the earlier buildings had largely survived until then, but with some infill on the Harrington Street frontage as well as outbuildings which were either built in the last half of the nineteenth-century, or omitted from those earlier surveys. Figure 14 is an overlay of all known site development up to 1946 which shows that (in the absence of disturbance) would result in expected remains of those buildings and their occupation to be present mostly on the street frontages, with only the remains of outbuildings and ancillary structures further rearward.

Figure 12 - Overlay footprints of all known pre-1846 development as per the above surveys/maps (adapted from www.thelist.tas.gov.au.

Figure 13 - Overlay footprint of pre-1908 development (likely to include some pre-1846 development).

Figure 14 - Overlay footprint of pre-1946 development (likely to include some pre-1846 development – 1908 buildings outlined in orange).

Preliminary archaeological observations

As per the limitations above, it would appear that the main areas of archaeological potential are those fronting each street, with a large area at the rear of the site that *probably* has a lower archaeological potential (although may have remains of features such as wells, cesspits, drains, rubbish pits etc).

Although a comprehensive site history has not been undertaken, the pictorial analysis included here suggests that all buildings were *probably* domestic – however further research is required to ascertain whether there was any commercial/trade or other activity undertaken on the sites. Further research would be needed to possibly link the sites to prominent persons, or to at least indicate the 'status' of the inhabitants which would be required to pose an archaeological research design and ascertain the potential of these sites to yield information that may be of archaeological value.

Whilst site observations have not been undertaken, and no research has been undertaken thus far on the demolition of those earlier buildings and the construction of the current buildings (and any intermediate generations of buildings – therefore an adequate knowledge of disturbance is not able to influence archaeological judgments at this stage.

At this preliminary stage, I recommend:

- That this document accompanies any development application to inform the planning authority that at least parts of the site are likely to have some archaeological potential.
- That a more detailed and rigorous SoHAP be formulated if any proposal is approved.
- If that SoHAP confirms the preliminary findings here, then an archaeological impact assessment is to be formulated for any development. This will need to consider the possibility of conserving archaeological remains, or if this is not prudent/feasible then the formulation of an archaeological method statement to mitigate impact and to yield archaeological potential and provide a public benefit (e.g. through publication and/or interpretation).
- All of the above is expected to form a condition(s) of any approval and be approved by council officers prior to implementation (if necessary) ahead of the commencement of construction (as further refined by any archaeological method statement).

Please contact me if you have any further queries or require any clarification.

Regards

Brad Williams BA. (Hons.) Archaeology, MA Cultural Heritage Management. G.Dip Environmental Planning.

Director – Praxis Environment

City of HOBART

Enquiries to: City Planning
Phone: (03) 6238 2715
Email: coh@hobartcity.com.au

22 December 2020

George Walker (6ty)
PO Box 63
RIVERSIDE TAS 7250

mailto: gwalker@6ty.com.au

Dear Sir/Madam

209 - 213 HARRINGTON STREET, HOBART - WORKS IN ROAD RESERVE NOTICE OF LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION - GMC-20-78

Site Address:

209-213 Harrington Street, Hobart

Description of Proposal:

Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works

Applicant Name:

George Walker
6ty

PLN *(if applicable)*:

PLN-20-651

I write to advise that pursuant to Section 52 of the *Land Use Planning and Approvals Act 1993*, I grant my consent on behalf of the Hobart City Council as the owner/administrator of the above land for you to make application to the City for a planning permit for the development described above and as per the attached documents.

Please note that the granting of the consent is only for the making of the application and in no way should such consent be seen as prejudicing any decision the Council is required to make as the statutory planning authority.

This consent does not constitute an approval to undertake any works and does not authorise the owner, developer or their agents any right to enter or conduct works on any Council managed land whether subject to this consent or not.

If planning approval is granted by the planning authority, you will be required to seek approvals and permits from the City as both landlord, land manager, or under other statutory powers (such as other legislation or City By-Laws) that are not granted with the issue of a planning permit under a planning scheme. This includes the requirement for you to reapply for a permit to occupy a public space under the City's Public Spaces By-law if the proposal relates to such an area.

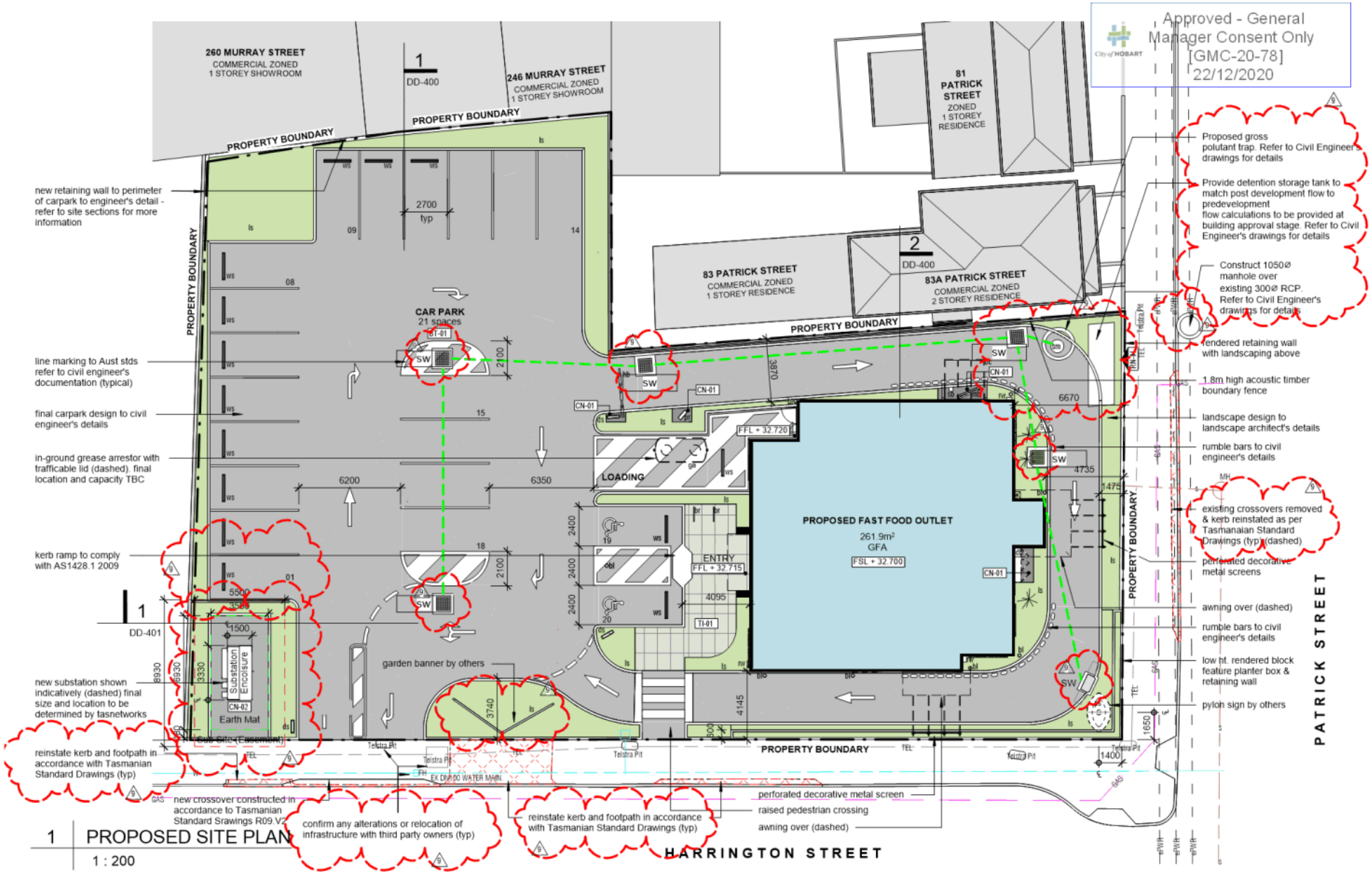
Accordingly, I encourage you to continue to engage with the City about these potential requirements.

Yours faithfully

(N D Heath)
GENERAL MANAGER

Relevant documents/plans:

Proposed Site Plan by Vioto - Drawing no: 2009-DD-110 issue 9



VIOTO
51 LAUREL STREET ENOGGERA QLD 4051
www.vioto.com.au +61 7 3354 2278

DO NOT SCALE OFF THIS DRAWING
+ verify dimensions prior to commencement on site
+ inform the architect of any discrepancies between documentation and identifier site information
+ design & documents remain copyright of VIOTO

DA ISSUE

issue	revision	initials	date
4	Preliminary Issue	AD	21.08.20
5	Preliminary Issue	AD	21.08.20
6	Preliminary Issue	AD	27.08.20
7	Preliminary Issue	AD	01.09.20
8	DA Submission	AD	08.09.20
9	Revised DA	RR	13.10.20

project
KFC - HOBART
209-215 Harrington Street
Hobart TAS 7000

client
JOIANT PROPERTY GROUP

scale
1 : 200 @A3

drawing title
PROPOSED SITE PLAN

drawing number
2009-DD-110

issue
9

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
52394	1
EDITION	DATE OF ISSUE
8	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.58 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Diagram 52394
Derivation : Part of 0A-0R-24Ps Granted to R. Everett
Prior CT 4835/42

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

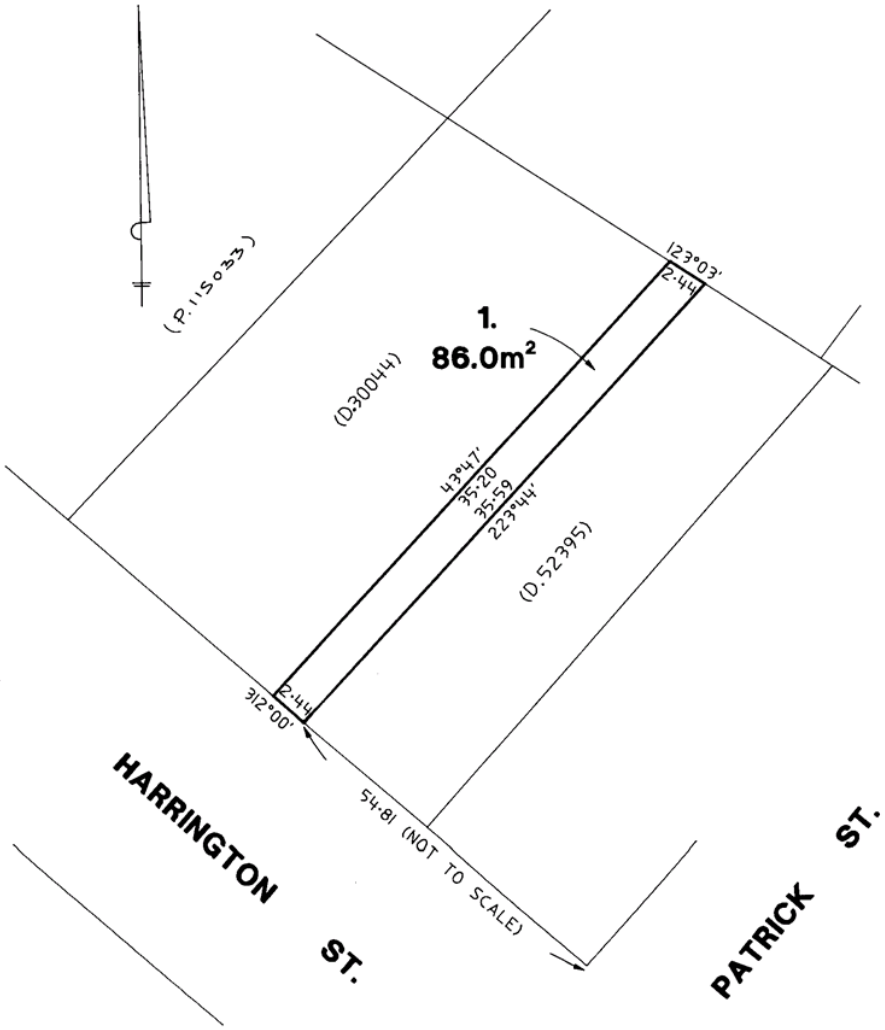
FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

Owner: L.T.ACT 1980	PLAN OF TITLE of land situated in the CITY OF HOBART SEC Ww	Registered Number: D.52394
Title Reference: A.10007	COMPILED FROM 37/84 D. O.	2 DEC 1991 Approved ..... Recorder of Titles
Grantee: PART OF 0-0-24 GTD. TO ROBERT EVERETT.	SCALE 1: 250 MEASUREMENTS IN METRES	



RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
52395	1
EDITION	DATE OF ISSUE
8	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.57 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Diagram 52395
Derivation : Part of 0A-0R-13.1/2Ps Granted to J. Palsley
Prior CT 4835/43

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

Owner: L.T.ACT 1980	PLAN OF TITLE of land situated in the CITY OF HOBART SEC Ww	Registered Number: D.52395
Title Reference: A.10007	COMPILED FROM S.B.P28 L.O.	Approved 2 DEC 1991
Grantee: WHOLE OF 0-0-13½ GTD. TO JOHN PALSLEY.	SCALE 1: 250 MEASUREMENTS IN METRES	Recorder of Titles

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
197488	1
EDITION	DATE OF ISSUE
5	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.53 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 197488
Derivation : part of 31.1/2Ps, Section Ww Gtd to H Wright & Anor
Prior CT 2073/49

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
BENEFITING EASEMENT: a right of carriageway over the land marked "Roadway" on Plan No. 197488

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

OWNER

FOLIO REFERENCE FR 2073/49

GRANTEE

PLAN OF TITLE

LOCATION
CITY OF HOBART
(SEC. Ww)

FIRST SURVEY PLAN No. 5/44 HOB

COMPILED BY LTO

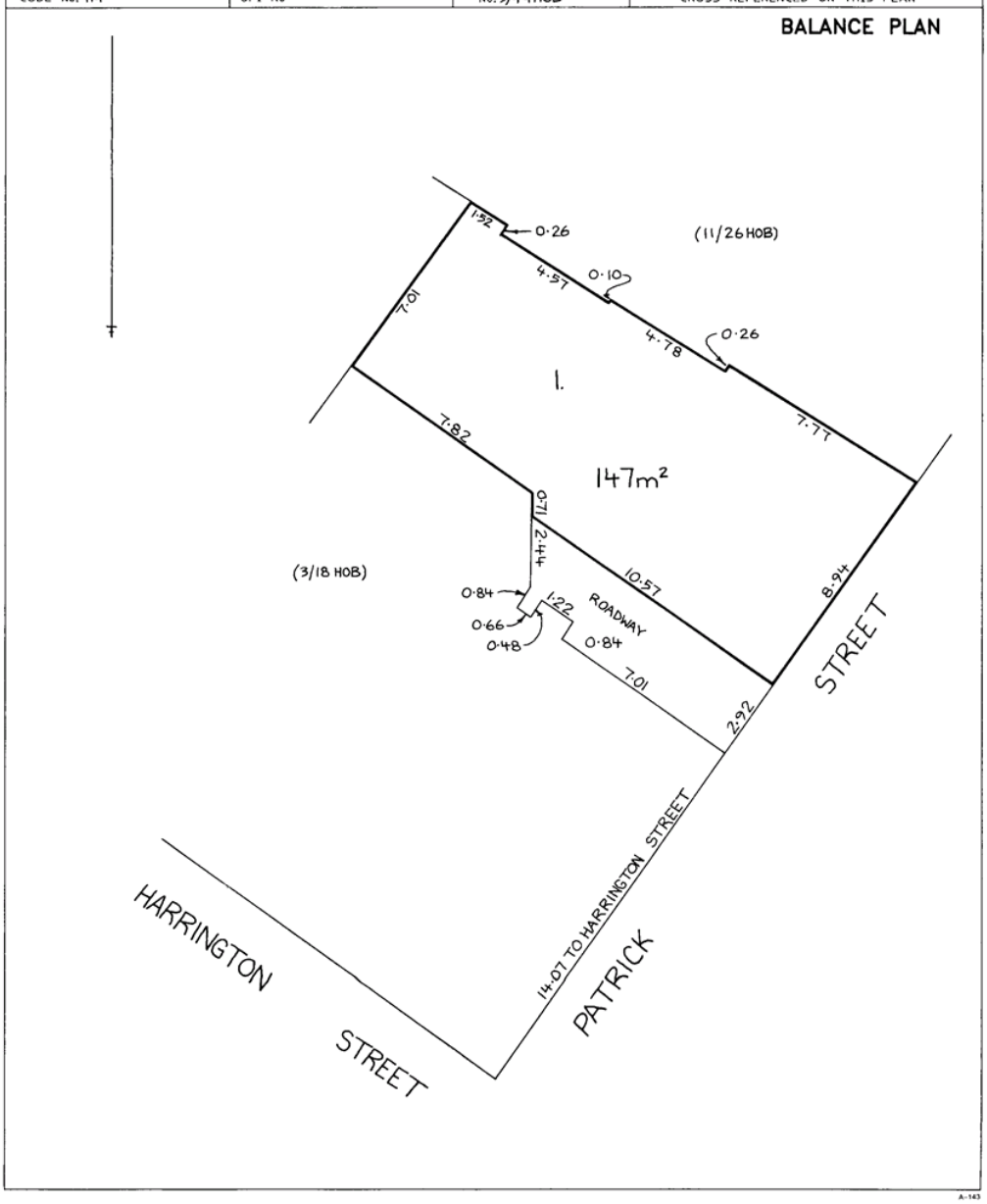
SCALE 1:125 LENGTHS IN METRES

Registered Number
P197488

APPROVED 12 DEC 1996
Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 114	LAST UPI No	LAST PLAN No. 5/44 HOB	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

BALANCE PLAN



A-143

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
203787	1
EDITION	DATE OF ISSUE
5	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.56 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 203787
Derivation : Portion of 31 1/2P Sec. W.w. Gtd. to H. Wright & Anr.
Prior CT 2262/54

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

ORIGINAL – NOT TO BE REMOVED FROM TITLES OFFICE

54

12294 03

TASMANIA

REAL PROPERTY ACT, 1862, as amended

CERTIFICATE OF TITLE

Register Book

Vol. 2262 Fol. 54

I certify that the person described in the First Schedule is the registered proprietor of an estate in fee simple in the land within described together with such interests and subject to such encumbrances and interests as are shown in the Second Schedule. In witness whereof I have hereunto signed my name and affixed my seal.

~~Witness~~

Recorder of Titles.

RECORDER OF TITLES TASMANIA

DESCRIPTION OF LAND

CITY OF HOBART

TWELVE PERCHES AND SEVEN TENTHS OF A PERCH on the Plan hereon.

FIRST SCHEDULE (continued overleaf)

NEIL BERG BASSTIAN of Sandy Bay, Tyre Retreader.

ENTRY CANCELLED

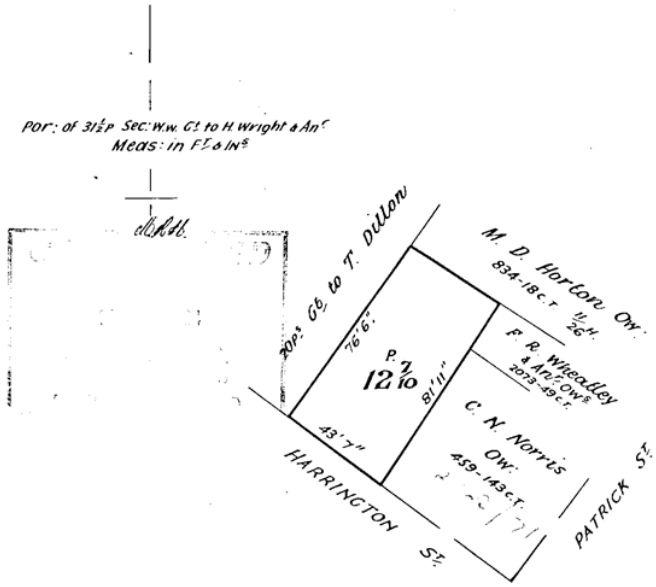
SECOND SCHEDULE (continued overleaf)

NIL

RE OF THE RECORDER OF TITLES ARE NO LONGER SUBSISTING.

REGISTERED NUMBER 203787

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register



1st Edition. Registered 25 AUG 1967

Derived from C. T. Vol. 238 Fol. 99 Application Sec. 80 11910 R. P.

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
232390	1
EDITION	DATE OF ISSUE
8	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.56 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 232390
Derivation : Whole of 20Ps. in (Section W.w.) Gtd. to T. Dillon
Prior CT 3190/3

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

ORIGINAL – NOT TO BE REMOVED FROM TITLES OFFICE

R.P. 1469
TASMANIA
REAL PROPERTY ACT, 1862, as amended
NOTE—REGISTERED FOR OFFICE CONVENIENCE TO REPLACE

CERTIFICATE OF TITLE

Register Book
Vol. 3190 Fol. 3

Cert. of Title Vol. 691 Fol. 12.

I certify that the person described in the First Schedule is the registered proprietor of an estate in fee simple in the land within described together with such interests and subject to such encumbrances and interests as are shown in the Second Schedule. In witness whereof I have hereunto signed my name and affixed my seal.

Recorder of Titles.

DESCRIPTION OF LAND

CITY OF HOBART
TWENTY PERCHES on the Plan hereon.

FIRST SCHEDULE (continued overleaf)

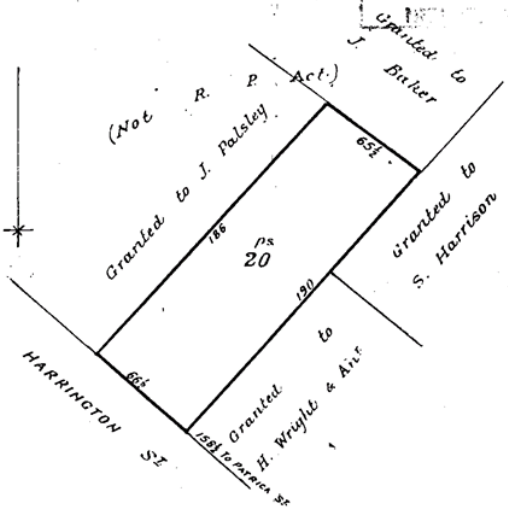
ELLA MILLIE MYRA LUCAS of Hobart, Widow

SECOND SCHEDULE (continued overleaf)
NIL

RECORDER OF TITLES ARE NO LONGER SUBSISTING.

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.

REGISTERED NUMBER 232390



Whole of 20 Perches in Section W.w. Gtd. to T.Dillon. Meas. in Links.
FIRST Edition. Registered 1971
Derived from C.T.Vol.691 Fol.12. Transfer A55458- Perp. Trustees Execs. and Agency Co. of Tas.Ltd.

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
247958	1
EDITION	DATE OF ISSUE
5	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.54 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 247958
Derivation : Part of 31 1/2 perches Gtd to H Wright and Anor.
Prior CT 2768/71

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
BURDENING EASEMENT: a right of way and carriage for William Langford over the land marked Right of Way on D89852
BURDENING EASEMENT: the right for the owners and occupiers for the time being of the land comprised in Certificate Title Volume 31 Folio 79 to use the drain one foot wide shown on D89852 running through the said land within described with the right at all times to repair the said drain for that purpose to enter with workmen and others upon such part of the said land within described as may be necessary to effect such repairs but doing so unnecessary damage thereby.

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

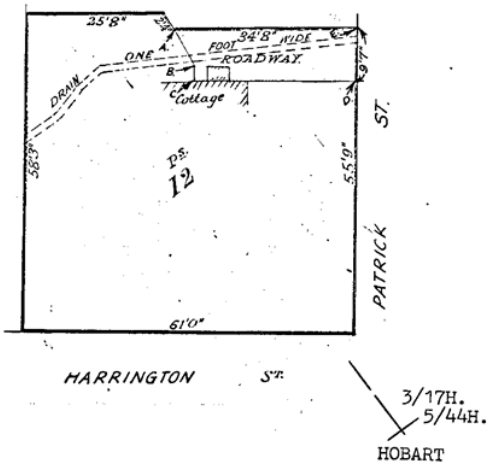
ANNEXURE TO CERTIFICATE OF TITLE **VOL.** 2768 **FOL.** 71

Recorder of Titles

REGISTERED NUMBER

247958

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.



Planning: #214342

Property

209-213 HARRINGTON STREET HOBART TAS 7000

People

Applicant
*
6ty Pty Ltd

Tamar Suite 103, The Charles 287 Charles Street
LAUNCESTON TAS 7250
03 6332 3300
gwalker@6ty.com.au

Owner
*
Chau Nominees

Dental Professional Rooms 149 Macquarie Street
HOBART TAS 7000
0409311556
steve@joiant.com.au

Entered By
GEORGE WALKER
6332 3300
gwalker@6ty.com.au

Use

Restaurant

Details

Have you obtained pre application advice?

- ☐ Yes

If YES please provide the pre application advice number eg PAE-17-xx

PAE-20-245

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodation Standards? Click on help information button for definition. If you are not the owner of the property you MUST include signed confirmation from the owner that they are aware of this application.
*

- ☐ No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the number of signs under Other Details below.
*

- ☐ No

If this application is related to an enforcement action please enter Enforcement Number

Details

What is the current approved use of the land / building(s)?
*

Office and Car Parking

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage)
*

Demolition of buildings, construction of fast food restaurant with drive through facility, consolidation of lots, signage and associated works

Estimated cost of development
*

1500000.00

Existing floor area (m2)	Proposed floor area (m2)	Site area (m2)

Carparking on Site

Total parking spaces	Existing parking spaces	N/A
		☐ Other (no selection chosen)

Hours of Business

Are the proposed hours of business different from the existing? •

What days and hours of operation are proposed for the business?

	Existing	Proposed			
	From	To		From	To
Monday to Friday			Monday to Friday		
				From	To
			Saturday		
	From	To			
Saturday					
	From	To		From	To
Sunday			Sunday		

Number of Employees

List the total number of people who will be working on the site.

Proposed number of employees	Existing number of employees

Goods Deliveries

Will there be any commercial vehicles accessing the site? •

Type of Vehicle	Trips per Week
Very Large (Semi trailer)	
Large	
Medium	
Small	

Outdoor storage / seating / number of beds

Is outdoor storage proposed? •

Other Details

Does the application include signage?
*

Yes

** Please be advised that you are required to lodge plans of the sign. The plans should show: dimensions, location, colours, wording, method of illumination, does it flash, method of fixing to wall, etc.*

How many signs, please enter 0 if there are none involved in this application?
*

7

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register?

- No

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements)
*
20.008 - Titles.pdf

Plans (proposed, existing)
*
20.008 - Architectural Drawings.pdf

Submission to Planning Authority Notice

Council Planning Permit No.	PLN-20-651	**Council notice date**	26/11/2021
TasWater details			
TasWater Reference No.	TWDA 2021/02071-HCC	**Date of response**	10/12/2021
TasWater Contact	Phil Papps Scott James (Trade Waste)	**Phone No.**	0474 931 272 136 992
Response issued to			
Council name	CITY OF HOBART		
Contact details	coh@hobartcity.com.au		
Development details			
Address	209-213 HARRINGTON ST, HOBART	**Property ID (PID)**	5665239
Description of development	Proposed new KFC Restaurant		

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Date of Issue
Vioto Architecture	Site Plan / 2009-DD-110	9	20/09/2021
Aldanmark	Site Servicing Plan / C0.03	B	28/09/2020

Conditions

Pursuant to the *Water and Sewerage Industry Act* 2008 (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:

CONNECTIONS, METERING & BACKFLOW

1. A suitably sized water supply with metered connections and sewerage system and connections to the development must be designed and constructed to TasWater's satisfaction and be in accordance with any other conditions in this permit.
2. Any removal/supply and installation of water meters and/or the removal of redundant and/or installation of new and modified property service connections must be carried out by TasWater at the developer's cost.
3. Prior to commencing use of the development, any water connection utilised for the development must have a backflow prevention device and water meter installed, to the satisfaction of TasWater.

TRADE WASTE

4. Prior to the commencement of operation the developer/property owner must obtain Consent to discharge Trade Waste from TasWater.
5. The developer must install appropriately sized and suitable pre-treatment devices prior to gaining Consent to discharge.
6. The Developer/property owner must comply with all TasWater conditions prescribed in the Trade Waste Consent.

DEVELOPMENT ASSESSMENT FEES

7. The applicant or landowner as the case may be, must pay a development assessment fee of $699.36 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date paid to TasWater. The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit https://www.taswater.com.au/building-and-development/technical-standards

For application forms please visit https://www.taswater.com.au/building-and-development/development-application-form

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.
The location of this infrastructure as shown on the GIS is indicative only.
TasWater has listed a number of service providers who can provide asset detection and location services should you require it. Visit www.taswater.com.au/Development/Service-location for a list of companies.

Trade Waste

Prior to any Building and/or Plumbing work being undertaken, the applicant will require a Certificate for Certifiable Work (Building and/or Plumbing). The Certificate for Certifiable Work (Building and/or Plumbing) must accompany all documentation submitted to Council. Documentation must include a floor and site plan with:

- Location of all pre-treatment devices i.e. grease arrestor, dry basket arrestors
- Schematic drawings and specification (including the size and type) of any proposed pre-treatment device and drainage design; and
- Location of an accessible sampling point in accordance with the TasWater Trade Waste Sampling Specifications for sampling discharge.

At the time of submitting the application for a Certificate for Certifiable Work (Building and/or Plumbing) a Trade Waste Application form is also required.

The application forms are available at http://www.taswater.com.au/Customers/Liquid-Trade-waste/Commercialorm

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

Authorised by

Jason Taylor
Development Assessment Manager

TasWater Contact Details			
Phone	13 6992	Email	development@taswater.com.au
Mail	GPO Box 1393 Hobart TAS 7001	Web	www.taswater.com.au

Application Referral Cultural Heritage - Response

From:	Sarah Waight
Recommendation:	Proposal is acceptable subject to conditions.
Date Completed:	
Address:	209 - 213 HARRINGTON STREET, HOBART 215 - 217 HARRINGTON STREET, HOBART
Proposal:	Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works
Application No:	PLN-20-651
Assessment Officer:	Tristan Widdowson,

Referral Officer comments:

This application is for demolition and construction of a fast food outlet on a corner site.

The site is within a Place of Archaeological Potential. Clause E13.10 applies.

The clause states:

E13.10.1 P1
Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:
(a) the nature of the archaeological evidence, either known or predicted;
(b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;
(c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;
(d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;
(e) measures proposed to preserve significant archaeological evidence 'in situ'

The application is supported by a 'Preliminary Statement of Historic Archaeological Potential' by Praxis Environment

The report states:

"**Preliminary archaeological observations**
Preliminary archaeological observations
As per the limitations above, it would appear that the main areas of archaeological potential are those fronting each street, with a large area at the rear of the site that probably has a lower archaeological potential (although may have remains of features such as wells, cesspits, drains, rubbish pits etc).

Although a comprehensive site history has not been undertaken, the pictorial analysis included here suggests that all buildings were probably domestic – however further research is required to ascertain whether there was any commercial/trade or other activity undertaken on the sites. Further research would be needed to possibly link the sites to prominent

persons, or to at least indicate the 'status' of the inhabitants which would be required to pose an archaeological research design and ascertain the potential of these sites to yield information that may be of archaeological value.

Whilst site observations have not been undertaken, and no research has been undertaken thus far on the demolition of those earlier buildings and the construction of the current buildings (and any intermediate generations of buildings – therefore an adequate knowledge of disturbance is not able to influence archaeological judgments at this stage.

At this preliminary stage, I recommend: - That this document accompanies any development application to inform the planning authority that at least parts of the site are likely to have some archaeological potential. - That a more detailed and rigorous SoHAP be formulated if any proposal is approved. - If that SoHAP confirms the preliminary findings here, then an archaeological impact assessment is to be formulated for any development. This will need to consider the possibility of conserving archaeological remains, or if this is not prudent/feasible then the formulation of an archaeological method statement to mitigate impact and to yield archaeological potential and provide a public benefit (e.g. through publication and/or interpretation). - All of the above is expected to form a condition(s) of any approval and be approved by council officers prior to implementation (if necessary) ahead of the commencement of construction (as further refined by any archaeological method statement).

As with other applications the proposal can satisfy the above provisions based on the inclusion of standard conditions of permit, including requirements to prepare an archaeological impact assessment and archaeological method statement with all work to be completed ahead of construction.

The proposal is acceptable with relevant conditions of permit.

Sarah Waight
Senior Cultural Heritage Officer
5 April 2022

Application Referral Development Engineering - Response

From:	Cameron Cecil, re allocated to Dave Morley, re allocated to Eswaren Shanmugam
Recommendation:	Proposal is acceptable subject to conditions.
Date Completed:	
Address:	209 - 213 HARRINGTON STREET, HOBART 215 - 217 HARRINGTON STREET, HOBART
Proposal:	Demolition, New Building for Food Services, Signage, Subdivision (Lot Consolidation), and Associated Works
Application No:	PLN-20-651
Assessment Officer:	Tristan Widdowson,

Referral Officer comments:

OVERVIEW:

New *Kentucky Fried Chicken* (*KFC*) restaurant proposed. The development includes, subdivided lot consolidation (title-adhesion), a new access driveway (works within the highway reservation), and a new off-street parking area containing, 22 spaces (including 2 DDA & 2 Bicycle), 2 internal circulation roadways (including 'drive-thru' queuing area), and Small Rigid Vehicle (SRV) class commercial vehicle facilities.

ASSESSMENT SUMMARY:

• E5.0 Road and railway access code - DOES APPLY

- Clause E5.5.1 Existing road accesses and junctions - Performance Criteria
- Clause E5.5.2: Existing level crossings - Not Applicable
- Clause E5.6.1: Development adjacent to roads and railways - Not Applicable
- Clause E5.6.2: Road accesses and junctions - Acceptable Solution
- Clause E5.6.3: New level crossings - Not Applicable
- Clause E5.6.4: Sight distance at accesses, junctions and level crossings - Acceptable Solution

• E6.0 Parking and Access Code - DOES APPLY

- Clause(s) E6.6's: Are all to do with parking number assessment - Performance Criteria

- Clause E6.7.1: Number of vehicle accesses - Acceptable Solution
- Clause E6.7.2: Design of vehicle accesses - Acceptable Solution
- Clause E6.7.3: Vehicle passing area along an access - Performance Criteria
- Clause E6.7.4: On-site turning - Acceptable Solution
- Clause E6.7.5: Layout of parking areas - Performance Criteria
- Clause E6.7.6: Surface treatment of parking areas - Acceptable Solution
- Clause E6.7.9: Design of motorcycle parking areas - Not Applicable
- Clause E6.7.10: Design of bicycle parking areas - Acceptable Solution
- Clause E6.7.13: Facilities for commercial vehicles - Performance Criteria
- Clause E6.7.14: Access to a road - Acceptable Solution
- Clause E6.7.15: Access to Niree Lane Sandy Bay - Not Applicable

• E7.0 Stormwater - DOES APPLY

Please refer to ECA's assessment

COMMENTS:
In a Council related engineering context, Development Engineering can support this proposal in principal subject to the following conditions and advice.

GENERAL CONDITIONS:
ENG 1: Pay Costs
ENG 2a: Physical Controls
ENG 3b: P&A Design
ENG 3c: P&A Certification
ENG 4: Surface Treatment
ENG 5: Car Parking
ENG 5b: Bicycle Parking
ENG 9: DDA Parking
ENG 11: Redundant Crossover
ENG 13: WMP
ENG 16: Services Separation
ENG 17: As-installed Certification
ENG sw1: SW Drainage
ENV 2: SWMP Design
ENG r3: Access Design
ENG tr2: CTPMP
ENG 12: CWMP

ADVICE:
- Dial before you dig
- Fees and charges
- Building Permit
- Plumbing Permit
- Occupation of the Public Highway
- Driveway surfacing over highway reservation
- Condition endorsement
- General Exemption (Temporary) Parking Permits
- Redundant Crossovers
- Work in the highway reservation
- New Service Connection
- Stormwater

- Permit To Construct Public Infrastructure
- Outward Doors Onto Highway Reservation

REPRESENTATIONS:

PDA Surveyors, Engineers & Planners on behalf of Catholic Schools, Hobart, and The Archdiocese of Hobart dated (10/4/22) - The representation cites an, "inability to satisfactorily meet', the *Road and Railway Assets Code E5.0* and the *Parking and Access Code E6.0* of the *Hobart Interim Planning Scheme 2015*, with numerous concerns expressed surrounding reduced safety, efficiency, and amenity. Please see each respective detailed assessment below for comments addressing these concerns.

DETAILED ASSESSMENT:

E5.0 Road and railway access code

E5.1 Purpose			E5.1.1 The purpose of this provision is to: (a) protect the safety and efficiency of the road and railway networks; and (b) reduce conflicts between sensitive uses and major roads and the rail network.
E5.2 Application of this Code	**YES**		
			This Code applies to use or development of land:
	Yes		(a) that will require a new vehicle crossing, junction or level crossing; or
	Yes		(b) that intensifies the use of an existing access; or
		No	(c) that involves a sensitive use, a building, works or subdivision within 50m metres of a Utilities zone that is part of:
		No	(i) a rail network;
		No	(ii) a category 1 - Trunk Road or a category 2 - Regional Freight Road, that is subject to a speed limit of more than 60km/h kilometres per hour.
Clause for Assessment			**Comments / Discussion (in bold)**
Clause E5.5.1: Existing road accesses and junctions **PERFORMANCE CRITERIA**			The existing road access must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does not satisfy the Acceptable Solution for clause E5.5.1 (A3) and as such, shall be assessed under Performance Criteria.** Acceptable Solution - A3: - **NON COMPLIANT** The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h

or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.

Performance Criteria - P3: - **COMPLIANT**
Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of 60km/h or less, must be safe and not unreasonably impact on the efficiency of the road, having regard to:

(a) the increase in traffic caused by the use;
- The increased traffic generated by the proposed development is likely to be 100 vehicles per hour during the restaurant's typical customer peak times (5-8pm most days).

"The KFC store is expected to generate 100 traffic trips per hour during the typical customer peak times of 5 to 8pm most days. This generation rate is based on recent traffic surveys conducted at two existing KFC stores in greater Hobart. The typical customer peak times occur after the 3pm to 4pm weekday peak traffic flow on Harrington Street, which aligns with student collection at the nearby school. Section 6.3 found the current demand to capacity ratio for the right hand traffic lane in Harrington Street is 48 percent between 5pm and 6pm. This will increase marginally to 56 percent with the additional traffic generation from this store. Traffic analysis found sufficient traffic capacity on Harrington Street to absorb the additional traffic movements generated by this development, without causing any adverse traffic efficiencies or safety issues."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(b) the nature of the traffic generated by the use;
- Traffic generated by the proposed development will be commercial in nature, this is compatible with the existing traffic utilizing Harrington (& Patrick) Street near the subject site.

"Traffic generated will be by light passenger vehicles. This type of vehicle is compatible with the majority of the current traffic flow using the surrounding street network. Some customers will be passing trade, while most customers will be attracted from nearby streets. Increase in light passenger vehicles on the road networks is not expected to cause an acceleration in road deterioration, or any other adverse impacts."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(c) the nature and efficiency of the access or the junction;
- The access servicing the site will provide a high

level of service based on the minor impact due to the traffic generation determined.

"The existing access to the development site will be modified to suit the new development. The increase in traffic movements into and out of the site has been assessed using SIDRA traffic modelling software, which found the access is expected to perform at a high operating performance. The average delay for a vehicle leaving site will be 10.2 seconds and the 95th percentile queue length being one vehicle. The location and arrangement of the drive-thru lane will eliminate any risk of vehicles queuing back beyond the access. The access is expected to operate safely and efficiently."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(d) the nature and category of the road;
- Harrington Street is a major collector road that has a relatively high traffic volume near the site, however the carriageway has been determined to be operationally stable and under capacity in nature.

"The existing access to the development site will be modified to suit the new development. The increase in traffic movements into and out of the site has been assessed using SIDRA traffic modelling software, which found the access is expected to perform at a high operating performance. The average delay for a vehicle leaving site will be 10.2 seconds and the 95th percentile queue length being one vehicle. The location and arrangement of the drive-thru lane will eliminate any risk of vehicles queuing back beyond the access. The access is expected to operate safely and efficiently."

Please refer to page 19 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(e) the speed limit and traffic flow of the road;
- The general urban speed limit of 50 km/h applies to Harrington (& Patrick) Street, the flow of which is controlled by traffic signals.

"The speed limit along Harrington Street is 50 km/h. All intersections from Sandy Bay Road to Warwick Street are controlled by traffic signals and the route has been designed as a priority route for commuters leaving the city area, avoiding the central business district. The route collects traffic from Sandy Bay Road and the Southern Outlet and delivers it to Brooker Highway via Burnett Street. The signals beyond Collins Street are coordinated to prioritise Harrington Street over the side streets and this creates a green wave for vehicles leaving the city. Consequently, the route operates very

efficiently, and this development site will benefit from the passing trade, while not reducing the route efficiency."

Please refer to page 20 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(f) any alternative access to a road;
- No alternative access is proposed, nor considered necessary, to provide a higher level of service for the proposed development.

"The development site is located on the corner of Harrington Street and Patrick Street, therefore the site has an alternative access to Patrick Street. As described above, Harrington Street has been designed to operate as a priority route for outbound traffic flow. The traffic signals along Harrington Street from Collins Street to Brisbane Street are coordinated through SCATTS, but not Patrick Street. Increasing traffic activity on Patrick Street by having the KFC access, will provide higher demand on the signals to give Patrick Street more green time. Any reduction in green time on Harrington Street will disrupt the current traffic efficiency. The development access onto Harrington Street is preferred over Patrick Street, and makes sense from a traffic operation perspective."
Please refer to page 20 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(g) the need for the use;
- Please see the comment provided, below.

"New development delivers employment opportunities, choice and competition. The existing site access is safe and easy to negotiate and is in a well-established street network. With the development location providing convenience to bypass users"

Please refer to page 20 of the *Hubble Traffic T.I.A* (dated September 2020) submitted.

(h) any traffic impact assessment; and
- A Traffic Impact Assessment, and it's subsequent Addendum, were both submitted and reviewed extensively.

• *Hubble Traffic Addendum* (dated March 2022), and
• *Hubble Traffic T.I.A* (dated September 2020).

The *Hubble Traffic T.I.A* (dated September 2020) was reviewed, the following conclusions were made;

• An extensive list of literature and resources was sourced and referenced in the report's introduction.

(page 2)

• The site's description was stated to be used as a car park, with it's proposed sole access to be in an existing access' location, and it's zoning being located beyond the CBZ. (page 3)

• The proposed parking area, car parking spaces and 'drive-thru' (internal circulation), were to be operationally contained within the subject site. (page 4)

• *Section 3.7.1 (drive in take-away food outlets)* of the *RTA Guide to Traffic Generating Developments* was referenced, and it explicitly referred to *Kentucky Fried Chicken* (*KFC*). Tasmania's *KFC* state manager had provided an updated COVID-19 data set for the traffic study conducted, and vehicle movement data at *KFC* outlets in Kingston and Rosny were both surveyed. (page 5)

• Design criteria were nominated based on the *RTA* guide's, which did prove consistent with the Kingston and Rosny survey data collected, and further validated the use of the *RTA* guide as an appropriate reference. (page 6)

• Additional design criteria considered took into account parking space quantities and 'drive-thru' length being suffice for the queuing to ensure no disruption of on-site car parking operations. A minimum of 4 car spaces from the ordering point and a 'drive-thru' car length of 6 was required. 6 car spaces from the ordering point and a 'drive-thru' car length of 12 cars were to be provided (page 7).

• Harrington Street was identified, to be connected from Sandy Bay Road to Burnett Street, performed a one-way 'collector' road function, and provided time restricted parking near the subject site. It was also noted to be a 50km zone, and that there was a signalized intersection immediately upstream from the subject site. (page 8)

• *Department of State Growth* traffic data was presented (*Graph 6.1*), and an average hourly weekday traffic, daily total, >10,000 was shown. (page 8)

• Traffic flow data for a full week (including weekends), was extracted to determine the typical hourly traffic (*Table 6.1*) from 3-8pm. The 'heaviest traffic' flow was stated to occur between 3-4pm, with the typical traffic demand on Harrington Street shown to be, 893 during weekdays, 820 on Fridays, and 551 on Sat. (page 9)

• It was noted that the 'high' flows occurred before the restaurant's peak period of 5-8pm, which was also outside of school pick-up & drop-off times. The hourly lane capacity of a single free flowing lane was stated to be 1800 vehicles, and due the signalized nature of Harrington Street it was stated to not be free flowing, thus the adjusted capacity was determined to be 1200 vehicles. (page 9)

• The right hand lane of Harrington Street was stated to be at 48% capacity. Traffic modelling was performed and indicated a *Degree of Saturation*, below 0.85, at 0.553, which indicated only 50% of the street's right hand lane capacity was being utilized. The *Level of Service* was also stated to be of the highest, *A* out of *A* to *F* (page 10).

• Four (4) crashes were documented to have occurred between Patrick and Warwick Street over the a 5 year period, and all were classified as property damage with no injuries reported. No crashes were reported regarding the site's frontage along Harrington street, or any incidents related to vehicles entering and exiting the subject site. (page 11)

• The proposed *KFC* was estimated to introduce 100 new movements per hour, and while the *RTA* guide stated that 50% of these new movements would be from 'passing trade', all 100 were considered in the impact assessment for a 'worst case' scenario (page 13).

• *SIRDA* modelling conducted took into account vehicles that would come to the subject site via Patrick and Harrington Street. The scenarios modelled presented the highest *Level of Service* and a *Degree of Saturation* below 0.85, and thus not adverse effects to the intersection's performance was concluded. (page 17)

• The 100 new vehicle movements in Harrington Street's right hand lane was expected to increase the lane's capacity by 8%, from 48% to 56%. This was evidently below the lane's total (100%) capacity, and it was stated to be indicative of the infrastructure's capacity to absorb the increase in vehicle movements without causing adverse traffic or operation impacts. (page 17)

(i) any written advice received from the road authority.
- No written advice was provided by the City's relevant authorities.

Based on the above assessment and given the

			supporting comments referenced from the submitted documentation, the proposed access appears to satisfy the relevant criteria of a performance based solution and therefore may be accepted by the City.
Clause E5.5.2: Existing level crossings NOT APPLICABLE			Documentation submitted to date appears not to invoke clause E5.5.2. No intensification of an existing level crossings proposed.
Clause E5.6.1: Development adjacent to roads and railways NOT APPLICABLE			Documentation submitted to date appears not to invoke clause E5.6.1. No development adjacent to category 1 or category 2 road proposed.
Clause E5.6.2: Road accesses and junctions **ACCEPTABLE SOLUTION**			The road and access junctions must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015)*. **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E5.6.2.** Acceptable solution - A1 No new access or junction to roads in an area subject to a speed limit of more than 60km/h. - **N/A** Acceptable solution - A2 - **COMPLIANT** No more than one access providing both entry and exit, or two accesses providing separate entry and exit, to roads in an area subject to a speed limit of 60km/h or less.
Clause E5.6.3: New level crossings NOT APPLICABLE			Documentation submitted to date appears not to invoke clause E5.6.3. No new level crossings proposed.

Clause E5.6.4: Sight distance at accesses, junctions and level crossings **ACCEPTABLE SOLUTION**			The sight distance at access and junctions must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E5.6.4.** Acceptable solution - A1: - **COMPLIANT** Sight distances at: (a) an access or junction must comply with the Safe Intersection Sight Distance shown in Table E5.1; and (b) rail level crossings must comply with AS1742.7 Manual of uniform traffic control devices - Railway crossings, Standards Association of Australia. - **N/A** **S.I.S.D available to vehicles exiting the proposed road access appears satisfactory for safe operation, as shown & supported on page 2 of *Hubble Traffic Addendum* (dated March 2022).**

E 6.0 Parking and Access Code

E6.1 Purpose			E6.1.1 The purpose of this provision is to:
	Yes		(a) ensure safe and efficient access to the road network for all users, including drivers, passengers, pedestrians and cyclists;
	Yes		(b) ensure enough parking is provided for a use or development to meet the reasonable requirements of users, including people with disabilities;
	Yes		(c) ensure sufficient parking is provided on site to minimise on-street parking and maximise the efficiency of the road network;
	Yes		(d) ensure parking areas are designed and located in conformity with recognised standards to enable safe, easy and efficient use and contribute to the creation of vibrant and liveable places;
	Yes		(e) ensure access and parking areas are designed and located to be safe for users by minimising the potential for conflicts involving pedestrians, cyclists and vehicles; and by reducing opportunities for crime or anti-social behaviour;
	Yes		(f) ensure that vehicle access and parking areas do not adversely impact on amenity, site characteristics or hazards;
	Yes		(g) recognise the complementary use and benefit of public transport and non-motorised modes of transport such as bicycles and walking;
	Yes		(h) provide for safe servicing of use or development by commercial vehicles.

E6.2 Application of this Code	**YES**	—	**This code applies to all use and development.**
Clause for Assessment			**Comments / Discussion (in bold)**
Clause(s) 6.6's are all to do with parking number assessment. These will be assessed by planner based on DE assessment of the following relevant clauses. **PERFORMANCE CRITERIA**			The parking number assessment must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.6.1 (a) and as such, shall be assessed under Performance Criteria.** Acceptable solution - A1: - **NON COMPLIANT** The number of on-site car parking spaces must be: (a) no less than and no greater than the number specified in Table E6.1; **- Submitted documentation does not satisfy this requirement, a deficiency of (Nineteen) 19 car parking spaces is proposed, and a provision of 20 car parking spaces (including 2 DDA compliant spaces) is proposed.** **The acceptable rate demands 15 spaces provided per 100m² of floor area or 1 space for each 3 seats (whichever is greater).** **At 261 m2 of total gross floor area stated and 36-38 seats shown on plans, the greater requirement is 39 spaces based on the floor area.** Performance Criteria - P1: - **COMPLIANT** The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following: (a) car parking demand; **- The empirical parking assessment provided indicates that the provision of 20 on-site car parking spaces will sufficiently meet the likely demands associated with the *KFC* restaurant development.** *"Based on the total floor area of the store, 39 on-site parking spaces are required. Based on the floor area for dine-in and take-away collection, 10 on-site parking spaces are required."* Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted. (b) the availability of on-street and public car parking in the locality; **- There is a readily available supply of on-street parking in the surrounding road network, much of which is in the form of time-restricted parking. Observations on-site indicate that there will likely be**

a larger pool of parking that would be available to meet potential demands after relative (e.g., traffic, store) peak hours.

"The development will provide 20 on-site parking spaces. The store is located on the corner of two streets that have parallel parking spaces. A proportion of customers may choose to park on the street rather than enter the development site, reducing the dependence for on-site parking spaces. The number of parallel spaces within 50 metres of the development site is around 30 spaces."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(c) the availability and frequency of public transport within a 400m walking distance of the site;
- Metro Tasmania operate regular bus services along Harrington Street, within 400m of the subject site.

"Public transport is not considered relevant for this development."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(d) the availability and likely use of other modes of transport;
- The subject site is located in a convenient area bordering the City's CBZ, which is able to facilitate pedestrian and micro-mobility modes of transport.

"As discussed in section 6.7, this store is situated in close proximity to a significant residential catchment, and in easy walking distance. It is expected that a large percentage of dine-in patrons will not have a vehicle, reducing the need for on-site parking spaces."

Please refer to page 21 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(e) the availability and suitability of alternative arrangements for car parking provision;
- No alternative parking provision has been proposed nor appears available.

"None."

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of

efficiencies gained from the consolidation of shared car parking spaces;
- **N/A**

"The RTA guide for traffic generation developments is a nationally accepted document that provides advice on design criteria for new developments. For on-site parking for KFC stores, the guide recommends 1 parking space per 2 seats. With this development providing a maximum of 30 dine-in seats, the on-site parking requirement is 15 spaces"

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(g) any car parking deficiency or surplus associated with the existing use of the land;
- No, as a new use class definition is proposed.

"None. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;
- **N/A**

"None. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;
- **N/A**

"No financial contribution is considered necessary as the level of on-site parking spaces will more than meet the needs of the development, without any adverse impact to the surrounding road network. "

Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted.

(j) any verified prior payment of a financial contribution in lieu of parking for the land;
- **N/A**

"None required. "

			Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted. (k) any relevant parking plan for the area adopted by Council; - **N/A** *"Not aware of any. "* Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted. (l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code; and **- No apparent impact (e.g., significant highway excavation works) have been identified.** *"None expected."* Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted. (m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code. **- No impact.** *"None. "* Please refer to page 22 of *Hubble Traffic T.I.A* (dated September 2020) submitted. **Based on the above assessment and given the supporting comments referenced from the submitted documentation, the proposed deficiency appears to satisfy the relevant criteria of a performance based solution and therefore may be accepted by the City. This is particularly due to the *RTA Guide to Traffic Generating Developments* requirement of, "1 per 2 seats", being the specific standard for *KFC* stores, and the proposed development having provided 1-2 spaces in excess of the guide's requirement.**

Clause E6.7.1: Number of vehicle accesses **ACCEPTABLE SOLUTION**			The number of vehicle accesses must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date appears to be able to satisfy the Acceptable Solution for clause E6.7.1**. Acceptable solution: - **COMPLIANT** The number of vehicle access points provided for each road frontage must be no more than 1 or the existing number of vehicle access points, whichever is the greater. **One (1x) crossover (217-215 Harrington Street frontage) - Proposed as shown on submitted plans, no additional crossover(s) proposed.**
Clause E6.7.2: Design of vehicle accesses **ACCEPTABLE SOLUTION**			The design of the vehicle access must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date appears to satisfy the Acceptable Solution for clause 6.7.2.** Acceptable Solution - A1: - **COMPLIANT** Design of vehicle access points must comply with all of the following: (a) in the case of non-commercial vehicle access; the location, sight distance, width and gradient of an access must be designed and constructed to comply with section 3 – "Access Facilities to Off-street Parking Areas and Queuing Areas" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking Location; **- Submitted documentation appears satisfactory.** Sight distance; **- Submitted documentation appears satisfactory, as shown on page 2 of *Hubble Traffic Addendum* (dated March 2022).** Width; and **- Submitted documentation appears satisfactory.** Gradient **- Submitted documentation appears satisfactory.** **Please refer to *Aldanmark Site Layout Plan DWG C0.03 REV B*.**
Clause E6.7.3: Vehicle passing area along an			Vehicle passing must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart*

access **PERFORMANCE CRITERIA**		*Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.3 and as such, shall be assessed under Performance Criteria.** Acceptable solution - A1: - **NON COMPLIANT** Vehicular passing areas must: (a) be provided if any of the following applies to an access: (i) it serves more than 5 car parking spaces; - **YES** (ii) is more than 30 m long; - **YES** (iii) it meets a road serving more than 6000 vehicles per day (VPD); - **YES, estimated at 10,000 VPD based on *Graph 6.1* of *Hubble Traffic T.I.A* (dated September 2020).** (b) be 6 m long, 5.5 m wide, and taper to the width of the circulation roadway; - **YES** (c) have the first passing area constructed at the kerb; - **NO** (d) be at intervals of no more than 30 m along the access. - **NO** Performance Criteria - P1: - **COMPLIANT** Vehicular passing areas must be provided in sufficient number, dimension and siting so that the access is safe, efficient and convenient, having regard to all of the following: (a) avoidance of conflicts between users including vehicles, cyclists and pedestrians; **- Acceptable, due to the proposed circulation roadway having separated ingress and egress, thus directing vehicle movements to eliminate the need for a 'first passing opportunity' usually required for unseparated access.** (b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; **- Acceptable, due to a sole single lane exit being dedicated for egress vehicle movements to the adjoining road network from the subject site.** (c) suitability for the type and volume of traffic likely to be generated by the use or development; **- Acceptable, due to the proposed circulation roadway's lane width providing a continuous passing opportunity within the subject site.** (d) ease of accessibility and recognition for users; **- Acceptable, due to the physically separated entry/exit lane and circulation roadway line markings proposed within the subject site.** **Based on the above assessment, the proposed provision for passing areas appears to meet the relevant parameters of a performance based**

			solution and therefore may be accepted. This is in principal due to the subject site's separated entry and exit lanes, and the internal circulation roadway's lane width providing a practical opportunity to pass a vehicle and avoid halting of vehicle circulation. **Please refer to *VIOTO Proposed Site Plan DWG 2009-DD-110 REV 9.***
Clause E6.7.4: On-site turning **ACCEPTABLE SOLUTION**			On-site turning must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears to satisfy the Acceptable Solution for clause E6.7.4.** Acceptable solution - A1: - **COMPLIANT** On-site turning must be provided to enable vehicles to exit a site in a forward direction, except where the access complies with any of the following: (a) it serves no more than two dwelling units; - **APPLIES** (b) it meets a road carrying less than 6000 vehicles per day. - **APPLIES** **As shown on pages 4, 5, 9, 10, 11, 12, 13, and 14, of *Hubble Traffic Addendum* (dated March 2022)**
Clause E6.7.5: Layout of parking areas **PERFORMANCE CRITERIA**			The layout of the parking area must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.5 and as such, shall be assessed under Performance Criteria.** Acceptable Solution A1: - **NON COMPLIANT** The layout of car parking spaces, access aisles, circulation roadways and ramps must be designed and constructed to comply with section 2 "Design of Parking Modules, Circulation Roadways and Ramps" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking and must have sufficient headroom to comply with clause 5.3 "Headroom" of the same Standard. Performance Criteria - P1: - **COMPLIANT** The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site. **- Acceptable, submitted documentation appears to satisfy this requirement given the design statements & figures provided within;** • ***Hubble Traffic Addendum* (dated March 2022), and** • ***Hubble Traffic T.I.A* (dated September 2020).**

• Car Parking Space Dimensions (AS2890.1 Fig 2.2 = 2.7x5.4m Class 3A):
- Submitted documentation appears able to satisfy this requirement, dimensioned bays detailed albeit inconsistent typical dimensions.

• DDA Parking Space Dimensions (AS2890.6 Fig 2.3 = 7.2x5.4m Class 4):
- Submitted documentation appears able to satisfy this requirement, dimensioned bays detailed albeit bollard distance not shown.

• Car Parking Space Design Envelope (AS2890.1 Fig 5.2 300mm clearance on side):
- Submitted documentation appears able to satisfy this requirement, albeit design envelope not detailed.

• Headroom: (AS2890.1 Fig 5.3 = 2.2m clearance):
- Submitted documentation appears able to satisfy this requirement, no apparent overhead obstruction >2.7m above detailed parking area.

• Parking Space Gradient (5%):
- Submitted documentation appears able to satisfy this requirement, <5% (1-4% detailed).

• Aisle Width (AS2890.1 Fig 2.2 = 5.8m Class 1A):
- Submitted documentation appears able to satisfy this requirement, 6.2m min. requirement detailed.

• Garage Door Width & Apron (AS2890.1 Fig 5.4 = 2.4m wide = >7m wide apron):
- N/A

• Parking Module Gradient (5% Acceptable, 10% Performance):
- Submitted documentation appears able to satisfy this requirement, <5% (1-4% detailed).

• Curved Roadway Dimensions (AS2890.1 Section 2.5.2 = 7.6m Ro, 4m R^i, 3.9m W^i):
- Submitted documentation appears unable to satisfy this requirement, Ro = Ri = ≈4.1m (-3.5m) albeit, >3.9m min. trafficable width available, and no apparent high obstructions either side.

• Circulation Roadway Gradient & Width (AS2890.1 Section 2.5.3 = 20% and 3m):
- Submitted documentation appears able to satisfy this requirement, <20% & 3m min. trafficable width shown/detailed.

• Transitions (AS2890.1 Section 2.5.3 = 12.5% summit, 15% sag = >2m transition):

			- Submitted documentation appears able to satisfy this requirement, due to relatively minor design surface gradients detailed. • Physical Controls (AS2890.1 Section 2.4.5.4): **- Submitted documentation appears able to satisfy this requirement, bay wheelstops shown albeit *S* distances not detailed.** • Blind Aisle End Widening (AS2890.1 Fig 2.3 = 1m extra): **- N/A** • "Jockey Parking" (Performance Assessment): **- N/A** **Submitted documentation appears able to satisfy the relevant parameters of a performance based solution and therefore may be accepted, given the parking area layout design demonstrates a safe and efficient provision, that can facilitate easy access and on-site manoeuvring. This is primarily due to the supporting swept path simulations provided, and a typical layout which is in general accordance with the relevant Australian Standard(s).**
Clause E6.7.6: Surface treatment of parking areas **ACCEPTABLE SOLUTION**			The surface treatment must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does satisfy the Acceptable Solution for clause E6.7.6**. Acceptable Solution - A1: - **COMPLIANT** Parking spaces and vehicle circulation roadways must be in accordance with all of the following; (a) paved or treated with a durable all-weather pavement where within 75m of a property boundary or a sealed roadway; and (b) drained to an approved stormwater system, unless the road from which access is provided to the property is unsealed. **Submitted plans indicate a sealed, *Asphalt*, surface treatment and ability to drain to an approved stormwater system.** **Please refer to *Aldanmark Site Layout Plan DWG C0.03 REV B*.**
Clause E6.7.7: Lighting of parking areas *(Planner and health unit to assess)*	—	—	Planner to assess

Clause E6.7.8: Landscaping of parking areas *(Planner to assess)*	—	—	Planner to assess
Clause E6.7.9: Design of motorcycle parking areas **NOT APPLICABLE**			The motor bike parking must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.9.** Acceptable Solution A1 (E6.6.3): The number of on-site motorcycle parking spaces provided must be at a rate of 1 space to each 20 car parking spaces after the first 19 car parking spaces except if bulky goods sales, (rounded to the nearest whole number). Where an existing use or development is extended or intensified, the additional number of motorcycle parking spaces provided must be calculated on the amount of extension or intensification, provided the existing number of motorcycle parking spaces is not reduced. **NO REQUIREMENT** (<19 car parking spaces).

Clause E6.7.10: Design of bicycle parking areas **NOT APPLICABLE**			The bicycle parking must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.10.** Acceptable Solution A1: The number of on-site bicycle parking spaces provided must be no less than the number specified in Table E6.2. Acceptable Solution A2: The design of bicycle parking spaces must be to the class specified in table 1.1 of AS2890.3-1993 Parking facilities Part 3: Bicycle parking facilities in compliance with section 2 “Design of Parking Facilities” and clauses 3.1 “Security” and 3.3 “Ease of Use” of the same Standard. User Class: **Residential** Table E6.2 sets out the number of bicycle parking spaces required. The requirement for spaces for a use or development listed in the first column of the table is set out in the second and forth columns of the table with the corresponding class set out in the third and fifth columns. If the result is not a whole number, the required number of (spaces) is the nearest whole number. If the fraction is one-half, the requirement is the next whole number. **NO REQUIREMENT**

Clause E6.7.10: Design of bicycle parking areas **ACCEPTABLE SOLUTION**			The bicycle parking must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does satisfy the Acceptable Solution for clause E6.7.10**. Acceptable Solution A1: - **COMPLIANT** The number of on-site bicycle parking spaces provided must be no less than the number specified in Table E6.2. Acceptable Solution A2: - **COMPLIANT** The design of bicycle parking spaces must be to the class specified in table 1.1 of AS2890.3-1993 Parking facilities Part 3: Bicycle parking facilities in compliance with section 2 "Design of Parking Facilities" and clauses 3.1 "Security" and 3.3 "Ease of Use" of the same Standard. *Table E6.2 sets out the number of bicycle parking spaces required. The requirement for spaces for a use or development listed in the first column of the table is set out in the second and forth columns of the table with the corresponding class set out in the third and fifth columns. If the result is not a whole number, the required number of (spaces) is the nearest whole number. If the fraction is one-half, the requirement is the next whole number.* **User class: Food Services,** **Restaurant: 1 for each 200m2 floor area after first 200m2 floor area (minimum 2).** **At 260m^2 of floor area, 2 spaces required and proposed on site.** **Please refer to *VIOTO Proposed Floor Plan DWG 2009-DD-200 REV 9.***
Clause E6.7.11: Bicycle end trip facilities *(Planner to assess)*	—	—	Planner to assess
Clause 6.7.12: Siting of car parking *(Planner to assess based on DE assessment of Clause 6.7.5 layout of parking area)*	—	—	Planner to assess

Clause E6.7.13: Facilities for commercial vehicles **PERFORMANCE CRITERIA**			The facilities for commercial vehicles must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.13 and as such, shall be assessed under Performance Criteria.** Acceptable Solution A1: - **NON COMPLIANT** Commercial vehicle facilities for loading, unloading or manoeuvring must be provided on-site in accordance with Australian Standard for Off-street Parking, Part 2 : Commercial. Vehicle Facilities AS 2890.2:2002, unless: (a) the delivery of all inward bound goods is by a single person from a vehicle parked in a dedicated loading zone within 50 m of the site; and (b) the use is not primarily dependent on outward delivery of goods from the site. Performance Criteria - P1: - **COMPLIANT** Commercial vehicle arrangements for loading, unloading or manoeuvring must not compromise the safety and convenience of vehicular traffic, cyclists, pedestrians and other road users. **- Acceptable, submitted documentation appears to satisfy this requirement given the design statements & figures provided within;** **• *Hubble Traffic Addendum* (dated March 2022), and** **• *Hubble Traffic T.I.A* (dated September 2020).** **Based on the supporting assessments provided, the proposed commercial vehicle facilities appear to meet the relevant parameters of a performance based solution and therefore may be accepted. This is primarily due to the non-standard SRV commercial vehicle class (2.45x6.7 base design) being identified with *Regular Service*, and the service vehicles simulated circulation demonstrating;** **(a) an unobstructed (dedicated) service area/bay within the subject site,** **(b) all manoeuvring associated is confined to the service area & circulation roadway (outside of peak demand periods),** **(c) forward direction entry and exit at the property boundary,** **(d) a circulation roadway connected to the access driveway and service area/bay, and** **(e) separate entry and exit access driveway lanes.**

Clause E6.7.14: Access to a road **ACCEPTABLE SOLUTION**			The access to a road must satisfy the Acceptable Solutions of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E6.7.14.** Acceptable Solution A1: - **COMPLIANT** Access to a road must be in accordance with the requirements of the road authority. Performance Criteria - P1: **No Performance Criteria** **Submitted plans indicate access to a road in accordance with relevant LGAT drawings and to the satisfaction of the Road Authority.** **Please refer to GMC-20-78 approved 22/12/2020.**
Clause E6.7.15: Access to Niree Lane Sandy Bay **NOT APPLICABLE**			The access to Niree Lane must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.15.** **No development proposed within Niree Lane.**

7.1.2 156 NEW TOWN ROAD, NEW TOWN - DEMOLITION, SUBDIVISION (LOT CONSOLIDATION) AND NEW BUILDING FOR 19 MULTIPLE DWELLINGS AND FITNESS CENTRE (SPORTS AND RECREATION) PLN-22-272 - FILE REF: F22/52554

Address:	156 New Town Road, New Town
Proposal:	Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation)
Expiry Date:	16 June 2022
Extension of Time:	Not applicable
Author:	Adam Smee

RECOMMENDATION

That pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for demolition, subdivision (lot consolidation), and new building for 19 multiple dwellings and fitness centre (sports and recreation) at 156 New Town Road, New Town, 7008 for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-22-272 - 156 NEW TOWN ROAD NEW TOWN TAS 7008 - Final Planning Documents.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TW 2022/00654-HCC dated 12/5/2022 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

PLN 14

Prior to the issue of any approval under the *Building Act 2016* (excluding for demolition), revised plans must be submitted and approved as a Condition Endorsement that demonstrate that the habitable rooms of the dwellings adjacent to New Town Road will achieve internal noise levels in accordance with relevant Australian Standards for acoustics control (including *AS3671:1989 – Road Traffic Noise Intrusion (Building Siting and Construction)* and *AS2107:2016 – Acoustics (Recommended Design Sound Levels and Reverberation Times for Building Interiors*)

The revised plans must be certified by a suitably qualified person as demonstrating likely compliance with the above requirement. All work required by this condition must be undertaken in accordance with the approved revised plans.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that buildings for residential use provide reasonable levels of residential amenity.

PLN 6

Hours of operation for the fitness centre (except for office and administrative tasks) must be within:

- 7.00 am to 9.00 pm Mondays to Fridays inclusive;
- 8.00 am to 6.00 pm Saturdays;
- 9.00 am to 5.00 pm Sundays and Public Holidays;

Reason for condition

To ensure that non-residential use does not unreasonably impact on residential amenity

PLN s1

The combined area of windows and door openings at ground floor level in the front façade of the approved building must be equivalent to no less than 40% of the surface area of the ground floor level façade, unless further planning approval is obtained. Any glazing provided within the front façade at ground floor level must have predominantly clear glass and must not be obscured through the use of obscure glass or film, or otherwise obscured without further planning approval.

Reason for condition

To ensure that building design for non-residential uses contributes positively to the streetscape.

ENG 12

A construction waste management plan must be implemented throughout construction.

A construction waste management plan must be submitted and approved as a Condition Endorsement, prior to commencement of work on the site. The construction waste management plan must include:

- Provisions for commercial waste services for the handling, storage, transport and disposal of post-construction solid waste and recycle bins from the development; and,
- Provisions for the handling, transport and disposal of demolition material, including any contaminated waste and recycling opportunities, to satisfy the above requirement.

All work required by this condition must be undertaken in accordance with the approved construction waste management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

It is recommended that the developer liaise with the Council's City Resilience Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill. Further information can also be found on the Council's

website.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG sw1

All stormwater from the proposed development (including but not limited to: roofed areas, ag drains, and impervious surfaces such as driveways and paved areas) must be drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

All impervious areas which can be drained to New Town Road via gravity (including charged systems) must be drained via gravity. The pump system must be limited to capture stormwater only from areas which cannot be drained via gravity. All pump rising main discharges must occur to a private dispersion pit such that only gravity flow from the property to the Council stormwater connection.

Advice:

Under section 23 of the Urban Drainage Act 2013 *it is an offence for a property owner to direct stormwater onto a neighbouring property.*

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet, and the pump system is designed and maintained to minimise risk to third-party land.

SW 7

Prior to occupancy or the commencement of the use (whichever occurs first), any new stormwater connection must be constructed and existing redundant connection(s) be abandoned and sealed at the owner's expense.

Prior to the issuing of any approval under the *Building Act 2016* or commencement of works (whichever occurs first), detailed engineering drawings must be submitted and approved. The detailed engineering drawings must include:

1. the location of the proposed connections and all existing

connections, including details of abandonment of the existing redundant connections,

2. the size and design of the connection such that it is appropriate to safely service the development,
3. clearances from any nearby obstacles (eg services, crossovers, trees, poles, walls),
4. long-sections of the proposed connection clearly showing levels, cover, size, grade, material and delineation of public and private infrastructure;
5. connections which are free-flowing gravity driven, and,
6. be in general accordance with Council's departures from the LGAT Tasmanian Standard Drawings, available from here.

All work required by this condition must be undertaken in accordance with the approved detailed engineering drawings.

Advice:

Upgraded or new connections can be approved separately from the CEP process, via the Application for New Connection form available from here. The approved stormwater connection documents must be included in your plumbing permit application document set and listed in accompanying forms.

A single connection for the property is required under the Urban Drainage Act 2013.

SW 9

Prior to occupancy or the commencement of the approved use (whichever occurs first), stormwater pre-treatment and detention for stormwater discharges from the development must be installed.

A stormwater management report and design must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* or the commencement of work on the site (whichever occurs first). The stormwater management report and design must be prepared by a suitably qualified engineer and must:

1. include detailed design and long-section of the proposed treatment train, including final estimations of contaminant removal and driving head requirements;

2. include detailed design and supporting calculations of the detention tank showing:
    - detention tank sizing such that there is no increase in flows from the developed site up to 5% AEP event and flows do not exceed the receiving capacity of the kerb and gutter as per the planning documentation;
    - the layout and long section showing the inlet and outelt, any internal weir, outlet size, overflow mechanism and invert levels; the discharge rates and emptying times; and
    - all assumptions must be clearly stated;
3. include a supporting maintenance plan, which specifies the required maintenance measures to check and ensure the ongoing effective operation of all systems, such as: inspection frequency; cleanout procedures; descriptions and diagrams of how the installed systems operate; details of the life of assets and replacement requirements.

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

ENG 13

An ongoing waste management plan for all commercial and domestic waste and recycling must be implemented post construction.

A waste management plan must be submitted and approved as a Condition Endorsement, prior to commencement of work on the site. A waste management plan must include:

1. the number of bins,
2. adequate bin storage area,
3. bin cleaning area that is appropriately drained,
4. the method of collection,
5. the time of day of collection; the frequency of collection,

6. access to bin storage areas, including consideration of gradient, site lines, manoeuvring, direction of vehicle movement and pedestrian access
7. distance from vehicle stopping point to bins if not collected on site, and,
8. confirmation by a private contractor that they are able and willing to provide collection services according to the waste management plan.

All work required by this condition must be undertaken in accordance with the approved waste management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards and collecting waste do not compromise the safety, amenity and convenience of surrounding occupants, vehicular traffic, parking, cyclists, pedestrians and other road and footpath users

ENG tr1

Traffic management within the access driveway, circulation roadway and parking module (parking spaces and aisles) must be installed prior to the commencement of the use.

Traffic management design drawing(s) (including signage and line marking), must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* or the commencement of works on site (whichever occurs first). The design drawing(s) and management plan must show but not limited to, the following information:

1. Be prepared by a suitably qualified person,

2. Signage indicating that the car parking area is a private car park,

3. Signage to be installed at the driveway entrance/exit informing users access is restricted to left in – left out only (as per Clause 3.2.3 of

AS2890.1),

4. Pavement arrows for the control and direction of circulating traffic within the car park and associated access in accordance with Australian/NZS Standard, *Parking facilities Part 1: Off-street car parking AS/NZS 2890.1: 2004*,

5. The turning bay must be must be delineated by means of white or yellow pavement lines and suitable signage,

6. Pedestrian safety bollards for egress to/from lifts and doorways, and,

7. Delineation of pedestrian pathways.

All work required by this condition must be undertaken in accordance with the approved traffic management design drawings.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

In the interests of user safety and the amenity of the occupiers of the development.

ENG tr2

A construction traffic and parking management plan must be implemented prior to the commencement of work on the site (including demolition). The construction traffic (including cars, public transport vehicles, service vehicles, pedestrians and cyclists) and parking management plan must be submitted and approved as a Condition Endorsement, prior to commencement work (including demolition). The construction traffic and parking management plan must:

1. Be prepared by a suitably qualified person.

2. Develop a communications plan to advise the wider community of the traffic and parking impacts during construction.

3. Include a start date and finish dates of various stages of works.

4. Include times that trucks and other traffic associated with the works will be allowed to operate.

5. Nominate a superintendent, or the like, to be responsible for the implementation of the approved traffic management plan and available as a direct contact to Council and/or members of the community regarding day to day construction traffic operations at the site, including any immediate traffic issues or hazards that may arise.

All work required by this condition must be undertaken in accordance with the approved construction traffic and parking management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure the safety of vehicles entering and leaving the development and the safety and access around the development site for the general public and adjacent businesses.

ENG 2a

Prior to first occupation or commencement of use (whichever occurs first), vehicular barriers compliant with the Australian Standard AS/NZS 1170.1:2002 must be installed to prevent vehicles running off the edge of an access driveway or parking module (parking spaces, aisles and manoeuvring area) where the drop from the edge of the trafficable area to a lower level is 600mm or greater, and wheel stops (kerb) must be installed for drops between 150mm and 600mm. Barriers must not limit the width of the driveway access or parking and turning areas approved under the permit.

Advice:

The Council does not consider a slope greater than 1 in 4 to constitute a lower level as described in AS/NZS 2890.1:2004 Section 2.4.5.3. Slopes greater than 1 in 4 will require a vehicular barrier or wheel stop.

Designers are advised to consult the National Construction Code 2016 *to determine if pedestrian handrails or safety barriers compliant with the*

Code are also required in the parking module this area may be considered as a path of access to a building.

Reason for condition

To ensure the safety of users of the access driveway and parking module and compliance with the standard.

ENG 3a

The access driveway and parking area must be constructed and line marked in accordance with the following documentation which forms part of this permit: Basement Plan / DA-05 / Revision C/ dated 04/05/2022.

The works required by this condition must be completed prior to first occupation.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 3c

Prior to the first occupation, a suitably qualified engineer must certify that all aspects of the the access driveway and parking area have been constructed in accordance with design drawings approved by Condition ENG 3a.

Advice:

We strongly encourage you to speak to your engineer before works begin so that you can discuss the number and nature of the inspections they will need to do during the works in order to provide this certification. It may be necessary for a surveyor to also be engaged to ensure that the driveway will be constructed as approved.

The reason this condition has been imposed as part of your planning permit is that the driveway is outside the Australian Standard gradients or design parameters. If the driveway is not constructed as it has been approved then this may mean that the driveway will either be unsafe or will not function properly.

An example certificate is available on our website.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

The access driveway and parking module (car parking spaces, aisles and manoeuvring area) approved by this permit must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

Reason for condition

To ensure the safety of users of the access driveway and parking module, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

All parking spaces must be delineated by means of white or yellow lines 80mm to 100mm wide, or white or yellow pavement markers in accordance with Australian Standards AS/NZS 2890.1 2004, prior to first occupation or commencement of use, whichever occurs first.

- The number of car parking spaces approved on the site is twenty six (26),
- The number of motorcycle parking spaces approved on the site is two (2),
- The number of bicycle parking spaces approved on the site is twelve (12).
- No visitor parking is provided on site,
- A minimum of one (1) parking space must be allocated to each dwelling, and,
- Each pair of tandem parking spaces must serve the same dwelling.

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or
2. Be repaired and reinstated by the owner to the satisfaction of the Council.

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council’s infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council’s infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council’s infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner’s full cost.

ENG r1

The excavation and/or earth-retaining structures (i.e. cuttings, retaining walls) and/or footings within or supporting the highway reservation must not undermine the stability and integrity of the highway reservation and its infrastructure.

Detailed design drawings, structural certificates, and associated geotechnical assessments of the basement building wall supporting the New Town Road highway reservation must be submitted and approved as a Condition Endorsement, prior to the commencement of work and must:

1. Be prepared and certified by a suitably qualified

person and experienced engineer,

2. Not undermine the stability of the highway reservation,
3. Take into account any additional surcharge loadings as required by relevant Australian Standards,
4. Take into account and reference accordingly any Geotechnical findings,
5. Detail any mitigation measures required,
6. Detail the design and location of the footing adjacent to the New Town Road highway reservation, and,
7. Include a structural certificate which notes the excavation near the highway will not adversely impact the stability of the road reservation.

Include a structural certificate which notes the excavation near the highway will not adversely impact the stability of the road reservation.

The structural certificates and drawings should note the above. All work required by this condition must be undertaken in accordance with the approved design drawings and structural certificates.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that the stability and integrity of the Council's highway reservation is not compromised by the development.

ENG r3

Prior to the commencement of use, the proposed driveway crossover on the New Town Road highway reservation must be designed and constructed in general accordance with:

- Urban - TSD-R09-v3 – Urban Roads Driveways and TSD R14-v3 Type KC vehicular crossing,
- Redundant vehicle crossovers to be reinstated - TSD-R14-v3 - Type KC kerb and channel, and,
- Footpath - Urban Roads Footpaths TSD-R11-v3.

Design drawings must be submitted and approved as a Condition

Endorsement prior to any approval under the *Building Act 2016*. The design drawings must:

1. Show the cross and long section of the driveway crossover within the highway reservation and onto the property,
2. Detail any services or infrastructure (i.e. light poles, pits, awnings) at or near the proposed driveway crossover,
3. Show swept path templates in accordance with AS/NZS 2890.1 2004(B85 or B99 depending on use, design template),
4. If the design deviates from the requirements of the TSD, then demonstrate that a B85 vehicle or a B99 depending on use (AS/NZS 2890.1 2004, section 2.6.2), can access the driveway from the road pavement into the property without scraping the vehicle's underside,
5. Show that vehicular and pedestrian sight lines are met as per AS/NZS 2890.1 2004, and,
6. Be prepared and certified by a suitably qualified person, to satisfy the above requirements.

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit. Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Program Leader Road Services and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

Reason for condition

To ensure that works will comply with the Council’s standard requirements.

ENV 2

Sediment and erosion control measures, sufficient to prevent sediment leaving the site and in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.

A SWMP must be submitted as a Condition Endorsement prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be:

- prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008), and,
- reflect any Contamination Management Plan or Environmental Site Assessment for the site

All work required by this condition must be undertaken in accordance with the approved SWMP.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

HER 17a

The palette of exterior colours, materials and finishes must reflect the palette of colours, materials and finishes within the local streetscape and precinct.

Prior to the issue of any approval under the *Building Act 2016,* revised plans must be submitted and approved as a Condition Endorsement showing exterior colours, materials and finishes in accordance with the above requirement.

All work required by this condition must be undertaken in accordance with the approved plans.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that development at a heritage place/precinct is undertaken in a sympathetic manner which does not cause loss of historic cultural heritage significance.

ENVHE 1

Recommendations in the report GES Environmental Site Assessment 156 New Town Road, New Town, Tasmania, dated November 2020, must be implemented prior to the commencement of works.

Specifically:

1. Documentation stating the Underground Petroleum Storage System(UPSS) has been decommissioned and removed,
2. Contamination Management Plan (CMP) relating to human receptors, including mitigation measures post construction for residential use, and also include soil management onsite during construction, and,
3. All contaminated soils must be managed in accordance with IB105 (EPA document and process).

Reason for condition

To ensure that the risk to future occupants of the building remain low and acceptable.

To manage excavated soils onsite in relation to contamination.

To ensure the safety of workers

ENVHE 4

A construction management plan must be implemented throughout the construction works.

A construction management plan must be submitted and approved as a Condition Endorsement prior to the issuing of any approval under the *Building Act 2016*. The plan must include but is not limited to the following:

1. Identification and disposal of any potentially contaminated waste and asbestos,
2. Proposed hours of work (including volume and timing of heavy vehicles entering and leaving the site, and works undertaken on site),
3. Proposed hours of construction,
4. Identification of potentially noisy construction phases, such as operation of rock- breakers, explosives or pile drivers, and proposed means to minimise impact on the amenity of neighbouring buildings,
5. Control of dust and emissions during working hours
6. Proposed screening of the site and vehicular access points during work, and,
7. Procedures for washing down vehicles, to prevent soil and debris being carried onto the street.

All work required by this condition must be undertaken in accordance with the approved construction management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure minimal impact on the amenity of adjoining properties and members of the public during the construction period.

SURV 16

The titles comprising the development site (CT 171514/1 and CT 171514/2) are to be adhered in accordance with the provisions of Section 110 of the *Local Government (Building and Miscellaneous Provisions) Act 1993*, to the satisfaction of Council prior to the issue of any building approval pursuant to the *Building Act 2016*, or the commencement of works on site (whichever occurs first).

Advice:

The application for an adhesion order to Council has a fee of $300. Evidence will be required that the owners and mortgagees do not object to the adhesion. This condition will be considered to be satisfied when a copy of the receipt for the Land Titles Office lodgement slip for the adhesion order has been received by Council.

Reason for condition

To ensure compliance with statutory provisions

Part 5 r1

Prior to any works commencing on site (including demolition), the owner(s) of the property must enter into an agreement with the Council pursuant to Part 5 of the *Land Use Planning and Approvals Act 1993* with respect to the protection of the retaining wall adjacent to the New Town Road highway reservation.

The owner must not undertake any works (including excavation and building) that will have any effect on the integrity of the New Town Road highway reservation or any adjacent retaining structure.

All costs for the preparation and registration of the Part 5 Agreement must be met by the owner. The owner must comply with the Part 5 Agreement which will be placed on the property title.

Advice:

For further information with respect to the preparation of a Part 5 Agreement please contact Council's Development Engineering Unit.

Reason for condition

To ensure the protection of Council infrastructure.

SUB s1

The right of carriageway appurtenant to CT 7973/1 (18 Roope Street) over the Roadway shown on Plan No. 171514 burdening the titles comprising the development site (CT 171514/1 and CT 171514/2) is to be extinguished in accordance with the provisions of section 108 of the *Land Titles Act 1980* prior to the issue of any building approval pursuant to the *Building Act 2016*.

Reason for condition

To ensure that building works do not occur over the right of carriageway.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016.* Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require a permit for the occupation of the public highway for construction or special event (e.g. placement of skip bin, crane, scissor lift etc). Click here for more information.

STORMWATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

REDUNDANT CROSSOVERS

Redundant crossovers are required to be reinstated under the Hobart City Council's

Infrastructure By law. Click here for more information.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information before you dig information.

Attachment A:	PLN-22-272 - 156 NEW TOWN ROAD NEW TOWN TAS 7008 - Planning Committee or Delegated Report ⇩
Attachment B:	PLN-22-272 - 156 NEW TOWN ROAD NEW TOWN TAS 7008 - CPC Agenda Documents ⇩
Attachment C:	PLN-22-272 - 156 NEW TOWN ROAD NEW TOWN TAS 7008 - Cultural Heritage Officer Report ⇩
Attachment D:	PLN-22-272 - 156 NEW TOWN ROAD NEW TOWN TAS 7008 - Urban Design Advisory Panel Report ⇩

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Committee
Council:	14 June 2022
Expiry Date:	16 June 2022
Application No:	PLN-22-272
Address:	156 NEW TOWN ROAD , NEW TOWN
Applicant:	LXN ARCHITECTURE & CONSULTING PO BOX 136
Proposal:	Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation)
Representations:	Two representations.
Performance criteria:	Urban Mixed Use Zone: Residential Amenity, Potentially Contaminated Land Code: Excavation, Road and Railway Assets Code: Sight distance at accesses, junctions and level crossings, Parking and Access Code: Number of Car Parking Spaces, Design of Vehicular Accesses, and, Layout of Parking Areas, Stormwater Management Code: Stormwater Drainage and Disposal, and, Historic Heritage Code: Demolition, Buildings and Works other than Demolition, and, Subdivision.

1. Executive Summary

1.1 Planning approval is sought for Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation) at 156 New Town Road, New Town.

1.2 More specifically the proposal is to demolish the existing building on the site and to construct a new building that would contain a fitness centre and 19 multiple dwellings.

- The new building would have three storeys and a basement. Car parking and storage is proposed in the basement. The fitness centre would be on the part of the ground floor of the building fronting onto New Town Road. The proposed apartment style dwellings would occupy the remaining parts of the development.
- The proposed building would have a maximum height of 10m and a total floor area of 2938m².
- Proposed external materials include face brickwork (sand and red), painted cement sheet (grey and light grey), powder-coated aluminium (white), pre-finished metal sheet (grey), and pre-cast concrete (natural finish).

1.3 The proposal relies on performance criteria to satisfy the following standards and codes:

1.3.1 15.0 Urban Mixed Use Zone - 15.4 Development Standards for Buildings and Works
1.3.2 E2.0 Potentially Contaminated Land Code - E2.6 Development Standards
1.3.3 E5.0 Road and Railway Assets Code - E5.6 Development Standards
1.3.4 E6.0 Parking and Access Code - E6.6 Use Standards and E6.7 Development Standards
1.3.5 E7.0 Stormwater Management Code - E7.7 Development Standards
1.3.6 E13.0 Historic Heritage Code - E13.8 Development Standards for Heritage Precincts

1.4 Four (4) representations objecting to the proposal were received within the statutory advertising period between 9 and 23 May 2022.

1.5 The proposal was considered by the Urban Design Advisory Panel at its meeting of 29 March 2022. In the context of the provisions on which they were asked to comment, the Panel was broadly not supportive of the proposal.

1.6 The proposal is recommended for approval subject to conditions.

1.7 The final decision is delegated to the Council because a major development application is proposed.

2. Site Detail

2.1 The site is a commercial property at the southern edge of the New Town commercial area. The property has an area of 1474m² and frontage to New Town Road on its north-eastern boundary. The existing building on the site was originally constructed as a service station, however, it has been used for various commercial uses in recent years, including as a cafe and laundrette. The building is setback from the site frontage allowing for a wide driveway with separate egress and entry points. The site is generally level although its south-western corner falls away.

2.2 The site is within the Urban Mixed Use Zone of the *Hobart Interim Planning Scheme 2015*. The site is surrounded by a mix of commercial and residential uses, consistent with this zoning. These uses include offices and other professional services uses on the adjoining land to the north-west and south-east and multiple dwellings on the adjoining land to the west and south. A variety of commercial uses occur to the north and east of the site, on the opposite side of New Town Road. The site is within the New Town 4 Heritage Precinct identified by the planning scheme's Historic Heritage Code.

2.3 A site visit was conducted upon 11 April 2022. The adjoining property at 18 Roope Street was also visited.

Figure 1: aerial view of site (outlined in blue) and surrounding area.

3. Proposal

3.1 Planning approval is sought for Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation) at 156 New Town Road, New Town.

3.2 More specifically the proposal is to demolish the existing building on the site and to construct a new building that would contain a fitness centre and 19 multiple dwellings.

- The new building would have three storeys and a basement. Car parking and storage is proposed in the basement. The fitness centre would be on the part of the ground floor of the building fronting onto New Town Road. The proposed apartment style dwellings would occupy the remaining parts of the development.
- The proposed building would have a maximum height of 10m and a total floor area of 2938m².
- Proposed external materials include face brickwork (sand and red), painted cement sheet (grey and light grey), powder-coated aluminium (white), pre-finished metal sheet (grey), and pre-cast concrete (natural finish).

4. Background

4.1 Council issued a Planning Permit for alterations, extension, and an outbuilding associated with a laundromat use on the site in December 2019 (see PLN-19-705).

4.2 A partial change of use to food services (cafe) & signage was approved on the site in July 2015 (via PLN-15-00598-01). A laundromat appears to have been an established use on the site at the time that this application was approved (see planner's report). Council provided confirmation that planning approval was not required for a change of use to a shop on the site (see PLN-15-00056-01) in January 2015. A planning scheme amendment was lodged in 2009 that sought approval for a change in the planning scheme to allow the site to be used as a saleyard. This amendment was not supported by Council.

4.3 Council received an application that sought approval for a development that is essentially similar to that currently proposed on 25 October 2021 (PLN-21-718). The development proposed in this application differed from the current proposal only in the design of the basement and ground floor levels. Following a request for information process, the application was placed on public exhibition from 24 March to 7 April 2022. Council received two representations regarding the application during this period. Once Council completed its assessment of the proposal at the end of the advertising period, the applicant was advised that the application would be recommended for refusal largely on grounds that it would have an unreasonable overshadowing impact upon adjoining residential properties. Faced within this advice, the applicant elected to withdraw the application and to revise the design to ensure that it complies with the acceptable solutions for the relevant boundary setback standards and to avoid the discretion that prompted the original design to be recommended for refusal.

4.4 The previous application (PLN-21-718) was considered by the Urban Design Advisory Panel at its meeting of 29 March 2022. In the context of the provisions on which they were asked to comment, the Panel was broadly not supportive of the proposal. The Panel's comments are included where relevant in section 6 of this report, and are discussed in section 7. The Panel's report is provided in full as an attachment to this report.

5. Concerns raised by representors

5.1 Four (4) representations objecting to the proposal were received within the statutory advertising period.

5.2 The following table outlines the concerns raised in the representations received. Those concerns which relate to a discretion invoked by the proposal are addressed in Section 6 of this report.

"This proposed development (PLN-22-272) is another example of recent developments in this area which fail to give due consideration to the long-term impact on traffic congestion and parking".
"This proposal will add to existing traffic and parking issues".
"the impact this proposed development will have on the amenity of the residents in the housing development accessed from Roope Street including, but not limited to, loss of privacy, lighting and noise given the fitness centre will be open to 9.00 pm on weekdays".

"Visually, this proposed development is unappealing, there is no set back from the main road, the courtyard is internal and there is no 'green space' to soften the street front of this development".
"This is another development application squeezing too many apartments onto a small footprint to maximise profits for the developer".
"the developer should be required to reduce the number of apartments and provide off-street parking for both residents and patrons of the Fitness Centre".
"My sunlight/natural light will be reduced in my kitchen/loungeroom windows due to the proposed dwelling being 10 metres high".
"The noise for the proposed dwellings it will make it very hard to hear the television or listen to music during the day. I will not be able to go out the back door into the garden or sit outside because the noise will be unbearable and also no privacy".
"I use my washing line daily expect when it is raining but if the proposed dwelling gets the go ahead, I will be not be able to use it due to reduced sunlight and dust".
"The unit at present is very quiet to live but with the proposed dwelling and fitness centre it will be very noisy due to the building being demolished and the new 19 multiple dwelling and fitness centre being built".
"The traffic in the area is all ready very buy and it gets congested a lot of the time due to buses, delivery vans, emergency vehicles and normal traffic. With the proposed dwelling this will create even more congestion due to tradesman parking their cars and finding somewhere to park".
"Where I live Roope Street is already full to the residents' cars outside their properties. There is not much parking around the proposed units/fitness centre site".
"we will lose privacy due to our backyards touching their backyards".

"The LXN architectural plan presented for the basement carparking (Drawing DA-05) is inconsistent with the Concept Services Plans by Gandy & Roberts showing a different basement carparking layout".
"The Heritage assessment prepared by Purcell submitted as part of documentation for this proposal does not identify the significant impact of the proposal on the heritage streetscape created by the Old Parsonage and Cross Street Church at this location".
"To reduce these impacts, we propose that the application be conditioned to require the reduction and redesign of the north-western corner of the building to reduce the impact on the visibility of the Old Parsonage and Cross Street Church".
"We contend that this development is contrary to 15.1.1.6 in that it does not respond to the character of the streetscape, historic areas and buildings".
"On this basis we contend that the set back of the overall proposal from New Town Road is insufficient. The building must have a larger setback from ground level to be consistent with the majority of buildings that are substantially set back from the street and not have a detrimental impact on the heritage streetscape vista".
"Further information is required on how the Assumed Natural Ground Level has been calculated".
"Car parking for the gym should be provided within the proposal".
"Three non-fruiting pears are located in garden beds between the Old Parsonage car park and the southern lot boundary next to 156 New Town Road. We request that conditions be applied to the permit that they show how these trees are to be protected during construction".
"In this proposed development there is provision for only 26 car spaces. This is inadequate".
"The developer should be required to reduce the number of apartments and provide off-street parking for both residents and patrons of the proposed Fitness Centre".

6. Assessment

6.1 The *Hobart Interim Planning Scheme 2015* is a performance based planning scheme. To meet an applicable standard, a proposal must demonstrate compliance with either an acceptable solution or a performance criterion. Where a proposal complies with a standard by relying on one or more performance criteria, the Council may approve or refuse the proposal on that basis. The ability to approve or refuse the proposal relates only to the performance criteria relied on.

6.2 The site is located within the Urban Mixed Use Zone of the *Hobart Interim Planning Scheme 2015*.

6.3 The existing use appears to be Educational and occasional care. The proposed use is Residential (multiple dwellings) and Sport and recreation (fitness centre). The existing use is a discretionary use in the zone. The proposed uses are permitted (Residential component) and discretionary (Sports and recreation component) uses in the zone.

6.4 Clause *8.10.2* states that:

In determining an application for a permit for a discretionary use the planning authority must, in addition to the matters referred to in subclause 8.10.1, have regard to:

(a) the purpose of the applicable zone;
(b) any relevant local area objective or desired future character statement for the applicable zone;
(c) the purpose of any applicable code; and
(d) the purpose of any applicable specific area plan,

but only insofar as each such purpose, local area objective or desired future character statement is relevant to the particular discretion being exercised.

Therefore, the proposed discretionary use (i.e. the proposed fitness centre) must be considered with regard to the above matters. The proposed fitness centre is considered to be consistent with the purpose of the applicable zone, i.e. the Urban Mixed Use Zone, as the proposal would provide for the integration of residential and commercial activities on the site (see *15.1.1.1*). The fitness centre would also generate activity and pedestrian movement at street level (see *15.1.1.2*). The site is accessible by public transport as it is upon a Metro Tasmania bus route. The site is adjacent to residential areas so is also accessible by walking and cycling (see *15.1.1.5*). Given that the development would have mostly glazed walls within the ground level facade, its materials and openings are considered to contribute

positively to the streetscape (see *15.1.1.8*), although the comments from UDAP regarding the covering of glazed surfaces with obscure film are noted (see attached report). The proposal is considered to provide an appropriate level of amenity for the proposed residential use proposed on the site (see *15.1.1.9*) by incorporating appropriate attenuation measures for the proposed fitness centre. There are no local area objectives or desired future character statements for the Urban Mixed Use Zone.

The proposal is considered to be consistent with the purpose of the applicable codes. The following codes are applicable:

- E2.0 Potentially Contaminated Land Code,
- E5.0 Road and Railway Assets Code,
- E6.0 Parking and Access Code,
- E7.0 Stormwater Management Code, and
- E13.0 Historic Heritage Code.

The proposal is considered to be consistent with the purpose of the Potentially Contaminated Land Code as it is supported by an Environmental Site Assessment which demonstrates that potential contamination on the site may be managed in a way such that it does not adversely impact on human health or the environment. The proposal is consistent with the purpose of the Road and Railway Assets Code as it is supported by a Traffic Impact Assessment which demonstrates that it would maintain the safety and efficiency of the road network. The TIA also demonstrates that sufficient parking would be provided for the use and development on the site. The proposal is therefore consistent with the purpose of the Parking and Access Code. The proposal demonstrates that stormwater from the development would be managed in a way that furthers the State Stormwater Strategy. The proposal is therefore consistent with the purpose of the Stormwater Management Code. The proposal is consistent with the purpose of the Historic Heritage Code because the historic cultural heritage significance of the precinct surrounding the site would be protected.
There is no applicable specific area plan. The proposal is considered to comply with clause *8.10.2*.

6.5 The proposal has been assessed against:

6.5.1 15.0 Urban Mixed Use Zone

6.5.2 E2.0 Potentially Contaminated Land Code

6.5.3 E6.0 Parking and Access Code

6.5.4 E7.0 Stormwater Management Code

6.5.5 E13.0 Historic Heritage Code

6.6 The proposal relies on the following performance criteria to comply with the applicable standards:

6.6.1 15.0 Urban Mixed Use Zone:

15.4.8 Residential Amenity P1 and P3.

6.6.2 E2.0 Potentially Contaminated Land Code:

E2.6.2 Excavation.

6.6.3 E5.0 Road and Railway Assets Code:

E5.6.4 Sight distance at accesses, junctions and level crossings.

6.6.4 E6.0 Parking and Access Code:

E6.6.1 Number of Car Parking Spaces,
E6.7.2 Design of Vehicular Accesses, and,
E6.7.5 Layout of Parking Areas.

6.6.5 E7.0 Stormwater Management Code:

E7.7.1 Stormwater Drainage and Disposal P1 and P2.

6.6.6 E13.0 Historic Heritage Code:

E13.8.1 Demolition,
E13.8.2 Buildings and Works other than Demolition P1, and,
E13.8.3 Subdivision P1, P2, and P3.

6.7 The relevant performance criteria are assessed below.

6.8 *15.4.8 Residential Amenity* P1

6.8.1 The acceptable solution A1 at clause *15.4.8* requires a dwelling to have a habitable room window (other than a bedroom) that faces within 30 degrees of north.

6.8.2 The proposal includes several dwellings that would not have a habitable room window that would face within 30 degrees of north. Apartments 6 to 10 and apartments 14, 16, and 17 would not have a north facing habitable room window.

6.8.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.8.4 The performance criterion P1 at clause *15.4.8* provides as follows:

A dwelling must be sited and designed to optimise sunlight to at least one habitable room (other than a bedroom).

6.8.5 Apartments 7 to 10 and apartment 17 would have substantial glazed areas to living areas within the north-east elevation of proposed building. This arrangement would allow for sunlight to enter the living areas during morning periods and at midday. Apartment 6 would also have glazing to living areas that is orientated to the north-east, as well as a larger area of glazing to these areas that would be orientated to the north-west. This arrangement would allow for sunlight to enter the living area of this apartment throughout the day. Apartment 16 would have glazing to living areas that would be orientated to the north-west which would allow for sunlight to enter these areas during afternoon periods. Therefore, the siting and design of apartments 6 to 10 and apartments 16 and 17 is considered to provide a reasonable level of residential amenity by allowing sunlight to enter a habitable room.

6.8.6 The only external glazing for apartment 14 would face nearly due south. The apartment would therefore not receive any direct sunlight and its siting and design could not be said to optimise sunlight to a habitable room. However, it is noted that apartment 14 would have only one bedroom and that it would be the only apartment within the development that would not receive direct sunlight. Therefore, the proposal is considered to be consistent with the objective for the above clause as it would generally provide a reasonable level of residential amenity.

6.8.7 The proposal complies with the above performance criterion.

6.9 *15.4.8 Residential Amenity* P3

6.9.1 The acceptable solution A3 at clause *15.4.8* requires outdoor living space to be provided for a dwelling that has an area no less than 10m² and a

width no less than 2m.

6.9.2 The proposal includes several dwellings that would not be provided with outdoor living space that would have the required width. Except for apartments 11 and 14, all of the apartments proposed on level 1 of the development (i.e., apartments 6 to 10 and 12, 13, and 15) would not be provided with outdoor living space that would have the required width.

6.9.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.9.4 The performance criterion P3 at clause *15.4.8* provides as follows:

Outdoor living space must be provided for a dwelling with dimensions sufficient for the projected requirements of the occupants.

6.9.5 Apartments 7 to 10 would have areas of outdoor living space with areas greater than 12m² and a minimum width of approximately 1.7m. These areas would be on the north-eastern side of the respective dwelling and would be adjacent to the respective living area. Therefore, these areas of outdoor living space are considered to provide for the projected requirements of the future occupants, such as outdoor dining and relaxation and some limited planting. Similarly, the outdoor living space proposed for apartment 6 would also be greater than 12m² and located adjacent to the living area proposed for this apartment. Therefore, this outdoor living space is also considered to provide for the projected requirements of the occupants.

6.9.6 While smaller areas of outdoor living space are proposed for apartments 12, 13, and 15 (i.e., these areas are only slightly above the minimum 10m² required by the acceptable solution), each of these spaces would include an area that would have dimensions of at least 2m x 3m. These areas are considered to provide for projected requirements such as outdoor dining for example, as they could accommodate a small outdoor dining setting and a BBQ. The remainder of the space provided for each of these apartments would be much narrower but would allow for other projected requirements such as storage or limited planting.

6.9.7 The proposal complies with the above performance criterion.

6.10 E2.5 Use Standards

6.10.1 The acceptable solution at clause *E2.5* requires the Director (as defined in EMPCA 1994), or a person approved by the Director for the purpose of the Potentially Contaminated Land Code, to either certify that the land is suitable for an intended sensitive use, or, to approve a plan to manage contamination and associated risk to human health or the environment that will ensure that the land is suitable for the intended use.

6.10.2 The proposal does not include certification from either the Director or a person approved by the Director and does not include a plan approved by the Director.

6.10.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.10.4 The performance criterion at clause *E2.5* provides as follows:

Land is suitable for the intended use, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or
(b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or
(c) a plan to manage contamination and associated risk to human health or the environment that includes:

(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before any use commences; and
(iii) a statement that the land is suitable for the intended use.

6.10.5 An Environmental Site Assessment was provided with the application. The ESA includes the following conclusions:

"There were no human health guideline exceedances for dermal contact, soil vapour intrusion or trench worker vapour risk. There were no HIL guideline exceedances for dust inhalation and ingestion at commercial land use class, but there were exceedances at residential and recreational land use for Benzo(a)pyrene and Lead. If developments include open space or residential apartments at ground level, the site will require a Contamination Management Plan (CMP) relating to human receptors prior to soil disturbance during construction, and including

mitigation measures post construction".

Council's Environmental Health Officer has reviewed the above recommendation and recommended that a condition of approval require a Contamination Management Plan (CMP) to be submitted to Council, prior to construction of the development commencing.

6.10.6 The ESA also states that:

"There is potential for ecological impact from hydrocarbons and heavy metals entering the waterway or impacting other ecological receptors during excavation, and a Stormwater Management Plan (SWMP) is required, to control erosion of excavated soil that may have an ecological impact".

The standard condition of approval requiring a Stormwater Management Plan to be developed for the site and implemented prior to construction of the development commencing should be included upon any Planning Permit issued for the proposal, in accordance with this recommendation.

6.10.7 The proposal complies with the above performance criterion.

6.11 *E2.6.2 Excavation*

6.11.1 There is no acceptable solution for clause *E2.6.2* which applies where works involving excavation of potentially contaminated land are proposed.

6.11.2 The proposal includes excavation of potentially contaminated land.

6.11.3 As there is no acceptable solution for the above clause the proposal therefore relies upon assessment against the below performance criterion.

6.11.4 The performance criterion at clause *E2.6.2* provides as follows:

Excavation does not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human

health and the environment that includes:

(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before excavation commences; and
(iii) a statement that the excavation does not adversely impact on human health or the environment.

6.11.5 As noted above, an ESA was provided with the application which includes recommendations regarding remediation and protection measures. A condition of approval is recommended that requires these measures to the be implemented, including the development and implementation of a CMP for the development.

6.11.6 The proposal complies with the above performance criterion.

6.12 *E5.6.4 Sight distance at accesses, junctions and level crossings*

6.12.1 The acceptable solution at clause *E5.6.4* requires sight distances at an access to comply with the Safe Intersection Sight Distance (SISD) shown in Table E5.1.

6.12.2 The proposal includes an access that does not comply with the SISD shown in Table E5.1.

6.12.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.12.4 The performance criterion at clause *E5.6.4* provides as follows:

The design, layout and location of an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles, having regard to:

(a) the nature and frequency of the traffic generated by the use;
(b) the frequency of use of the road or rail network;
(c) any alternative access;
(d) the need for the access, junction or level crossing;
(e) any traffic impact assessment;
(f) any measures to improve or maintain sight distance; and
(g) any written advice received from the road or rail authority.

6.12.5 Council's Senior Development Engineer has assessed the sight distances at the proposed access against the above performance criterion and provided the following comments:

"enough information for assessment was provided by Gandy and Roberts and therefore can be supported under a performance based assessment and will be subject to design conditions".

6.12.6 The proposal complies with the above performance criterion.

6.13 *E6.6.1 Number of Car Parking Spaces*

6.13.1 The acceptable solution at clause *E6.6.1* requires the number of on-site car parking spaces to be no less than the number specified in Table E6.1.

6.13.2 The proposal includes less than the number of on-site car parking spaces specified in Table E6.1. 31 car parking spaces are required for the proposed residential use. 26 car parking spaces are proposed for the residential use. 17 spaces are required for the proposed fitness centre (4.5 spaces required per 100m² of floor area, 360m² of floor area proposed for this use) but no on-site car parking would be provided for this use.

6.13.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.13.4 The performance criterion at clause *E6.6.1* provides as follows:

The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following:

(a) car parking demand;
(b) the availability of on-street and public car parking in the locality;
(c) the availability and frequency of public transport within a 400m walking distance of the site;
(d) the availability and likely use of other modes of transport;
(e) the availability and suitability of alternative arrangements for car parking provision;
(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;

(g) any car parking deficiency or surplus associated with the existing use of the land;
(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;
(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;
(j) any verified prior payment of a financial contribution in lieu of parking for the land;
(k) any relevant parking plan for the area adopted by Council;
(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;
(m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code.

6.13.5 Council's Senior Development Engineer has assessed the proposed number of car parking spaces against the above performance criterion and provided the following comments:

- "Car parking is deficient by 5 car spaces for the residents which includes visitor car parking is supported based on the traffic impacts assessment provided by Hubble Traffic stating the availability of on street parking in the surrounding areas has adequate capacity to absorb the deficiency.
- The deficiency of 17 car parking spaces for the gym is supported based on the traffic impacts assessment by Hubble Traffic stating the availability of on street parking in the surrounding areas has adequate capacity to absorb the deficiency.
- It is unclear if DDA spaces for the Gym are required. None are provided on site.
- The support for this clause is due to the fact that almost all residents receive their allocation of private car parking according to HIPS 2015".

6.13.6 The proposal complies with the above performance criterion.

6.14 *E6.7.2 Design of Vehicular Accesses*

6.14.1 The acceptable solution at clause *E6.7.2* requires a non-commercial vehicle access to comply with section 3 – "Access Facilities to Off-street

Parking Areas and Queuing Areas" of *AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking*.

6.14.2 The proposal includes a non-commercial access that does not comply with the above section of the Australian Standard.

6.14.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.14.4 The performance criterion at clause *E6.7.2* provides as follows:

Design of vehicle access points must be safe, efficient and convenient, having regard to all of the following:

(a) avoidance of conflicts between users including vehicles, cyclists and pedestrians;
(b) avoidance of unreasonable interference with the flow of traffic on adjoining roads;
(c) suitability for the type and volume of traffic likely to be generated by the use or development;
(d) ease of accessibility and recognition for users.

6.14.5 Council's Senior Development Engineer has assessed the proposed design of the vehicular access against the above performance criterion and provided the following comment:

"Queuing area exceeds the maximum 10% gradient required in the Australian Standard and no evidence that queuing will extend into the road or cause any detriment to the users and there fore can be supported".

6.14.6 The proposal complies with the above performance criterion.

6.15 *E6.7.5 Layout of Parking Areas*

6.15.1 The acceptable solution at clause *E6.7.5* requires the layout of car parking spaces to comply with section 2 "Design of Parking Modules, Circulation Roadways and Ramps" of *AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking*.

6.15.2 The proposal includes car parking spaces that do not comply with the above section of the Australian Standard.

6.15.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.15.4 The performance criterion at clause *E6.7.5* provides as follows:

The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site.

6.15.5 Council's Senior Development Engineer has assessed the proposed layout of parking areas against the above performance criterion and provided the following comments:

"Multi-Jockey parking is not ideal and the result of an over developed site. The proposed jockey spaces can be supported because of improved parking area maneuverability from the increased in parking bay width, increase in aisle width, and turning bay provided".

6.15.6 The proposal complies with the above performance criterion.

6.16 *E7.7.1 Stormwater Drainage and Disposal* P1

6.16.1 The acceptable solution A1 at clause *E7.7.1* requires stormwater from new impervious surfaces to be disposed of by gravity to public stormwater infrastructure.

6.16.2 The proposal includes an arrangement in which stormwater from a new impervious surface would not be disposed of by gravity to public stormwater infrastructure. The basement of the proposed development and stormwater from other areas that cannot be drained via gravity would rely upon a pump system.

6.16.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.16.4 The performance criterion P1 at clause *E7.7.1* provides as follows:

Stormwater from new impervious surfaces must be managed by any of the following:

(a) disposed of on-site with soakage devices having regard to the

suitability of the site, the system design and water sensitive urban design principles

(b) collected for re-use on the site;
(c) disposed of to public stormwater infrastructure via a pump system which is designed, maintained and managed to minimise the risk of failure to the satisfaction of the Council.

6.16.5 Council's Technical Officer - Environmental has assessed the proposed stormwater management arrangements against the above performance criterion and advised that the proposed pump system is a "very low risk to others as contained in basement carpark".

6.16.6 The proposal complies with the above performance criterion.

6.17 *E7.7.1 Stormwater Drainage and Disposal* P2

6.17.1 The acceptable solution A2 at clause *E7.7.1* requires a stormwater system for a new development to incorporate water sensitive urban design principles for the treatment and disposal of stormwater if the size of new impervious area is more than 600m² and new car parking is provided for more than 6 cars.

6.17.2 The proposal includes more than 600m² of new impervious area and new car parking for more than 6 cars but does not incorporate water sensitive urban design principles.

6.17.3 The proposal does not comply with the above acceptable solution and therefore relies upon assessment against the below performance criterion.

6.17.4 The performance criterion P2 at clause *E7.7.1* provides as follows:

A stormwater system for a new development must incorporate a stormwater drainage system of a size and design sufficient to achieve the stormwater quality and quantity targets in accordance with the State Stormwater Strategy 2010, as detailed in Table E7.1 unless it is not feasible to do so.

6.17.5 Council's Technical Officer - Environmental has assessed the proposed stormwater management arrangements against the above performance criterion and advised that the "concept treatment design of Ocean Protect Stormfilters, Ocean Guards, and SPEL Hydrochannel has been proposed

and modelled as achieving the treatment targets".

6.17.6 The proposal complies with the above performance criterion.

6.18 *E13.8.1 Demolition*

6.18.1 There is no acceptable solution for clause *E13.8.1* which applies where demolition is proposed on a site that is within a heritage precinct.

6.18.2 The proposal includes demolition and the site is within the New Town 4 Heritage Precinct.

6.18.3 As there is no acceptable solution for the above clause the proposal therefore relies upon assessment against the below performance criterion.

6.18.4 The performance criterion at clause *E13.8.1* provides as follows:

Demolition must not result in the loss of any of the following:

(a) buildings or works that contribute to the historic cultural heritage significance of the precinct;
(b) fabric or landscape elements, including plants, trees, fences, paths, outbuildings and other items, that contribute to the historic cultural heritage significance of the precinct;
unless all of the following apply;

(i) there are, environmental, social, economic or safety reasons of greater value to the community than the historic cultural heritage values of the place;
(ii) there are no prudent or feasible alternatives;
(iii) opportunity is created for a replacement building that will be more complementary to the heritage values of the precinct.

6.18.5 Council's Cultural Heritage Officer has assessed the proposed demolition against the above performance criterion and provided the following comment:

"The site does not contain any buildings or works that possess historic cultural heritage value as defined in the statements of significance in Table E13.2. The loss of historic heritage values is not anticipated as a function of the proposed demolition. Clause *E13.8.1* P1 is satisfied".

The CHO's full report on the proposal is provided as an attachment.

6.18.6 The proposal complies with the above performance criterion.

6.19 *E13.8.2 Buildings and Works other than Demolition* P1

6.19.1 There is no acceptable solution A1 for clause *E13.8.2* which applies where buildings and works other than demolition are proposed on a site that is within a heritage precinct.

6.19.2 The proposal includes buildings and works other than demolition and the site is within the New Town 4 Heritage Precinct.

6.19.3 As there is no acceptable solution for the above clause the proposal therefore relies upon assessment against the below performance criterion.

6.19.4 The performance criterion P1 at clause *E13.8.2* provides as follows:

Design and siting of buildings and works must not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.

6.19.5 Council's Cultural Heritage Officer has assessed the proposed buildings and works against the above performance criterion and concluded that:

"Siting and design choices are logical and sensible rather than inspired, but are unlikely to result in detriment to the historic cultural heritage significance of the precinct. Extant period buildings would endure and continue to be able to be viewed from public spaces in New Town Road providing high quality examples of their respective architectural periods".

6.19.6 The proposal complies with the above performance criterion.

6.20 *E13.8.3 Subdivision* P1

6.20.1 There is no acceptable solution A1 for clause *E13.8.3* which applies where subdivision is proposed on a site that is within a heritage precinct.

6.20.2 The proposal includes subdivision (lot consolidation) and the site is within the New Town 4 Heritage Precinct.

6.20.3 As there is no acceptable solution for the above clause the proposal

therefore relies upon assessment against the below performance criterion.

6.20.4 The performance criterion P1 at clause *E13.8.3* provides as follows:

Subdivision must not result in any of the following:

(a) detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2;
(b) a pattern of subdivision unsympathetic to the historic cultural heritage significance of the precinct;
(c) potential for a confused understanding of the development of the precinct;
(d) an increased likelihood of future development that is incompatible with the historic cultural heritage significance of the precinct.

6.20.5 Council's Cultural Heritage Officer has assessed the proposed subdivision (lot consolidation) against the above performance criterion and provided the following comments:

"The original lot of the now demolished Rose Cottage is thus being reformed. Therefore, the proposed subdivision (lot consolidation) would be consistent with historic patterns of development".

6.20.6 The proposal complies with the above performance criterion.

7. Discussion

7.1 Planning approval is sought for Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation) at 156 New Town Road, New Town.

7.2 The application was advertised and received four representations. The representations raised concerns including the potential for a reduction in sunlight to habitable rooms and private open space on an adjoining property, noise impacts during construction of the development, traffic impacts, car parking impacts, privacy impacts, and heritage impacts. One of the representations suggests that an increase in the buildings setback from New Town Road is required in order for it to be consistent with nearby buildings and to not have a detrimental impact upon the "heritage streetscape". The representation requests that a condition of approval be included upon any Planning Permit issued for the proposal that requires trees on an adjoining property to be protected during construction of the development. The issues raised in the representations are responded to below.

7.3 As detailed in the background section of the report, the proposal was revised to ensure that the development complies with the relevant boundary setbacks (i.e., the setbacks prescribed by the acceptable solutions for clause *15.4.2*). Therefore, while the proposal would have a significant impact upon residential amenity as a result of its overshadowing, visual, and privacy impacts upon adjoining residential properties, it should be approved.

7.4 While noise impacts associated with the construction of a development are generally regulated by the *Environmental Management and Pollution Control Act 1994*, should the proposal be approved, it would be possible to place further controls upon construction via a Construction Management Plan. This plan may mitigate impacts upon adjoining residential properties associated with the construction of the development to some extent.

7.5 The proposal is supported by a Traffic Impact Assessment which concludes that its impact upon the local road network would be acceptable and that there is adequate on-street car parking available in the surrounding area to compensate for the shortfall in car parking that would be provided on the site. The proposal is also supported by a Heritage Impact Assessment and has been assessed by Council's Cultural Heritage Officer. Both assessments conclude that the proposal would not have an unacceptable impact upon heritage values.

7.6 There is no justification within the planning scheme for Council to place a condition upon a Planning Permit that attempts to protect trees on an adjoining property that is not part of the application, particularly where those trees are not recognised in the Significant Trees Code.

7.7 The proposal has been assessed against the provisions of the planning scheme and is considered to comply with all relevant provisions.

7.8 The proposal has been assessed by other Council officers, including the Council's Senior Development Engineer and its Cultural Heritage Officer. The officers have raised no objection to the proposal, subject to conditions.

7.9 The proposal was considered by the Urban Design Advisory Panel at its meeting of 29 March 2022. The Panel's comments are provided in full as an attachment to this report. In the context of the provisions on which they were asked to comment, the Panel was broadly not supportive of the proposal. The Panel made the following comments which are considered to be consistent with the comments made above at 7.3:

"The Panel support the development's intent to provide a variety of dwelling types but were concerned regarding the impact of the proposed development on residents of the neighbouring properties to the south. The proposal will present an overbearing presence, and overlook and overshadow these properties. The Panel felt the development was trying to put too much yield on the site, compounded by the approach to open up the space between apartments facing to New Town Road and to the south. Where the application has tried to meet development standards, and at times has not achieved compliance, it does so by failing to address the impact on the amenity of the neighbouring properties to the south".

The Panel also commented that:

"The Panel was also concerned with the public edge to the street including the window finish to the commercial tenancy. It was noted there was no awning to the commercial frontage, typical to the precinct. To reinforce the commercial character of ground floor activities in the precinct, the panel would like to see a condition on any potential permit that the glazing remained clear and not opaque or treated with vinyl, to maintain visibility between outside and inside".

It is agreed that a condition that seeks to limit or prevent the use of opaque glazing or film within the facade of the proposed commercial tenancy should be included upon any Planning Permit issued for the development, consistent with the above comments and clause *15.4.3 Design* of the planning scheme.

7.10 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation) at 156 New Town Road, New Town, satisfies the relevant provisions of the *Hobart Interim Planning Scheme 2015* and is recommended for approval.

9. Recommendations

That: Pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation) at 156 New Town Road, New Town, for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-22-272 - 156 NEW TOWN ROAD NEW TOWN TAS 7008 - Final Planning Documents.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2022/00654-HCC dated 12/5/2022 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

PLN 14

Prior to the issue of any approval under the *Building Act 2016* (excluding for demolition), revised plans must be submitted and approved as a Condition Endorsement that demonstrate that the habitable rooms of the dwellings adjacent to New Town Road will achieve internal noise levels in accordance with relevant Australian Standards for acoustics control (including *AS3671:1989 – Road Traffic Noise Intrusion (Building Siting and Construction)* and *AS2107:2016 – Acoustics (Recommended Design Sound Levels and Reverberation Times for Building Interiors)*).

The revised plans must be certified by a suitably qualified person as demonstrating likely compliance with the above requirement. All work required by this condition must be undertaken in accordance with the approved

revised plans.

Advice: This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that buildings for residential use provide reasonable levels of residential amenity.

PLN 6

Hours of operation for the fitness centre (except for office and administrative tasks) must be within:

- **7.00 am to 9.00 pm Mondays to Fridays inclusive;**
- **8.00 am to 6.00 pm Saturdays;**
- **9.00 am to 5.00 pm Sundays and Public Holidays.**

Reason for condition

To ensure that non-residential use does not unreasonably impact on residential amenity

PLN s1

The combined area of windows and door openings at ground floor level in the front façade of the approved building must be equivalent to no less than 40% of the surface area of the ground floor level façade, unless further planning approval is obtained. Any glazing provided within the front façade at ground floor level must have predominantly clear glass and must not be obscured through the use of obscure glass or film, or otherwise obscured without further planning approval.

Reason for condition

To ensure that building design for non-residential uses contributes positively to the streetscape.

ENG 12

A construction waste management plan must be implemented throughout construction.

A construction waste management plan must be submitted and approved as a Condition Endorsement, prior to commencement of work on the site. The construction waste management plan must include:

- **Provisions for commercial waste services for the handling, storage, transport and disposal of post-construction solid waste and recycle bins from the development; and,**
- **Provisions for the handling, transport and disposal of demolition material, including any contaminated waste and recycling opportunities, to satisfy the above requirement.**

All work required by this condition must be undertaken in accordance with the approved construction waste management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

It is recommended that the developer liaise with the Council's City Resilience Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill. Further information can also be found on the Council's website.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG sw1

All stormwater from the proposed development (including but not limited to: roofed areas, ag drains, and impervious surfaces such as driveways and paved areas) must be drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

All impervious areas which can be drained to New Town Road via gravity (including charged systems) must be drained via gravity. The pump system must be limited to capture stormwater only from areas which cannot be drained via gravity. All pump rising main discharges must occur to a private dispersion pit such that only gravity flow from the property to the Council stormwater connection.

Advice:
Under section 23 of the Urban Drainage Act 2013 *it is an offence for a property owner to direct stormwater onto a neighbouring property.*

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet, and the pump system is designed and maintained to minimise risk to third-party land.

SW 7

Prior to occupancy or the commencement of the use (whichever occurs first), any new stormwater connection must be constructed and existing redundant connection(s) be abandoned and sealed at the owner's expense.

Prior to the issuing of any approval under the *Building Act 2016* or commencement of works (whichever occurs first), detailed engineering drawings must be submitted and approved. The detailed engineering drawings must include:

1. **the location of the proposed connections and all existing connections, including details of abandonment of the existing redundant connections,**
2. **the size and design of the connection such that it is appropriate to safely service the development,**
3. **clearances from any nearby obstacles (eg services, crossovers, trees, poles, walls),**
4. **long-sections of the proposed connection clearly showing levels, cover, size, grade, material and delineation of public and private infrastructure;**
5. **connections which are free-flowing gravity driven, and,**
6. **be in general accordance with Council's departures from the LGAT Tasmanian Standard Drawings, available from here.**

All work required by this condition must be undertaken in accordance with the approved detailed engineering drawings.

Advice: Upgraded or new connections can be approved separately from the CEP process, via the Application for New Connection form available from here. The approved stormwater connection documents must be included in your plumbing permit application document set and listed in accompanying forms.
A single connection for the property is required under the Urban Drainage Act 2013.

SW 9

Prior to occupancy or the commencement of the approved use (whichever occurs first), stormwater pre-treatment and detention for stormwater discharges from the development must be installed.

A stormwater management report and design must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* or the commencement of work on the site (whichever occurs first). The stormwater management report and design must be prepared by a suitably qualified engineer and must:

1. **include detailed design and long-section of the proposed treatment train, including final estimations of contaminant removal and driving head requirements;**

2. **include detailed design and supporting calculations of the detention tank showing:**
   - **detention tank sizing such that there is no increase in flows from the developed site up to 5% AEP event and flows do not exceed the receiving capacity of the kerb and gutter as per the planning documentation;**
   - **the layout and long section showing the inlet and outelt, any internal weir, outlet size, overflow mechanism and invert levels;**
   - **the discharge rates and emptying times; and**
   - **all assumptions must be clearly stated;**

3. **include a supporting maintenance plan, which specifies the required maintenance measures to check and ensure the ongoing effective operation of all systems, such as: inspection frequency; cleanout procedures; descriptions and diagrams of how the installed systems operate; details of the life of assets and replacement requirements.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

ENG 13

An ongoing waste management plan for all commercial and domestic waste and recycling must be implemented post construction.

A waste management plan must be submitted and approved as a Condition Endorsement, prior to commencement of work on the site. A waste management plan must include:

1. **the number of bins,**
2. **adequate bin storage area,**
3. **bin cleaning area that is appropriately drained,**
4. **the method of collection,**
5. **the time of day of collection; the frequency of collection,**
6. **access to bin storage areas, including consideration of gradient, site lines, manoeuvring, direction of vehicle movement and pedestrian access;**
7. **distance from vehicle stopping point to bins if not collected on site, and,**
8. **confirmation by a private contractor that they are able and willing to provide collection services according to the waste management plan.**

All work required by this condition must be undertaken in accordance with the approved waste management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards and collecting waste do not compromise the safety, amenity and convenience of surrounding occupants, vehicular traffic, parking, cyclists, pedestrians and other road and footpath users

ENG tr1

Traffic management within the access driveway, circulation roadway and parking module (parking spaces and aisles) must be installed prior to the commencement of the use.

Traffic management design drawing(s) (including signage and line marking), must be submitted and approved as a Condition Endorsement, prior to the issue of any approval under the *Building Act 2016* or the commencement of

works on site (whichever occurs first). The design drawing(s) and management plan must show but not limited to, the following information:

1. **Be prepared by a suitably qualified person,**
2. **Signage indicating that the car parking area is a private car park,**
3. **Signage to be installed at the driveway entrance/exit informing users access is restricted to left in – left out only (as per Clause 3.2.3 of AS2890.1),**
4. **Pavement arrows for the control and direction of circulating traffic within the car park and associated access in accordance with Australian/NZS Standard, *Parking facilities Part 1: Off-street car parking AS/NZS 2890.1: 2004*,**
5. **The turning bay must be must be delineated by means of white or yellow pavement lines and suitable signage,**
6. **Pedestrian safety bollards for egress to/from lifts and doorways, and,**
7. **Delineation of pedestrian pathways.**

All work required by this condition must be undertaken in accordance with the approved traffic management design drawings.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

In the interests of user safety and the amenity of the occupiers of the development.

ENG tr2

A construction traffic and parking management plan must be implemented prior to the commencement of work on the site (including demolition).

The construction traffic (including cars, public transport vehicles, service vehicles, pedestrians and cyclists) and parking management plan must be submitted and approved as a Condition Endorsement, prior to commencement work (including demolition). The construction traffic and parking management plan must:

1. **Be prepared by a suitably qualified person.**
2. **Develop a communications plan to advise the wider community of the traffic and parking impacts during construction.**

3. **Include a start date and finish dates of various stages of works.**
4. **Include times that trucks and other traffic associated with the works will be allowed to operate.**
5. **Nominate a superintendent, or the like, to be responsible for the implementation of the approved traffic management plan and available as a direct contact to Council and/or members of the community regarding day to day construction traffic operations at the site, including any immediate traffic issues or hazards that may arise.**

All work required by this condition must be undertaken in accordance with the approved construction traffic and parking management plan.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure the safety of vehicles entering and leaving the development and the safety and access around the development site for the general public and adjacent businesses.

ENG 2a

Prior to first occupation or commencement of use (whichever occurs first), vehicular barriers compliant with the Australian Standard AS/NZS 1170.1:2002 must be installed to prevent vehicles running off the edge of an access driveway or parking module (parking spaces, aisles and manoeuvring area) where the drop from the edge of the trafficable area to a lower level is 600mm or greater, and wheel stops (kerb) must be installed for drops between 150mm and 600mm. Barriers must not limit the width of the driveway access or parking and turning areas approved under the permit.

Advice:

The Council does not consider a slope greater than 1 in 4 to constitute a lower level as described in AS/NZS 2890.1:2004 Section 2.4.5.3. Slopes greater than 1 in 4 will require a vehicular barrier or wheel stop.
Designers are advised to consult the National Construction Code 2016 *to determine if pedestrian handrails or safety barriers compliant with the Code are also required in the parking module this area may be considered as a path of access to a building.*

Reason for condition

To ensure the safety of users of the access driveway and parking module and compliance with the standard.

ENG 3a

The access driveway and parking area must be constructed and line marked in accordance with the following documentation which forms part of this permit: Basement Plan / DA-05 / Revision C/ dated 04/05/2022.

The works required by this condition must be completed prior to first occupation.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 3c

Prior to the first occupation, a suitably qualified engineer must certify that all aspects of the the access driveway and parking area have been constructed in accordance with design drawings approved by Condition ENG 3a.

Advice:

We strongly encourage you to speak to your engineer before works begin so that you can discuss the number and nature of the inspections they will need to do during the works in order to provide this certification. It may be necessary for a surveyor to also be engaged to ensure that the driveway will be constructed as approved.

The reason this condition has been imposed as part of your planning permit is that the driveway is outside the Australian Standard gradients or design parameters. If the driveway is not constructed as it has been approved then this may mean that the driveway will either be unsafe or will not function properly.

An example certificate is available on our website.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

The access driveway and parking module (car parking spaces, aisles and manoeuvring area) approved by this permit must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

Reason for condition

To ensure the safety of users of the access driveway and parking module, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

All parking spaces must be delineated by means of white or yellow lines 80mm to 100mm wide, or white or yellow pavement markers in accordance with Australian Standards AS/NZS 2890.1 2004, prior to first occupation or commencement of use, whichever occurs first.

- **The number of car parking spaces approved on the site is twenty six (26),**
- **The number of motorcycle parking spaces approved on the site is two (2),**
- **The number of bicycle parking spaces approved on the site is twelve (12).**
- **No visitor parking is provided on site,**
- **A minimum of one (1) parking space must be allocated to each dwelling, and,**
- **Each pair of tandem parking spaces must serve the same dwelling.**

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. **Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or**

2. **Be repaired and reinstated by the owner to the satisfaction of the Council.**

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council's infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council's infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council's infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG r1

The excavation and/or earth-retaining structures (i.e. cuttings, retaining walls) and/or footings within or supporting the highway reservation must not undermine the stability and integrity of the highway reservation and its infrastructure.

Detailed design drawings, structural certificates, and associated geotechnical assessments of the basement building wall supporting the New Town Road highway reservation must be submitted and approved as a Condition Endorsement, prior to the commencement of work and must:

1. **Be prepared and certified by a suitably qualified person and experienced engineer,**
2. **Not undermine the stability of the highway reservation,**
3. **Take into account any additional surcharge loadings as required by relevant Australian Standards,**
4. **Take into account and reference accordingly any Geotechnical findings,**
5. **Detail any mitigation measures required,**
6. **Detail the design and location of the footing adjacent to the New Town Road highway reservation, and,**
7. **Include a structural certificate which notes the excavation near the**

highway will not adversely impact the stability of the road reservation.

The structural certificates and drawings should note the above. All work required by this condition must be undertaken in accordance with the approved design drawings and structural certificates.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that the stability and integrity of the Council's highway reservation is not compromised by the development.

ENG r3

Prior to the commencement of use, the proposed driveway crossover on the New Town Road highway reservation must be designed and constructed in general accordance with:

- **Urban - TSD-R09-v3 – Urban Roads Driveways and TSD R14-v3 Type KC vehicular crossing,**
- **Redundant vehicle crossovers to be reinstated - TSD-R14-v3 - Type KC kerb and channel, and,**
- **Footpath - Urban Roads Footpaths TSD-R11-v3.**

Design drawings must be submitted and approved as a Condition Endorsement prior to any approval under the *Building Act 2016*. The design drawings must:

1. **Show the cross and long section of the driveway crossover within the highway reservation and onto the property,**
2. **Detail any services or infrastructure (i.e. light poles, pits, awnings) at or near the proposed driveway crossover,**
3. **Show swept path templates in accordance with AS/NZS 2890.1 2004(B85 or B99 depending on use, design template),**
4. **If the design deviates from the requirements of the TSD, then demonstrate that a B85 vehicle or a B99 depending on use (AS/NZS 2890.1 2004, section 2.6.2), can access the driveway from the road pavement into the property without scraping the vehicle's underside,**
5. **Show that vehicular and pedestrian sight lines are met as per AS/NZS**

2890.1 2004, and,

6. **Be prepared and certified by a suitably qualified person, to satisfy the above requirements.**

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit. Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Program Leader Road Services and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

Reason for condition

To ensure that works will comply with the Council's standard requirements.

ENV 2

Sediment and erosion control measures, sufficient to prevent sediment leaving the site and in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.

A SWMP must be submitted as a Condition Endorsement prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be:

- **prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008), and,**
- **reflect any Contamination Management Plan or Environmental Site Assessment for the site.**

All work required by this condition must be undertaken in accordance with the approved SWMP.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for Condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

HER 17a

The palette of exterior colours, materials and finishes must reflect the palette of colours, materials and finishes within the local streetscape and precinct.

Prior to the issue of any approval under the *Building Act 2016,* revised plans must be submitted and approved as a Condition Endorsement showing exterior colours, materials and finishes in accordance with the above requirement.

All work required by this condition must be undertaken in accordance with the approved plans.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure that development at a heritage place/precinct is undertaken in a sympathetic manner which does not cause loss of historic cultural heritage significance.

ENVHE 1

Recommendations in the report GES Environmental Site Assessment 156 New Town Road, New Town, Tasmania, dated November 2020, must be implemented prior to the commencement of works.

Specifically:

1. **Documentation stating the Underground Petroleum Storage System (UPSS) has been decommissioned and removed,**

2. **Contamination Management Plan (CMP) relating to human receptors, including mitigation measures post construction for residential use, and also include soil management onsite during construction, and,**
3. **All contaminated soils must be managed in accordance with IB105 (EPA document and process).**

Reason for condition

- To ensure that the risk to future occupants of the building remain low and acceptable.
- To manage excavated soils onsite in relation to contamination.
- To ensure the safety of workers

ENVHE 4

A construction management plan must be implemented throughout the construction works.

A construction management plan must be submitted and approved as a Condition Endorsement prior to the issuing of any approval under the *Building Act 2016*. The plan must include but is not limited to the following:

1. **Identification and disposal of any potentially contaminated waste and asbestos,**
2. **Proposed hours of work (including volume and timing of heavy vehicles entering and leaving the site, and works undertaken on site),**
3. **Proposed hours of construction,**
4. **Identification of potentially noisy construction phases, such as operation of rock- breakers, explosives or pile drivers, and proposed means to minimise impact on the amenity of neighbouring buildings,**
5. **Control of dust and emissions during working hours,**
6. **Proposed screening of the site and vehicular access points during work, and,**
7. **Procedures for washing down vehicles, to prevent soil and debris being carried onto the street.**

All work required by this condition must be undertaken in accordance with the approved construction management plan.

Advice: This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure minimal impact on the amenity of adjoining properties and members of the public during the construction period.

SURV 16

The titles comprising the development site (CT 171514/1 and CT 171514/2) are to be adhered in accordance with the provisions of Section 110 of the *Local Government (Building and Miscellaneous Provisions) Act 1993*, to the satisfaction of Council prior to the issue of any building approval pursuant to the *Building Act 2016*, or the commencement of works on site (whichever occurs first).

Advice:
The application for an adhesion order to Council has a fee of $300. Evidence will be required that the owners and mortgagees do not object to the adhesion. This condition will be considered to be satisfied when a copy of the receipt for the Land Titles Office lodgement slip for the adhesion order has been received by Council.

Reason for condition

To ensure compliance with statutory provisions

Part 5 r1

Prior to any works commencing on site (including demolition), the owner(s) of the property must enter into an agreement with the Council pursuant to Part 5 of the *Land Use Planning and Approvals Act 1993* with respect to the protection of the retaining wall adjacent to the New Town Road highway reservation.

The owner must not undertake any works (including excavation and building) that will have any effect on the integrity of the New Town Road highway reservation or any adjacent retaining structure.

All costs for the preparation and registration of the Part 5 Agreement must be met by the owner. The owner must comply with the Part 5 Agreement which will be placed on the property title.

Advice:

For further information with respect to the preparation of a Part 5 Agreement please

contact Council's Development Engineering Unit.

Reason for condition

To ensure the protection of Council infrastructure.

SUB s1

The right of carriageway appurtenant to CT 7973/1 (18 Roope Street) over the Roadway shown on Plan No. 171514 burdening the titles comprising the development site (CT 171514/1 and CT 171514/2) is to be extinguished in accordance with the provisions of section 108 of the *Land Titles Act 1980* prior to the issue of any building approval pursuant to the *Building Act 2016*.

Reason for condition

To ensure that building works do not occur over the right of carriageway.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016*. Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require a permit for the occupation of the public highway for construction or special event (e.g. placement of skip bin, crane, scissor lift etc). Click here for more information.

STORMWATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

REDUNDANT CROSSOVERS

Redundant crossovers are required to be reinstated under the Hobart City Council's Infrastructure By law. Click here for more information.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

(Adam Smee)
Development Appraisal Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

(Ben Ikin)
Senior Statutory Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Date of Report: 25 May 2022

Attachment(s):

Attachment B - CPC Agenda Documents

Attachment C - Cultural Heritage Officer Report

Attachment D - Urban Design Advisory Panel Report

Environmental Site Assessment: 156 New Town Road, New Town

Table 16 Soil Analytical Results Compared Against NEPM ASC (2013) Health Investigation Levels Guidelines

Bold - Indicates LOR Exceedance in Non Metalic Compounds			EA055: Moisture Content	EG005T: Total Metals by ICP-AES														EG035T: Total Recoverable Mercury by FIMS	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons																		
NEPM Health Investigation Levels (HIL's) Dust Inhalation and Soil Ingestion Assessment X - Indicates Sample Within Proposed Excavation Zone			Moisture Content	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	PAHs	Benzo(a)pyrene TEQ (WHO)
Units			%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR			1	5	10	1	50	1	2	2	5	5	5	2	5	5	5	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HIL A Low Density Residential	☑	HIL A		100		60	4500	20		100	6000	300	3800	400	200		7400	40																	300	3
HIL B Medium/High Density Residential	☑	HIL B		500		90	40000	150		600	30000	1200	14000	1200	1400		60000	120																	400	4
HIL C Recreational	☑	HIL C		300		90	20000	90		300	17000	600	19000	1200	700		30000	80																	300	3
HIL D Commerial/Industrial	☑	HIL D		3000		500	300000	900		4000	240000	1500	60000	6000	10000		400000	730																	4000	40
HIDE ROW		D		3000		500	300000	900		4000	240000	1500	60000	6000	10000		400000	730																	4000	40
Sample date:	Sample ID																																			
2/09/2020	BH1 0.5-0.6 X		18.8	----	----	----	----	----	----	----	----	718	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	1.8	2.1	1.2	1.0	2.0	0.8	2.0	1.1	<0.5	1.5	**14**	**2.5**
2/09/2020	BH1 1.5-1.6 X		12.2	----	----	----	----	----	----	----	----	11	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH2 0.5-0.6 X		15.3	6	80	<1	<50	4	10	6	47	804	188	11	<5	27	260	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	**1**	<0.5
2/09/2020	BH2 1.5-1.6 X		19.2	<5	80	<1	<50	<1	8	8	38	110	234	13	<5	26	114	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH3 0.5-0.6		22.3	----	----	----	----	----	----	----	----	227	----	----	----	----	----	----	0.5	1.9	<0.5	0.5	7.7	1.8	18.5	19.5	9.3	9.0	13.3	3.7	12.7	6.3	2.1	8.3	**115**	**18**
2/09/2020	BH3 1.5-1.6		10.9	----	----	----	----	----	----	----	----	6	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH4 0.5-0.6		19.3	----	----	----	----	----	----	----	----	89	----	----	----	----	----	----	<0.5	0.6	<0.5	<0.5	1.1	<0.5	3.8	4.4	2.3	2.2	3.7	1.3	3.3	1.7	0.5	2.2	**27**	**4.7**
2/09/2020	BH4 1.5-1.6		24.3	----	----	----	----	----	----	----	----	12	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH5 0.5-0.6		21.1	----	----	----	----	----	----	----	----	97	----	----	----	----	----	----	<0.5	0.6	<0.5	<0.5	1.2	<0.5	4.1	4.7	2.5	2.5	3.7	1.4	3.6	1.8	0.6	2.4	**29**	**5.2**
2/09/2020	BH5 1.5-1.6		21.1	----	----	----	----	----	----	----	----	11	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH6 0.5-0.6		14.7	----	----	----	----	----	----	----	----	16	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH7 0.85-0.95		12.9	----	----	----	----	----	----	----	----	<5	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2/09/2020	BH7 1.5-1.6		22.5	----	----	----	----	----	----	----	----	7	----	----	----	----	----	----	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

PLN-22-272 - 156 NEW TOWN ROAD

Application Information

Application Details

PLN-22-272 Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation)
Submitted on: 05/05/2022
Accepted as Valid on: 05/05/2022
Target Time Frame: 42 Days.
Elapsed Time: 0 Days Expiry date: 16/06/2022
Officer: Adam Smee

Have you obtained pre application advice?

No

If YES please provide the pre application advice number eg PAE-17-xx

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodatio information button for definition. If you are not the owner of the property you MUST include signed confirmation f aware of this application. *

No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the r Other Details below. *

No

If this application is related to an enforcement action please enter Enforcement Number

Details

What is the current approved use of the land / building(s)? *

Commercial

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimmin and garage) *

New mixed use building

Carparking on Site

Total parking spaces	Existing parking spaces	N/A
26	0	☒ Other (no selection chosen)

Other Details

Does the application include signage? * No

How many signs, please enter 0 if there are none involved in this application? *

0

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register? No

Submission to Planning Authority Notice

Council Planning Permit No.	PLN-22-272	**Council notice date**	5/05/2022
TasWater details			
TasWater Reference No.	TWDA 2022/00654-HCC	**Date of response**	12/05/2022
TasWater Contact	Al Cole	**Phone No.**	0439605108
Response issued to			
Council name	CITY OF HOBART		
Contact details	coh@hobartcity.com.au		
Development details			
Address	156 NEW TOWN RD, NEW TOWN	**Property ID (PID)**	5516671
Description of development	Demolition, Title Consolidation, and New Building for 19 Multiple Dwellings and Sports and Recreation		

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Date of Issue
LXN	Proposed Site Plan/DA-04	C	4/5/2022
JMG	Concept Servicing Plan/C021	C	03/03/2022

Conditions

Pursuant to the *Water and Sewerage Industry Act* 2008 (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:

CONNECTIONS, METERING & BACKFLOW

1. A suitably sized water supply with metered connections and sewerage system and connections to the development must be designed and constructed to TasWater's satisfaction and be in accordance with any other conditions in this permit.

   Advice: TasWater will not accept direct fire boosting from the network unless it can be demonstrated that the periodic testing of the system will not have a significant negative effect on our network and the minimum service requirements of other customers serviced by the network. To this end break tanks may be required with the rate of flow into the break tank controlled so that peak flows to fill the tank do not also cause negative effect on the network.

2. Any removal/supply and installation of water meters and/or the removal of redundant and/or installation of new and modified property service connections must be carried out by TasWater at the developer's cost.

3. Prior to commencing construction/use of the development, any water connection utilised for construction/the development must have a backflow prevention device and water meter installed, to the satisfaction of TasWater.

56W CONSENT

4. Prior to the issue of the Certificate for Certifiable Work (Building) and/or (Plumbing) by TasWater

DEVELOPMENT ASSESSMENT FEES

5. The applicant or landowner as the case may be, must pay a development assessment fee of $699.36, to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date paid to TasWater.

   The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit https://www.taswater.com.au/building-and-development/technical-standards

For application forms please visit https://www.taswater.com.au/building-and-development/development-application-form

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.
The location of this infrastructure as shown on the GIS is indicative only.

56W Consent

The plans submitted with the application for the Certificate for Certifiable Work (Building) and/or (Plumbing) will need to show footings of proposed buildings located over or within 2.0m from TasWater pipes and will need to be designed by a suitably qualified person to adequately protect the integrity of TasWater's infrastructure, and to TasWater's satisfaction, be in accordance with AS3500 Part 2.2 Section 3.8 to ensure that no loads are transferred to TasWater's pipes. These plans will need to also include a cross sectional view through the footings which clearly shows;

(a) Existing pipe depth and proposed finished surface levels over the pipe;

(b) The line of influence from the base of the footing must pass below the invert of the pipe and be clear of the pipe trench and;

(c) A note on the plan indicating how the pipe location and depth were ascertained.

(d) The location of the property service connection and sewer inspection opening (IO).

Boundary Trap Area

The proposed development is within a boundary trap area and the developer will need to provide a boundary trap that prevents noxious gases or persistent odours back venting into the property's sanitary drain. The boundary trap is to be be contained within the property boundaries and the property owner remains responsible for the ownership, operation and maintenance of the boundary trap.

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

TasWater Contact Details

Phone	13 6992	Email	development@taswater.com.au

AllUrbanPlanning PTY LTD

4 May 2022

Ben Ikin
Senior Statutory Planner
Hobart City Council
GPO Box 503
HOBART 7001

Dear Ben

New Application for a Planning Permit – 156 New Town Road

Please see attached a new application for a planning permit for the redevelopment of 156 New Town Road. This proposal has been amended to increase the setback of the lower level of the building to the western boundary and the proposal now complies with the Acceptable Solution for height and siting. Any impacts to the neighbouring properties by way of siting, shadowing, privacy or visual impact are therefore deemed acceptable under the planning scheme.

The amended proposal also includes an amended basement level carpark and some other minor alterations to the upper portions of the building to reduce the mass of the building and improve solar access to some of the proposed decks.

The proposal including the basement level carpark layout is shown on the architectural plans. To the extent that there is any inconsistency between the architectural plans and the engineering plans, the architectural plans prevail.

The applicant would have no objection to the inclusion of conditions on the permit requiring detailed engineering plans to match the architectural plans prior to building approval.

I would be pleased to discuss as necessary.

Yours sincerely

Frazer Read
Principal
All Urban Planning Pty Ltd

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

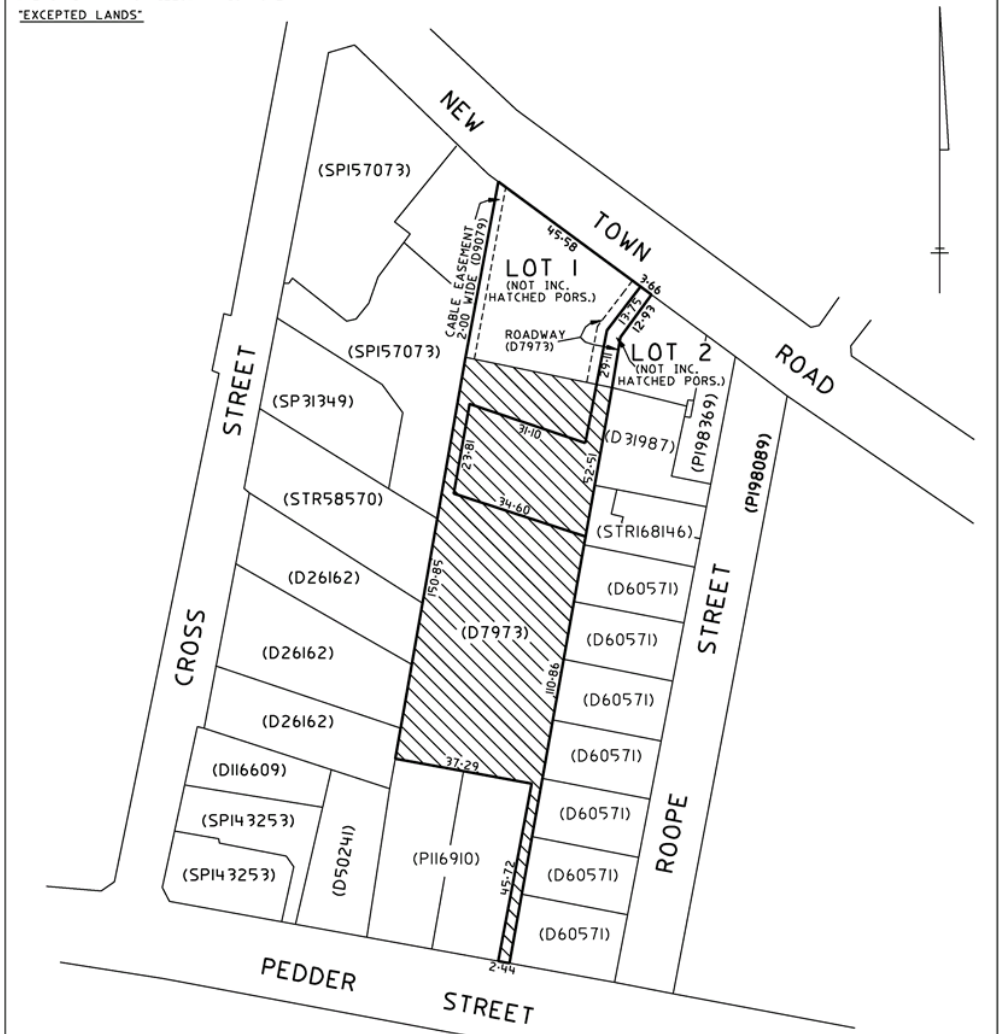
Tasmanian Government

FILE NUMBER A24725 GRANTEE PART OF (157A-IR-20P) GTD. TO CHARLES SWANSTON.	CONVERSION PLAN LOCATION CITY OF HOBART CONVERTED FROM 58/3310 (63/67DO) NOT TO SCALE LENGTHS IN METRES	Registered Number P.171514 APPROVED 20 MAY 2016 Alice Kawa Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 114 (5225)	LAST UPI No.	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN	DRAWN MG

SKETCH BY WAY OF ILLUSTRATION ONLY

"EXCEPTED LANDS"



RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
171514	1
EDITION	**DATE OF ISSUE**
3	20-Sep-2017

SEARCH DATE : 20-Oct-2021
SEARCH TIME : 02.49 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 171514
Being the land described in Conveyance No.58/3310
Derivation : Part of 157A-1R-20P Gtd.to Charles Swanston
Derived from A24725

SCHEDULE 1

M627844 TRANSFER to RENEWAL DEVELOPMENTS PTY LTD Registered 25-May-2017 at 12.01 PM

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
58/3310 BURDENING EASEMENT: Cable Right (appurtenant to Lot 1 on Diagram No.D7973) over the Cable Easement 2.00 wide shown on Plan No.171514
58/3310 BURDENING EASEMENT: Right of Carriageway (appurtenant to Lot 1 on Diagram No.D7973)over the Roadway shown on Plan No.171514
E106386 MORTGAGE to MyState Bank Limited Registered 20-Sep-2017 at noon

UNREGISTERED DEALINGS AND NOTATIONS

E229547 RELEASE of easement Lodged by SULTAN HOLDINGS on 16-Apr-2021 BP: E229547

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

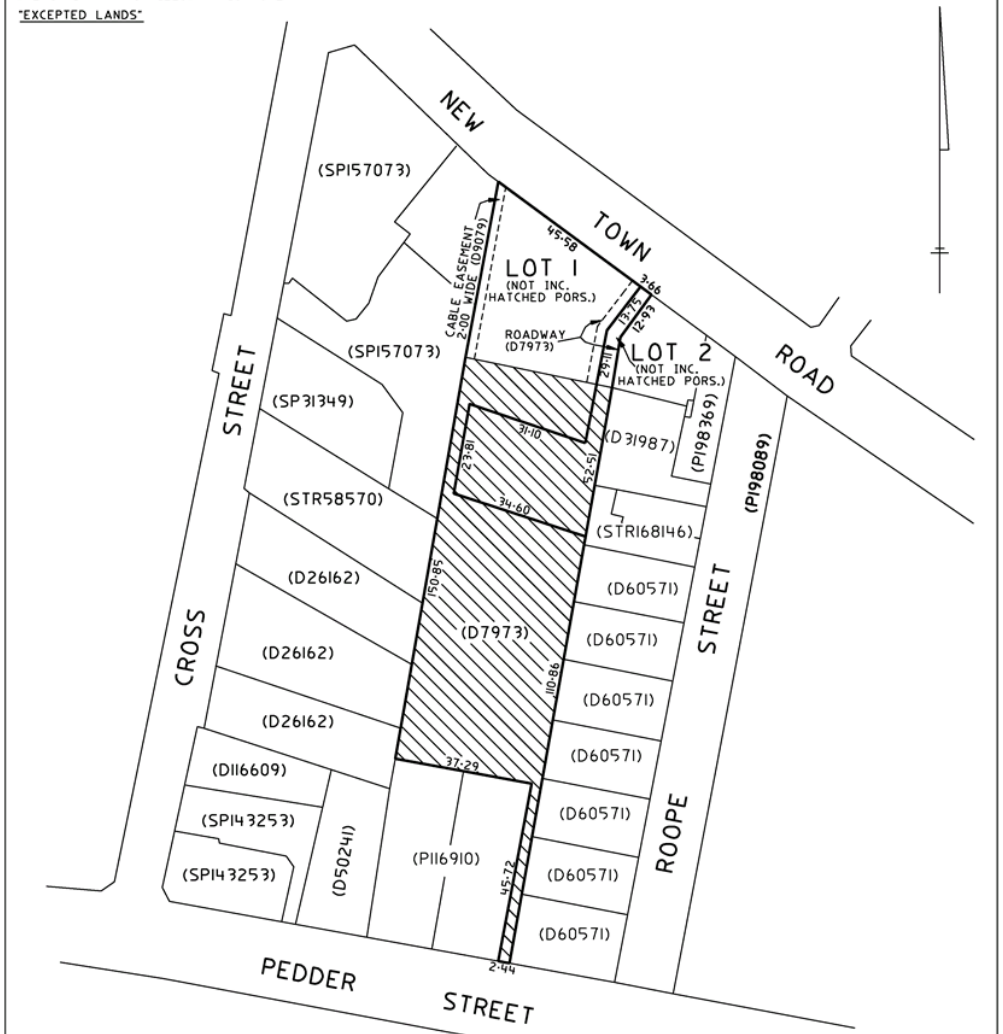
Tasmanian Government

FILE NUMBER A24725 GRANTEE PART OF (157A-IR-20P) GTD. TO CHARLES SWANSTON.	CONVERSION PLAN LOCATION CITY OF HOBART CONVERTED FROM 58/3310 (63/67DO) NOT TO SCALE LENGTHS IN METRES	Registered Number P.171514 APPROVED 20 MAY 2016 Alice Kawa Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 114 (5225)	LAST UPI No.	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN	DRAWN MG

SKETCH BY WAY OF ILLUSTRATION ONLY

"EXCEPTED LANDS"



RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
171514	2
EDITION	**DATE OF ISSUE**
2	07-Aug-2020

SEARCH DATE : 20-Oct-2021
SEARCH TIME : 02.50 PM

DESCRIPTION OF LAND

City of HOBART
Lot 2 on Plan 171514
Being the land secondly described in Conveyance No.58/3310
Derivation : Part of 157A-1R-20P Gtd. to Charles Swanston
Derived from A24725

SCHEDULE 1

M627844 TRANSFER to RENEWAL DEVELOPMENTS PTY LTD Registered 25-May-2017 at 12.01 PM

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
50/2236 BURDENING EASEMENT: Right of Carriageway (appurtenant to Lot 1 on Diagram No.D7973)over the Roadway shown on Plan No.171514
M830517 MORTGAGE to MyState Bank Limited Registered 07-Aug-2020 at noon

UNREGISTERED DEALINGS AND NOTATIONS

E229547 RELEASE of easement Lodged by SULTAN HOLDINGS on 16-Apr-2021 BP: E229547

AllUrbanPlanning PTY LTD

Planning Report
156 New Town Road
Mixed Use Redevelopment

Table of contents

1. Introduction 2
   1.1 Site & Surrounds 2
2. Proposal 3
   2.1 Development 3
   2.2 Use 4
3. The Planning Scheme 4
   3.1 Urban Mixed Zone 5
   3.2 Local Area Objectives & Desired Future Character Statements 6
   3.3 Use Table 6
   3.4 Use Standards 7
   3.5 Development Standards for Buildings and Works 9
4. Planning Scheme Codes 15
   4.1 Potentially Contaminated land Code 15
   4.2 Road and Railway Assets Code 17
   4.3 Parking and Access Code 17
   4.4 Stormwater Management Code 18
   4.5 Historic Heritage Code 18
   4.6 Signage 18
5. Conclusion 18

1. Introduction

All Urban Planning Pty Ltd has been engaged by Alirenste Pty Ltd to prepare the following planning assessment for a new mixed use development at 156 New Town Road under the provisions of the *Hobart Interim Planning Scheme 2015* (planning scheme).

This report has been updated 4 May 2022 to include an updated assessment for the amended proposal that sets the building including the basement level at least 3m back from the western boundary of the site. The proposal now complies with the Acceptable Solution for height and siting. Any impacts to the neighbouring properties by way of siting, shadowing, privacy or visual impact are therefore deemed acceptable under the planning scheme.

The amended proposal also includes an amended basement level carpark and some other minor alterations to the upper portions of the building to reduce the mass of the building and improve solar access to some of the proposed decks.

1.1Site & Surrounds

The proposal relates to 156 New Town Road, CT 171514/1 and CT 171514/2 on the southern side of New Town Road between Cross and Roope Streets. The site (both titles) has an area of 1474m^2.

The site is located adjacent to the east of the former parsonage heritage site at 160 New Town Road. It also adjoins the Cat Clinic at 150 New Town Road to the east and single storey residential units to the rear.

AllUrbanPlanning

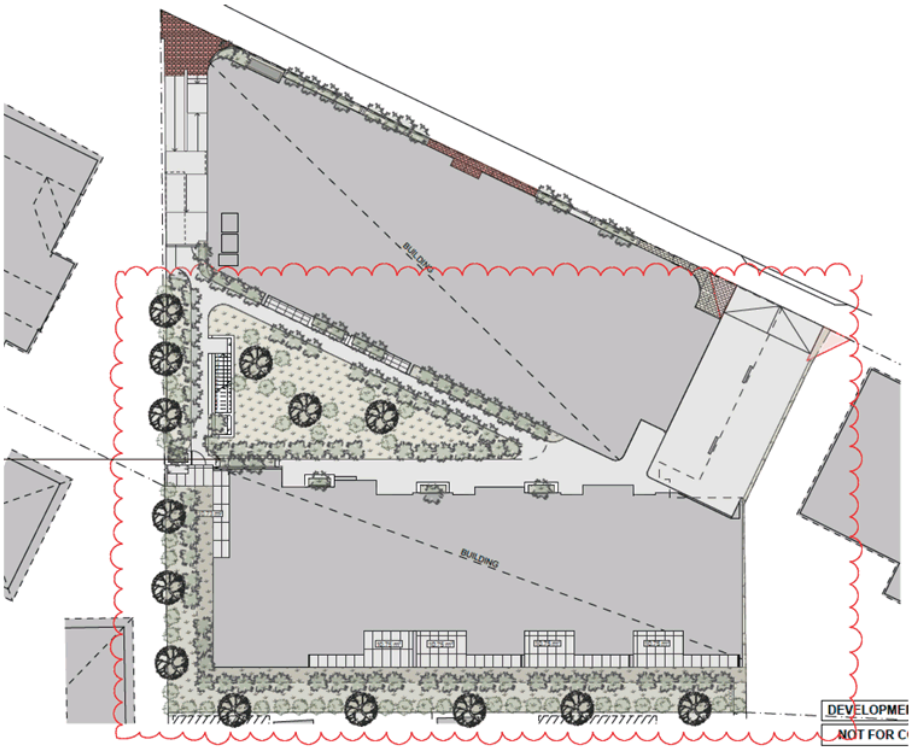


Figure 2 – proposed site plan (Source: LXN Architects)

2. Proposal

The proposal is for redevelopment of the site for a new 3 storey building plus carparking basement. It includes a ground level commercial tenancy and 19 apartments. The use and development is detailed as follows:

2.1Development

- Demolition of the existing former service station building
- A new 3 storey building with carparking basement with a single ground floor commercial tenancy and 19 residential apartments each with a private deck
- 26 basement carparking spaces and 12 bicycle spaces accessed from a ramp on the eastern end of the New Town Road frontage

AllUrbanPlanning

2.2Use

Basement

- 26 carparking spaces including 7 jockey spaces, 12 secure bicycle parking spaces, 2 motorcycle spaces.

Ground Floor

- a commercial tenancy totalling 370m^2 to be used as a gym (fitness centre)
- 6 x bicycle parking spaces adjacent to the western side of the building
- 5 x 2 bedroom apartments
- 2 x access to apartment Nos. 7 and 8
- Landscaped triangular communal open space courtyard
- bin storage for 2 x 1100l 1x 660l wheelie bins.

Level 1

- 1 x 1 bed apartment, 6 x 2 bedroom apartments and 3 x 3 bedroom apartments

Level 2

- 1 x 2 bedroom apartment and 3 x 3 bedroom apartments

Fitness Centre - hours of operation

The fitness centre will operate between the hours of:

- 7am to 9pm Monday to Friday
- 8am to 6pm Saturday
- 9am to 5pm Sunday and public holidays.

The complex aims to reflect a contemporary ambition for sustainable inner city living.

The building has been designed and orientated for a high level of passive solar amenity with full width balconies with northerly aspect provided for most apartments. The apartments with a westerly aspect enjoy views to kunanyi/ Mt Wellington and across the New Town and Lenah Valley townscape.

Generous setbacks and central courtyard space deliver both light and natural cross ventilation to the apartments.

The site location allows reduced reliance on car travel.

A sense of community is provided with its New Town 'village' location, generous shared spaces including courtyard and landscaping.

3. The Planning Scheme

but in the case of the exercise of discretion, only insofar as each such matter is relevant to the particular discretion being exercised.

A standard is applicable if the site is within the relevant zone and the standard deals with a matter that could affect or be affected by the proposed development; cl.7.5.2.

A standard is defined to mean the objective for a particular planning issue and the means for satisfying that objective through either an acceptable solution or corresponding performance criterion.

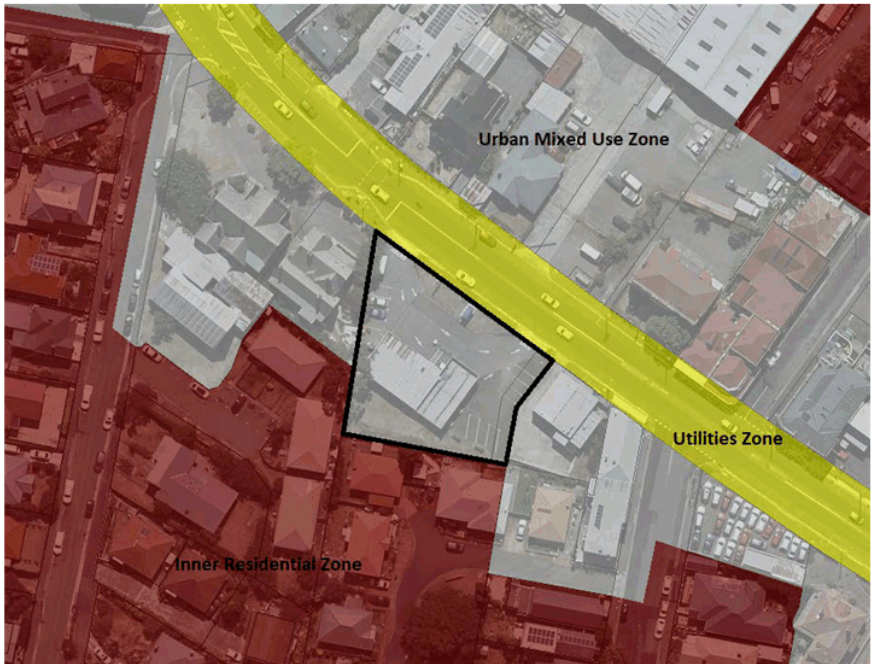
Compliance with a standard is achieved by complying with either the acceptable solution or corresponding performance criterion; cl.7.5.3.

The objective of the standard may be considered to help determine whether the proposed use or development complies with the performance criterion of that standard; cl.7.5.4. The acceptable solution is not relevant to the assessment of the corresponding performance criteria.

Discretionary uses are to be determined with regard to the zone purpose and the purpose of any applicable code.

3.1 Urban Mixed Zone

The site is zoned Urban Mixed Use and adjoins the Inner Residential Zone to the rear including properties fronting Roope and Cross Streets.



AllUrbanPlanning

15.1.1.1 To provide for integration of residential, retail, community services and commercial activities in urban locations.

15.1.1.2 To encourage use and development at street level that generates activity and pedestrian movement through the area.

15.1.1.3 To provide for design that maximises the amenity at street level including considerations of microclimate, lighting, safety, and pedestrian connectivity.

15.1.1.4 To ensure that commercial use are consistent with the activity centre hierarchy.

15.1.1.5 To ensure development is accessible by public transport, walking and cycling.

15.1.1.6 To provide for a diversity of uses at densities responsive to the character of streetscapes, historic areas and buildings and which do not compromise the amenity of surrounding residential areas.

15.1.1.7 To encourage the retention of existing residential uses and the greater use of underutilised sites as well as the reuse and adaptation of existing buildings for uses with a scale appropriate to the site and area.

15.1.1.8 To ensure that the proportions, materials, openings and decoration of building facades contribute positively to the streetscape and reinforce the built environment of the area in which the site is situated.

15.1.1.9 To maintain an appropriate level of amenity for residential uses without unreasonable restriction or constraint on the nature and hours of commercial activities.

15.1.1.10 To ensure that retail shopping strips do not develop along major arterial roads within the zone.

The proposal for integrated commercial and residential development of an underutilised site in this established urban location is consistent with Purpose Statements 15.1.1.1 and 15.15.1.1.7. The proposal is also considered to further Purpose Statements 15.1.1.5 for accessibility by multiple modes of transport as well as 15.1.1.2, 15.1.1.3, 15.1.1.6 and 15.1.1.8 that requiring that the design and amenity impacts from the proposal are responsive to the character of the area. These matters are discussed further below in relation to the detailed provisions of the planning scheme.

3.2 Local Area Objectives & Desired Future Character Statements

There are no Local Area Objectives or Statements of Desired Future Character.

3.3 Use Table

The proposal involves residential (multiple dwellings) and a ground floor gym (fitness centre) use.

- *Residential* is a Permitted Use in the Zone.
- The fitness centre falls within the *Sports and recreation* Use Class and is discretionary in the Zone.

Under Clause 8.10.2, in determining the proposed discretionary fitness centre use the planning authority must, in addition to the matters referred to in subclause 8.10.1, have regard to:

AllUrbanPlanning

(d) the purpose of any applicable specific area plan,

but only insofar as each such purpose, local area objective or desired future character statement is relevant to the particular discretion being exercised.

Having regard to these considerations, in this case the ground level fitness centre use is considered acceptable in that:

- The fitness centre will be integrated into this mixed use proposal and provide a commercial activity to support this inner urban locality (15.1.1.1)
- The fitness centre use will generate ground floor activity and pedestrian movement throughout the day (15.1.1.2)
- It is anticipated that the fitness centre will be predominantly used by residents of the surrounding area or those travelling past the site on the way to and from the City. It will provide a valuable amenity to support the health and fitness of the community and will not undermine the activity centre hierarchy (15.1.1.4)
- The fitness centre is located on the New Town Road bus routes and will be accessible by public transport, walking from the surrounding areas of New Town, Lenah Valley and Moonah and includes bike storage for those travelling to the site by bicycle (15.1.1.5)
- The fitness centre contributes to a diversity of uses at a scale that is compatible with the uses along this section of New Town Road (15.1.1.6)
- The proposal forms part of a mixed use development on an underutilised site incorporating residential (15.1.1.7)
- The fitness centre tenancy will be designed and managed to ensure an appropriate level of amenity is retained for the upper level residents (15.1.1.9)
- The proposal is not a retail use (15.1.1.10)

There are no applicable Local Area Objectives or Desired Future Character Statements and there are otherwise no specific Code purposes that are particularly relevant to the assessment of the fitness centre use.

3.4 Use Standards

Non-Residential Use (15.3.1)

Use Standard	***Assessment***
A1 Hours of operation must be within: (a) 7.00 am to 9.00 pm Mondays to Fridays inclusive; (b) 8.00 am to 6.00 pm Saturdays;	The proposal complies with A1. The fitness centre use complies with these hours of operation. A future tenant may make a separate application for a planning permit to Council to vary these hours if necessary.

AllUrbanPlanning

A2 *Noise emissions measured at the boundary of a residential zone must not exceed the following:* *(a) 55dB(A) (LAeq) between the hours of 8.00 am to 6.00 pm;* *(b) 5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 6.00 pm to 8.00 am;* *(c) 65dB(A) (LAmax) at any time.* *Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.* *Noise levels are to be averaged over a 15 minute time interval.*	A fitness centre use can typically involve amplified music and associated noise emissions. In this case however there can be a high level of confidence that the proposed activity will not involve noise emissions that will exceed the levels specified in A2 in that: • The necessity to provide quiet enjoyment for these on-site residents will ensure that the impacts at the more distant boundary with the residential boundary will also be acceptable • a combination of attenuation measures including both, physical insulation incorporated into the tenancy construction, and formal tenancy agreement with the fitness centre to specify the hours and sound levels within the tenancy, will be adopted to ensure that the activity does not disturb the residential tenants on the site • the proposed fitness centre tenancy is located on the ground floor frontage of New Town Road and is well separated (both in distance and by the rear residential wing of the development) from the closest boundary with the Inner Residential Zone to the rear of the site. Subject to standard installation of any mechanical air conditioning plant the proposal will involve negligible other noise emissions. The proposal complies with A2.
A3 *External lighting must comply with all of the following:* *(a) be turned off between 10:00 pm and 6:00 am, except for security lighting;* *(b) security lighting must be baffled to ensure they do not cause emission of light outside the zone.*	The proposal complies with A3 in that it does not involve external lighting other than associated with the residential use or for security. All lighting will be orientated and/or baffled to avoid emission of light outside the Urban Mixed Use Zone.
A4	The proposal does not involve commercial vehicle

AllUrbanPlanning

(a) 7.00 am to 5.00 pm Mondays to Fridays inclusive; *(b) 8.00 am to 5.00 pm Saturdays;* *(c) 9.00 am to 12 noon Sundays and Public Holidays.*	

3.5 Development Standards for Buildings and Works

15.4.1 Building Height

Objective

To ensure that building height contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in the General Residential Zone or Inner Residential Zone.

Acceptable Solutions	***Performance Criteria***
A1 *Building height must be no more than:* *10m*	The accompanying 3D drapes provided by LXN in Drawing DA-15 confirm that the proposal complies with the permitted height under A1.
A2 *Building height within 10 m of a residential zone must be no more than 8.5 m.*	As for A1 above, the accompanying 3D drapes confirm that the proposal also complies with the permitted 8.5m height within 10m of the residential zone under A2.

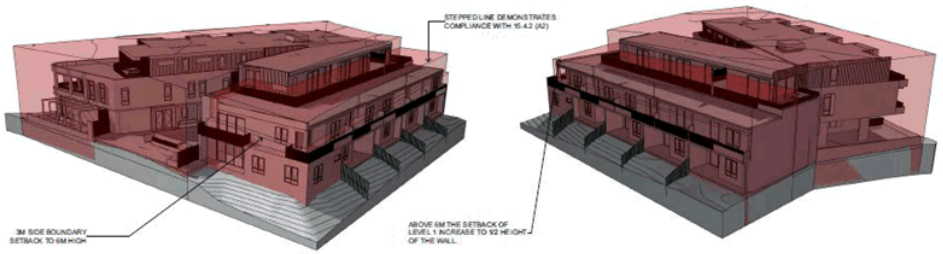
AllUrbanPlanning

15.4.2 Setback

Objective:

To ensure that building setback contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.

Acceptable Solutions	***Performance Criteria***
A1 *Building setback from frontage must be parallel to the frontage and must be no more than:* *1m from the median street setback of all existing buildings on the same side of the street within 100m of the site.*	The proposal is to be built to the New Town Road frontage and complies with A1.
A2 *Building setback from the General Residential or Inner Residential Zone must be no less than:* *(a) 3 m; or* *(b) half the height of the wall,* *whichever is the greater.*	As demonstrated in the detailed sections the building complies with the 3m setback or half the height of the wall requirement under A2. The siting of the building including any visual or shadowing impacts to neighbouring properties is therefore deemed acceptable under the planning scheme.



Design (15.4.3)

Objective

To ensure that building design for non-residential uses contributes positively to the streetscape, the amenity and safety of the public and adjoining land in a residential zone.

Development Standard	***Assessment***
A1	The proposal complies with A1 as follows:

AllUrbanPlanning

(a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site; *(b) for new building or alterations to an existing facade provide windows and door openings at ground floor level in the front façade no less than 40% of the surface area of the ground floor level facade ;* *(c) for new building or alterations to an existing facade ensure any single expanse of blank wall in the ground level front façade and facades facing other public spaces is not greater than 30% of the length of the facade;* *(d) screen mechanical plant and miscellaneous equipment such as heat pumps, air conditioning units, switchboards, hot water units or similar from view from the street and other public spaces;* *(e) incorporate roof-top service infrastructure, including service plants and lift structures, within the design of the roof;* *(f) provide awnings over the public footpath if existing on the site or on adjoining lots;* *(g) not include security shutters over windows or doors with a frontage to a street or public place.*	b) The ground floor frontage is glazed in excess of 40% of the area c) There are no large areas of blank wall to the street d) No unscreened mechanical plant visible from the frontage or other public spaces e) Any rooftop infrastructure will be incorporated within the design of the roof f) There are no pedestrian awnings on the site or adjoining lots g) No security shutters are proposed.
A2 *Walls of a building facing the General Residential Zone or Inner Residential Zone must be coloured using colours with a light reflectance value not greater than 40 percent.*	Complies. See the accompanying materials pallet on drawing DA-19.

Passive Surveillance (15.4.4)

Objective:

To ensure that building design for non-residential uses provides for the safety of the public.

Development Standard	***Assessment***
A1 *Building design for non-residential uses must comply*	The proposal satisfies A1 in that: a) the main pedestrian entrances to the site will be

AllUrbanPlanning

(a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site; *(b) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the front façade which amount to no less than 40 % of the surface area of the ground floor level facade;* *(c) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the façade of any wall which faces a public space or a car park which amount to no less than 30% of the surface area of the ground floor level facade;* *(d) avoid creating entrapment spaces around the building site, such as concealed alcoves near public spaces;* *(e) provide external lighting to illuminate car parking areas and pathways;* *(f) provide well-lit public access at the ground floor level from any external car park.*	d) the proposal does not create concealed entrapment spaces e) the proposal will incorporate appropriate low level lighting to pathways to accepted standards f) the proposal does not include an external carpark. Not applicable.

Landscaping (15.4.5)

Development Standards	***Assessment***
A1 *Landscaping along the frontage of a site is not required if all of the following apply:* *(a) the building extends across the width of the frontage, (except for vehicular access ways);* *(b) the building has a setback from the frontage of no more than 1 m.*	The proposal extends across the frontage except for vehicle and pedestrian access and is setback no more than 1m from the frontage. The proposal therefore does not require landscaping along the frontage and complies with A1. Notwithstanding that landscaping along the frontage is not required, the proposal is accompanied by a concept landscaping including planter boxes across the frontage as shown on Drawing DA-10.
A2 *Along a boundary with the General Residential Zone or Inner Residential Zone landscaping must be provided for a depth no less than:*	The landscaping plan DA-10 shows a 2m wide landscaped strip along the rear boundaries adjoining the residential zone. The proposal complies with A2.

AllUrbanPlanning

Fencing (15.4.7)

Objective:

To ensure that fencing does not detract from the appearance of the site or the locality and provides for passive surveillance.

Development Standards	***Assessment***
A1 *Fencing must comply with all of the following:* *(a) fences, walls and gates of greater height than 1.5 m must not be erected within 4.5 m of the frontage;* *(b) fences along a frontage must be at least 50% transparent above a height of 1.2 m;* *(c) height of fences along a common boundary with land in the General Residential Zone or Inner Residential Zone must be no more than 2.1 m and must not contain barbed wire.*	Complies. a) No fences or walls greater than 1.5m are proposed on the frontage. b) No solid fences above 1.2m along the frontage; and c) The rear and side boundary fences with the residential zone will not exceed 2.1m.

Residential Amenity (15.4.8)

Objective:

To ensure that buildings for residential use provide reasonable levels of residential amenity and safety.

Development Standard	***Assessment***
A1 *A dwelling must have at least one habitable room window (other than a bedroom) facing between 30 degrees west of north and 30 degrees east of north.*	Apartment 14 does not have a north facing window and the proposal is to be assessed under P1. All other apartments have north facing windows to habitable rooms other than a bedroom.
P1 *A dwelling must be sited and designed to optimise sunlight to at least one habitable room (other than a bedroom).*	The proposal is considered acceptable under P1 in that the development is designed to optimise direct northerly sunlight to the proposed dwellings within the constraints of the site. Apartment 14 is a modest sized 1 bedroom apartment that will receive good afternoon sunlight to the main living space for the majority of the year. This coupled with the impressive views over Newtown/Lenah Valley and towards the kunanyi/Mount Wellington will ensure good levels of amenity for the residents of this

AllUrbanPlanning

The potential for direct overlooking from windows of habitable rooms with a finished surface or floor level more than 1m above natural ground level on one lot to the windows of habitable rooms, balconies, decks and roof gardens on adjacent lots must be avoided or minimised by complying with any of the following: *(a) have a side boundary setback no less than 3 m;* *(b) be offset no less than 1.5 m from the windows of habitable rooms on adjacent lots where on the same horizontal lane;* *(c) have a window seal height no less than 1.5 m.*	rear boundaries as shown on drawings DA-06, 07 and 08.
A3 *Outdoor living space must be provided for a dwelling that complies with all of the following:* *(a) be no less than 10 m2;* *(b) have a width no less than 2 m.*	The private open space areas for the dwellings do not all meet the minimum dimension of 2m. The proposal is therefore to be assessed under P3.
P3 *Outdoor living space must be provided for a dwelling with dimensions sufficient for the projected requirements of the occupants.*	The proposed outdoor living spaces for the each of the dwellings are considered acceptable for the projected requirements of the residents of these dwellings and to satisfy P3 in that: • Each dwelling will have an area of at least $10m^2$ directly accessible from the living space with an area wide enough to accommodate a BBQ and an outdoor table and seats • The decks are orientated either for northerly solar access or afternoon sun and views towards the mountain • Narrower areas of the decks will be useful for pot plants, other seating or a clothes rack • The larger three bedroom dwellings all have larger than compliant decks • There is an additional communal landscaped space for exclusive use by the residents.

AllUrbanPlanning

than 45 dBa in accordance with relevant Australian Standards for acoustics control, (including AS3671 - Road Traffic, and AS2107 - Habitable Rooms).	acoustic control. The project architect LXN confirms that with normal modern construction standards the residential apartments are likely to comfortably achieve this level.

Subdivision (15.5.1)

The proposed consolidation of the two titles is excluded from the definition of subdivision and these provisions to not apply.

4. Planning Scheme Codes

The site is within the New Town Road Heritage Precinct NT4. The proposal is considered in relation to the relevant codes below.

4.1 Potentially Contaminated land Code

The site is a former service station and is therefore potentially accommodated land for the purposes of the Code. The Code applies to the change to a sensitive use as well as the proposed excavation.

The accompanying Environmental Site Assessment November 2020 and addendum advice 7 August 2021 prepared by GES demonstrates that subject to the preparation of a Contamination management plan (CMP) the requirements of this Code are met.

Use Standards (E2.5)

Objective:

To ensure that potentially contaminated land is suitable for the intended use

Use Standard	***Assessment***
A1 *The Director, or a person approved by the Director for the purpose of this Code:* *(a) certifies that the land is suitable for the intended use; or* *(b) approves a plan to manage contamination and associated risk to human health or the environment that will ensure the land is suitable for the intended use.*	The proposed residential use is assessed under P1 below.
P1	Having regard to the conclusions and

AllUrbanPlanning

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or *(b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or* *(c) a plan to manage contamination and associated risk to human health or the environment that includes:* *(i) an environmental site assessment;* *(ii) any specific remediation and protection measures required to be implemented before any use commences; and* *(iii) a statement that the land is suitable for the intended use.*	contamination that would pose an undue risk to human health or the environment during or post the development subject to provision of a CMP. It is expected that the CMP would be provided prior to commencement of work as a condition on the planning permit.

Development Standards – Excavation (E2.6)

Objective:

To ensure that works involving excavation of potentially contaminated land does not adversely impact on human health or the environment.

Development Standard	***Assessment***
A1 *No acceptable solution.*	The proposal is to be assessed under P1.
P1 *Excavation does not adversely impact on health and the environment, having regard to:* *(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or* *(b) a plan to manage contamination and associated risk to human health and the environment that includes:* *(i) an environmental site assessment;*	Having regard to the accompanying Environmental Site Assessment the proposal satisfies P1b) providing the work is carried out in accordance with the CMP.

AllUrbanPlanning

(iii) a statement that the excavation does not adversely impact on human health or the environment.	

4.2 Road and Railway Assets Code

The traffic and access aspects of the proposal are assessed in the accompanying Traffic Impact assessment and satisfy the requirements of this Code.

Existing access and junctions (E5.5.1)

The development sites current use is a drive thru coffee business (Gioconda Coffee Roasters) that operates between 6:00am and 2:00pm, with an existing entry and exit onto New Town Road. A recent traffic survey established this business can generate a peak hour traffic flow of 80 trips, and an estimated total of 468 daily trips.

The proposed development is expected to generate a reduced number of trips entering and leaving New Town Road, with 12 trips expected for peak hour, and a daily total of 105 trips.

A reduction of trips generated by this new use is expected to improve traffic efficiency along New Town Road and complies with the acceptable solution under the planning scheme.

Sight distance at accesses, junction, and level crossings (E5.6.4)

This new development will convert the existing entry and exit into a single two-way access located on the southern boundary. Motorists leaving this access will have available sight distance, that exceeds the minimum Safe Intersection Sight Distance prescribed in the planning scheme for a 50 km/h speed limit.

This development will comply with the acceptable solution for Safe Intersection Sight Distance, and motorists will be able to enter New Town Road in a safe manner, without disrupting the current road users.

4.3 Parking and Access Code

The traffic and access aspects of the proposal are assessed in the accompanying Traffic Impact assessment and satisfy the requirements of this Code.

Number of parking spaces for the residential apartments (E6.6.1)

The development will provide 26 on-site parking spaces to be allocated to the residential apartments.

The planning scheme indicates for multiple dwellings with two or more bedrooms, two parking spaces should be provided, and one visitor space per four dwellings.

The number of spaces required under the planning scheme is 38 spaces for the 19 apartments, which is considered excessive, as the planning scheme does not take into account the apartments inner-city residential location within four kilometres of the Hobart CBD, and location of the development on a high frequency public transport route.

Development standards (E6.7)

The TIA confirms that the proposal satisfies these standards.

4.4 Stormwater Management Code

The application is supported by an engineering assessment of the stormwater requirements of this code.

4.5 Historic Heritage Code

The requirements of this Code are addressed in the accompanying Heritage Impact Assessment (HIA) prepared by Purcell. The HIA concludes that the proposal continues the historic mix of residential and commercial buildings that are eclectic in style, 'form and scale' within the precinct. The Proposal provides a high-quality, considered, and contemporary architectural response to the surrounding heritage precincts' characters and values.

The Proposal's material palette references the materials used within the precinct in a contemporary way to ensure it fits within the streetscape without dominating or detracting from the heritage precinct's historic cultural heritage significance and values.

It is considered that the Proposal is sympathetic to the characteristics, and will not result in the loss, of the cultural heritage significance or values of the precinct.

4.6 Signage

No signage is proposed at this stage and will form a separate application if required.

5. Conclusion

The proposed mixed use development of an underutilised site demonstrates a high degree of compliance with the provisions of the planning scheme. It will provide an overwhelming positive impact on the character and amenity of New Town Road with its respectful scale and repair of the traditional street alignment.

The building form complies with the height and siting standards of the planning scheme. Any impacts to the neighbouring properties by way of siting, shadowing, privacy or visual impact are therefore deemed acceptable under the planning scheme. The proposal is supported by Traffic, heritage, environmental and engineering assessments to address the requirements of the relevant planning scheme codes.

The proposal is recommended for approval as a Section 57 application following public advertisement.

I would be pleased to discuss or clarify any aspects of the proposal as necessary.

Frazer Read

Principal

156 NEW TOWN ROAD, NEW TOWN

HERITAGE IMPACT ASSESSMENT

OCTOBER 2021

Author
PURCELL
Lucy Burke-Smith
GPO Box 37 Hobart, TAS 7001 Australia

lucy.burke-smith@purcellau.com
+61 (0)415 423497

www.purcellap.com

Date	Revision	By	Chkd
13/10/2021	Final	LM	LBS
08/10/2021	Draft for Client comment	LM	LBS

All rights in this work are reserved. No part of this work may be reproduced, stored, or transmitted in any form or by any means (including without limitation by photocopying or placing on a website) without the prior permission in writing of Purcell except in accordance with the provisions of the Copyright (Moral Rights) Act 2000. Applications for permission to reproduce any part of this work should be addressed to Purcell at info@purcellau.com.

Undertaking any unauthorised act in relation to this work may result in a civil claim for damages and/or criminal prosecution. Any materials used in this work which are subject to third party copyright have been reproduced under licence from the copyright owner except in the case of works of unknown authorship as defined by the Copyright (Moral Rights) Act 2000. Any person wishing to assert rights in relation to works which have been reproduced as works of unknown authorship should contact Purcell at info@purcellau.com.

Purcell asserts its moral rights to be identified as the author of this work under the Copyright (Moral Rights) Act 2000.

Purcell® is the trading name of Purcell Asia Pacific.

ABN: 23 609 207 301

Nominated Architect (Tas):
Lucy Burke-Smith
ARN Tas 898 CC6606

© Purcell 2021

HERITAGE IMPACT ASSESSMENT

CONTENTS

INTRODUCTION 4
Background 4
Limitations 4
Terminology 4
References 4

UNDERSTANDING THE SITE 5
Location 5
Description 5
Statutory Listings and Overview of Significance 6
Non-Statutory Listings 7

HERITAGE IMPACT ASSESSMENT 8
Proposed Works 8
Assessment Against Historic Heritage Code Provisions of the Hobart Interim Planning Scheme 2015 9
Summary of Assessment 11
Conclusion 11

APPENDICES 12
Appendix A – Architectural Drawing List 12

INTRODUCTION

BACKGROUND

This Heritage Impact Assessment (HIA) was prepared for LXN Architecture and Consulting, acting on behalf of their Client, Renewal Investments Pty Ltd, to review and assess the proposed development (Proposal) at 156 New Town Road, New Town (Site).

The Site is not registered as State significant on the Tasmanian Heritage Register (THR).[1] The Site is not identified as a Heritage Place in Table E13.1 of the *Hobart Interim Planning Scheme, 2015* (HIPS 2015). However, it is situated within the 'New Town' (NT4) Heritage Precinct.[2]

This assessment has reviewed the proposed works detailed in the following plans:

- 156 NTR Development Application 11/10/2021 Revision A, prepared by LXN Architecture and Consulting (See Appendix A for details).

Lucy Burke-Smith and Linda Mott of Purcell prepared this report. Lucy Burke-Smith inspected the exterior of the Place, as well as the streetscape and context on May 5, 2021, together with Frazer Reed of All Urban Planning and Sarah Lindsay of LXN Architecture and Consulting. Lucy Burke-Smith took all images at this site visit unless cited otherwise.

LIMITATIONS

This HIA is limited to an assessment of the potential built heritage impacts of the Proposal to the setting, context and significant fabric of the built features on the Site. Desk-based research and information provided to date form the basis of this report, no new archival research was undertaken. It is based on the current statutory heritage and development controls, and non-statutory guidelines applicable to the Site. It does not consider the responsiveness of the proposed works to the wider provisions of the *Hobart Interim Planning Scheme 2015*, beyond that of built heritage.

All references to heritage, or heritage impacts, are to built heritage only. This report does not consider other potential heritage impacts of the Proposal, including, without limitation, to landscape, vegetation, sub-surface, archaeological or indigenous heritage.

TERMINOLOGY

The conservation terminology used in this report is of a specific nature and is defined within the *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance, 2013* (the Burra Charter).

REFERENCES

This HIA references the following:

- 'Design in Context – Guidelines for Infill Development in the Historic Environment', NSW Heritage Office & RAIA, 2005.
- 'Good Design + Heritage', Office of the Victorian Government Architect, 2017.
- GHD, 'New Town Heritage Review', Volumes 1-3, April 2008. Prepared for Hobart City Council.
- R Apperly, R Irving, and PL Reynolds, A pictorial guide to identifying Australian architecture: styles and terms from 1788 to the present, Angus & Robertson, Pymble NSW, 1994.

UNDERSTANDING THE SITE

LOCATION

The Site's address is 156 New Town Road, New Town (Title Reference 171514/1, and 171514/2). It is located just south of the 'Y' intersection formed where New Town Road meets Valentine and Cross Streets.

Figure 1 - Aerial image, the approximate Site boundary outlined in yellow dashes. (Source: ListMap, modified by Purcell)

DESCRIPTION

The Sites' New Town Road street frontage has a kerb crossing at each end, forming a one-way driveway with the entrance at the northeast end and exit at the southwest. The Site is a former service station currently used as commercial premises.

UNDERSTANDING THE SITE

Figure 2 - View from 139 New Town Road (Former New Town Town Hall).

Figure 3 - View from the north.

Figure 4 – View from the south.

STATUTORY LISTINGS AND OVERVIEW OF SIGNIFICANCE

Historic Cultural Heritage Act (TAS) 1995

The Site is not registered as State significant on the Tasmanian Heritage Register (THR).

UNDERSTANDING THE SITE

Hobart Interim Planning Scheme 2015

The Site is not identified as a Heritage Place in Table E13.1 of the HIPS 2015. However, it is situated within the 'New Town' (NT4) Heritage Precinct[3] (see Figure 5).

Table E13.2 of the HIPS 2015 notes that the New Town Heritage Precinct NT4 is significant for reasons including:

1. *It contains examples of Georgian, Victorian and Federation commercial and residential buildings that illustrate the growth of the area as a local service centre along a historically early main arterial road and transport route.*
2. *It contains individual high quality examples of architectural styles in a streetscape that is eclectic in form and scale.*
3. *The residences in close proximity to the main road contribute to an understanding of the historical pattern of its development and the tendency to reside in close proximity to commercial and community facilities.*

Figure 5 – NT4 - New Town Heritage Precinct shown hatched in purple, approximate Site boundary outlined in yellow dashes. (Source: ListMap, amended by Purcell).

HERITAGE IMPACT ASSESSMENT

PROPOSED WORKS

The Proposal seeks approval to demolish the existing commercial premises and concrete hardstand and construct a three level residential apartment building with a commercial tenancy to the New Town Road frontage, and a single level basement carpark.

The Proposal's front setback is in keeping with other commercial premises on New Town Road which are built to the front boundary, and residential premises which are in close proximity to the road. However, the Proposal includes a small setback at street level with landscape planting boxes to deal with the footpath slope, soften the footpath interface, and reference the nearby residences' front gardens. The Proposal's side setback is 3.042m at the Site's northwest corner with stairs and a ramp to access bicycle parking and the commercial tenancy side entrance. Access from this ramp to the landscaped courtyard is secured by a fence and gate. The basement car park driveway is at the southeast boundary of the Site's New Town Road frontage. The setback to the proposed rear wall is 3 metres.

Commercial premises on New Town Road predominantly have awnings overhanging the footpath. Many also have a decorative pediment above and / or a second storey. The Proposal's Level 1 extends over the small, street-level setback to the roadside boundary, referencing these awnings and creating front balconies for the residential apartments above. Level 2 (the top storey) is articulated with projecting bays framing alternate sliding doors, a modern interpretation of the residential dormer windows. Level 2 has a significant setback from the northern corner of the building in deference to the adjacent historic parsonage.

The Architect's response to the Site's nonparallel boundaries is to create a triangular courtyard in the north-eastern envelope of the building for a communal landscaped area. The Proposal also includes landscaping to the northeast side and rear of the property.

Further details of the proposal are provided within the following:

- 156 NTR Development Application 11/10/2021 Revision A, prepared by LXN Architecture and Consulting.

GUIDANCE DOCUMENTATION

This assessment follows the best practice management framework for historic sites contained in:

- The Burra Charter: 'The Australia ICOMOS Charter for Places of Cultural Significance', 2013.
- Heritage Tasmania, 'Works Guidelines for Historic Heritage Places', for the Tasmanian Heritage Council, November 2015.

ASSESSMENT METHODOLOGY

This assessment follows the provision of preliminary heritage advice through an iterative design process, intended to mitigate potential impact to the significance and values of the place. It is based on observations made during a site visit and a review of the design proposal. The assessment considers the potential for detrimental impacts as a result of the proposal, as well as all mitigation measures proposed, within the context of the *Hobart Historic Heritage Code, 2015*. Proposed works have been assessed for their impact to the heritage values of the Heritage Precinct as identified in the Statement of Significance, and the place's setting and context. The Proposal has also been considered against non-statutory guidelines published by Australia ICOMOS.

HERITAGE IMPACT ASSESSMENT

ASSESSMENT AGAINST HISTORIC HERITAGE CODE PROVISIONS OF THE HOBART INTERIM PLANNING SCHEME 2015

The Site is listed in Table E13.2 as being within the 'New Town' (NT4) Heritage Precinct of the *Hobart Interim Planning Scheme 2015*. The following tables assess considers the responsiveness of the proposal against the Development Standards and specific Performance Criteria for Heritage Precincts in Table E13.8, of the Historic Heritage Code.

E13.8 DEVELOPMENT STANDARDS FOR HERITAGE PRECINCTS	
NT4 New Town Heritage Precinct is significant for reasons including: 1. It contains examples of Georgian, Victorian and Federation commercial and residential buildings that illustrate the growth of the area as a local service centre along a historically early main arterial road and transport route. 2. It contains individual high quality examples of architectural styles in a streetscape that is eclectic in form and scale. 3. The residences in close proximity to the main road contribute to an understanding of the historical pattern of its development and the tendency to reside in close proximity to commercial and community facilities.	
E13.8.1 DEMOLITION Objective: To ensure that demolition in whole or in part of buildings or works within a heritage precinct does not result in the loss of historic cultural heritage values unless there are exceptional circumstances.	
P1 Demolition must not result in the loss of any of the following: (a) buildings or works that contribute to the historic cultural heritage significance of the precinct; (b) fabric or landscape elements, including plants, trees, fences, paths, outbuildings and other items, that contribute to the historic cultural heritage significance of the precinct; unless all of the following apply; (i) there are, environmental, social, economic or safety reasons of greater value to the community than the historic cultural heritage values of the place; (ii) there are no prudent or feasible alternatives; (iii) opportunity is created for a replacement building that will be more complementary to the heritage values of the precinct.	The proposed demolition will not result in a loss of elements that contribute to the historic cultural heritage significance or values of the precinct. There are no buildings, works, fabric or landscape elements on the Site that contribute to the historic cultural heritage significance or values of the precinct. The existing building is not considered to be a high quality example of an architectural style defined by the statement of Historic Cultural Heritage Significance E13.2, nor is it a residence in close proximity to the road. The existing building also appears to be much modified from its original form.
E13.8.2 BUILDINGS AND WORKS OTHER THAN DEMOLITION Objective: To ensure that development undertaken within a heritage precinct is sympathetic to the character of the precinct.	
P1 Design and siting of buildings and works must not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.	The NT4 precinct '*contains individual high quality examples of architectural styles in a streetscape that is eclectic in form and scale*'. The design of the proposed residential building is a high quality, contemporary architectural style, sympathetic in character to the NT4 Statement of Significance.

HERITAGE IMPACT ASSESSMENT

	the adjacent historic parsonage. The mass and bulk of the New Town Road elevation is successfully reduced through the material selection and fenestration. The treatment of Level 2 is a modern interpretation of the residential dormer and gable end windows facing New Town Road, as well as the way the commercial building parapets are frequently broken into bays, without replicating historic details. The material palette chosen for the Proposal is drawn from and references the materials found in the wider heritage precinct and is considered to be complimentary and deferential to the historic cultural heritage significance of the precinct. The height of the proposal is responsive to its context, and together with the setback of the upper level of the northern corner, ensures that it does not detract from the presentation of the adjacent historic parsonage, nor those places to the north which directly contribute to the characteristics of the NT4 precinct. This is well demonstrated in Drawing DA-18 11/10/2021 Revision A, prepared by LXN Architecture and Consulting. It is considered that the design and siting of the building will not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.
P2 Design and siting of buildings and works must comply with any relevant design criteria / conservation policy listed in Table E13.2, except if a heritage place of an architectural style different from that characterising the precinct.	N/A there are no relevant design criteria / conservation policy listed in Table E13.2.
P3 Extensions to existing buildings must not detract from the historic cultural heritage significance of the precinct.	N/A the Proposal is not an extension to an existing building.
P4 New front fences and gates must be sympathetic in design, (including height, form, scale, and materials), and setback to the style, period and characteristics of the precinct.	N/A the proposal does not have a front fence or gate. However, the proposed low brick plinth to New Town Road is consistent with the masonry wall to the Church's street boundary.
P5 The removal of areas of landscaping between a dwelling and the street must not result in the loss of elements of landscaping that contribute to the historic cultural significance or the streetscape values and character of the precinct.	There is no landscaping to the street that contributes to the historic cultural significance or the streetscape values and character of the precinct. Removal of the small area of grass between the footpath and the driveway will not result in a loss of the historic cultural significance or the streetscape values and character of the precinct.

HERITAGE IMPACT ASSESSMENT

SUMMARY OF ASSESSMENT

The proposed new residential building is of a high quality, contemporary architectural style and is supported. The Proposal does not include the demolition of any extant, significant built features or landscaping that contribute to the cultural heritage significance of the precinct.

CONCLUSION

The proposal is to replace the existing former service station currently in use as a commercial tenancy, with contemporary residential apartments set over a commercial tenancy to the New Town Road frontage. This is considered an appropriate use of the Site. The proposed design continues the historic mix of residential and commercial buildings that are eclectic in style, 'form and scale'[4] within the precinct. The Proposal provides a high-quality, considered, and contemporary architectural response to the surrounding heritage precincts' characters and values.

The Proposal's material palette references the materials used within the precinct in a contemporary way to ensure it fits within the streetscape without dominating or detracting from the heritage precinct's historic cultural heritage significance and values.

It is considered that the Proposal is sympathetic to the characteristics, and will not result in the loss, of the cultural heritage significance or values of the precinct.

APPENDICES

APPENDIX A – ARCHITECTURAL DRAWING LIST

DWG NO	DRAWING NAME	REVISION	DATE
DA-01	COVER PAGE	A	11/10/2021
DA-02	SITE SURVEY	A	11/10/2021
DA-03	EXST. / DEMO PLAN	A	11/10/2021
DA-04	PROPOSED SITE PLAN	A	11/10/2021
DA-05	BASEMENT PLAN	A	11/10/2021
DA-06	GROUND FLOOR PLAN	A	11/10/2021
DA-07	LEVEL 1 PLAN	A	11/10/2021
DA-08	LEVEL 2 FLOOR PLAN	A	11/10/2021
DA-09	ROOF PLAN	A	11/10/2021
DA-10	LANDSCAPE PLAN	A	11/10/2021
DA-11	ELEVATIONS	A	11/10/2021
DA-12	ELEVATIONS	A	11/10/2021
DA-13	SECTIONS	A	11/10/2021
DA-14	SECTIONS	A	11/10/2021
DA-15	BUILDING HEIGHT ENVELOPE – 15.4.1	A	11/10/2021
DA-16	BUILDING SETBACK ENVELOPE = 15.4.2	A	11/10/2021
DA-17	SUN STUDIES	A	11/10/2021
DA-18	STREET ELEVATION	A	11/10/2021
DA-19	MATERIAL PALETTE / STREETSCAPE ANALYSIS	A	11/10/2021
DA-20	PHOTOMONTAGE SHEET 1	A	11/10/2021
DA-21	PHOTOMONTAGE SHEET 2	A	11/10/2021

ATTACHMENT B

APARTMENT BUILDING, 156 NEW TOWN ROAD NEW TOWN

TRAFFIC IMPACT ASSESSMENT

Hubble Traffic

UPDATE
DECEMBER 2021

Table of Contents

1. Introduction 3
2. Site Description 4
3. Development proposal 5
4. Trip generation by this development 6
4.1 Medium density residential building 6
4.2 Commercial tenancy – Fitness Centre 7
4.3 Existing trips generated from the current site 8
4.4 Difference in trips generated from current and proposed use 9
5. Parking requirements 10
5.1 Residential apartments 10
5.2 Parking spaces for the Fitness Centre 11
5.3 Availability of the supply of on-street car parking 12
6. Existing traffic Conditions 13
6.1 Traffic activity along New Town Road 13
6.2 Traffic entering and leaving the development site 13
6.3 Surrounding land-use 13
7. Impact from traffic generated by this development 14
7.1 Traffic entering and leaving the development site 14
7.2 Sight distance for vehicles leaving the development site 14
7.3 Queuing area to the basement car park 15
7.4 Layout of the basement car park access 16
7.5 Ramp layout 16
7.6 Pedestrian sight line for pedestrian safety 17
7.7 Pedestrian access 17
7.8 Commercial vehicles 18
7.9 Headroom clearance 18
7.10 Basement car park arrangements 18
7.11 Tandem parking spaces 19
7.12 Manoeuvrability of vehicles within the basement car park 20
7.13 Bicycle facilities 21
7.14 Vehicles entering and leaving the basement car park 22

8.2 E6.0 Parking and Access Code 23
9. Conclusion....29
10. Appendix A – Ground floor layout 30

1. Introduction

The developer has engaged Hubble Traffic Consulting to prepare an independent Traffic Impact Assessment, to consider the traffic impacts of the construction of a multi-storey apartment building at 156 New Town Road, New Town (development site).

This report considers the amount of traffic the current site generates, the likely traffic generation of the proposed development, and how traffic movements will integrate into the surrounding road network.

The development site is currently operating as a drive-thru coffee establishment called Gioconda Coffee Roasters.

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019. This assessment has referred to the following information and resources:

- City of Hobart Interim Planning Scheme (planning scheme)
- Road Traffic Authority NSW (RTA) Guide to Traffic Generating Developments
- Australian Standards 2890 parts 1, 2 and 6
- SIDRA 8 intersection modelling software
- Autoturn online vehicle swept path software
- Austroads series of Traffic Management and Road Design
    - Part 4: Intersection and crossings, General
    - Part 4a: Unsignalised and Signalised Intersections
    - Part 12: Traffic Impacts of Development
- Google Earth imagery
- LIST land information database

.

2. Site Description

The development site is located at 156 New Town Road, the southern side of the road between Roope Street and Cross Street, New Town.

New Town is an inner city residential suburb, located about four kilometres north of the central business district of Hobart. The main arterial road through New Town is known as `New Town Road', and follows on from Elizabeth Street, connecting with the neighbouring city of Glenorchy.

The land-use along this section of New Town Road is zoned Urban Mixed Use, which permits business and professional services, food services, general retail and hire, and residential development, while directly behind this arterial road the land is zoned Inner Residential.

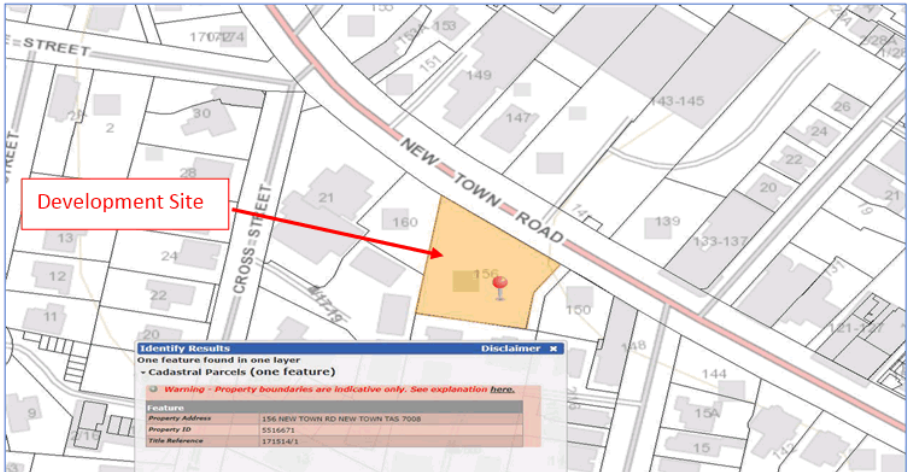
METRO Tasmania runs a high frequency bus service from Hobart to Glenorchy along New Town Road, with a bus operating every ten minutes between 7:00am to 7:00pm, Monday to Friday, every twenty minutes on Saturday, and every thirty minutes on Sunday.

The development site is within:

- 150 metres of a supermarket, local cafes, doctors, and pharmacy
- walking distance to the New Town Shopping Plaza, and recreational and cultural facilities
- 50 metres from public transport, with bus stops located on either side of New Town Road
- close proximity to two cycleways, the off-road intercity cycleway, and the on-road cycle network into the Hobart CBD.

With consideration to the site location and proximity to services, residents can substantially reduce their reliance upon private motor vehicle usage, and car parking requirements.

Diagram 2.0 – Site location (extract from the LIST land information database)



3. Development proposal

The developer has advised that the development proposal includes a multi-storey building to provide 19 residential apartments.

The ground floor will contain a single commercial tenancy, that will have direct pedestrian access to New Town Road. A pedestrian courtyard will provide street access to all apartments, consisting of five ground floor, ten first floor, and four second floor apartments.

On-site parking for the residential apartments will be located within the basement level, with vehicular access to New Town Road via a two-way ramp.

The commercial tenancy will be a gymnasium (Fitness Centre), which will complement the surrounding commercial uses and residential precinct.

Diagram 3.0 Ground floor layout

4. Trip generation by this development

A trip in this report is defined as a one way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

To determine the number of trips likely to be generated by this development, reference has been taken from the RTA Guide to Traffic Generating Developments.

4.1 Medium density residential building

The RTA Guide specifies a medium density building is a building containing at least two, but less than 20 dwellings. This includes villas, town houses, flats, semi-detached houses, terrace or row houses, and other medium density developments.

Two bedroom units can generate 4 to 5 daily vehicle trips and 0.4 to 0.5 weekday peak hour trips.

While larger units (three or more bedrooms) can generate 5 to 6.5 daily vehicle trips and 0.5 to 0.65 weekday peak hour trips.

Table 4.1 Expected number of traffic movements generated by the apartments.

Number of bedrooms	Number of units	RTA generation rates for daily and peak hour	Expected daily trips	Expected peak hour trips
One	1	Daily vehicle trips of 4 to 5 per unit Peak hour trips of 0.4 to 0.5per unit	5	1
Two	12	Daily vehicle trips of 4 to 5 per unit Peak hour trips of 0.4 to 0.5per unit	60	6
Three	6	Daily vehicle trips of 5 to 6.5 per unit Peak hour trips of 0.5 to 0.65 per unit	39	4
Total	**19**		**104**	**11**

The 19 residential apartments are expected to generate 11 peak hour trips, and a total of 104 daily trips, leaving and entering New Town Road.

4.2 Commercial tenancy – Fitness Centre

The developer has advised the commercial tenancy will be a Fitness Centre, with facilities available to the public. It is expected the use could employ one staff member during weekdays.

The following operational times are expected to comply with the acceptable solution under the planning scheme:

- 7:00am to 9:00pm Monday to Friday
- 8:00am to 6:00pm Saturday, and
- 9:00am to 5:00pm Sunday and public holidays

To determine the likely amount of traffic generated by this Fitness Centre, reference has been taken from the RTA Guide to Traffic Generating Developments, section 3.8.2. This section provides two generation rates, metropolitan CBD areas and metropolitan sub-regional areas. The location of the development site fits in-between these two descriptions, and an average of the two generation rates has been used:

- Daily vehicle trips of 32 trips per 100m2 of gross floor area, and
- Evening peak hour of 6 trips per 100m2 of gross floor area.

The RTA guide indicates the above generation rates includes staff, delivery, service, and on-street movements such as taxis and pick-up/set-down activities. The RTA guide also indicates that peak generation generally occurs between 6:00pm to 7:00pm on a weekday evening.

With the gross floor area of the Fitness Centre is expected to be 360m2, the facility is expected to generate 115 daily vehicle trips, with 22 of these trips expected in the peak hour periods.

Table 4.2 – Expected number of trips generated by the Fitness Centre

Vehicle activity	Gross floor area	RTA trip generation rate	Expected number of vehicle trips	Expected number of vehicles
Daily	360m2	32 trips per 100m2 of gross floor area	115	58
Peak hour	360m2	6 trips per 100m2 of gross floor area	22	11

4.3 Existing trips generated from the current site

With the current site operating as a drive thru coffee establishment, it is important to calculate the current number of trips generated by this use, to determine the net difference in trips between the current and proposed land use.

To capture the number of trips generated by the current use, a traffic survey was conducted on Wednesday 21 April 2021. The survey collected traffic entering and leaving the development site, and the vehicle movements along New Town Road.

Table 4.3 – Number of trips generated by the current use and vehicles on New Town Road between 7:30am to 9:00am.

Time	Drive thru coffee establishment			New Town Road		
	Vehicles in	Vehicles out	Total	Northbound	Southbound	Total
7:30am to 7:45am	8	6	14	98	104	202
7:45am to 8:00am	13	13	26	104	168	272
8:00am to 8:15am	10	10	20	121	161	282
8:15am to 8:30am	8	8	16	135	168	303
8:30am to 8:45am	9	9	18	132	174	306
8:45am to 9:00am	11	11	22	146	140	286
Total	**59**	**57**	**116**	**736**	**915**	**1651**

Vehicles departing from the development site turned both left and right onto New Town Road, with sufficient gaps in the traffic stream for these manoeuvres to be undertaken efficiently and safely.

Estimation of daily trips from the current use

During the morning peak hour, Gioconda Coffee Roasters generates 80 vehicle trips into and out of the development site.

The coffee establishment operates from 6:00am to 2:00pm, with the estimated total daily trips shown in the following table.

Table 4.3A – Estimation of daily trips generated from the current use.

Time	Percentage of peak hour trips	Estimated number of trips
6:00am to 7:00am	70 %	56
7:00am to 8:00am	85%	68
8:00am to 9:00am	100 %	80
9:00am to 10:00am	85%	68
10:00am to 11:00am	70%	56
11:00am to 12:00pm	65%	52
12:00pm to 1:00pm	60%	48
1:00pm to 2:00pm	50%	40
Total		**468 trips**

4.4 Difference in trips generated from current and proposed use

The new use is expected to generate a reduced number of trips entering and leaving the development site, as the current use generates some 80 peak hour trips and an estimated 468 daily trips, while the new use is expected to generate 11 peak hour trips and 104 daily trips.

The new residential apartments are expected to generate approximately 90 percent less vehicle movements during the peak hour periods, and 80 percent less vehicle movements throughout the day than the current use. This means less vehicle movements entering and leaving New Town Road.

The Fitness Centre will not generate vehicle movements to and from New Town Road, however the centre is expected to generate additional vehicle movements to the area. Table 4.4 calculates the combined vehicle movements generated by the residential apartments and Fitness Centre, which is expected to be less than half of the current use.

Table 4.4 – Expected reduction in vehicle movements by the new use

Period	Current use	New use			Reduction in vehicle movements	
		Apartments	Fitness Centre	Total	Number	Percentage
Daily	468	104	115	219	249	53%
Peak Hour	80	11	22	33	47	59%

5. Parking requirements

5.1 Residential apartments

The planning scheme specifies the number of parking spaces that are required based on residential use, with table E6.1 indicating that for multiple dwellings containing two or more bedrooms, the development should provide two on-site parking spaces.

Reference on parking requirements is taken from the RTA Guidelines for medium residential buildings:

- *1 space per each unit, plus one space per each 5 x 2 bedrooms*
- *Additional 1 space for each 2 x 3 bedrooms*

The developer has considered the above requirements and has allocated the following parking spaces for the residential apartments.

Table 5.1 – Number of parking spaces for residential apartments

Number of bedrooms	Number of apartments	Planning scheme requirements	RTA requirements		Development proposal – actual number of spaces being provided	
				Spaces	Spaces	Total
1 bedroom	1	1	1 per unit	1	1	1
2 bedrooms	12	24	1 per unit plus 1 per 5 units	14	1 or 2	13
3 bedrooms	6	12	1 per unit plus 1 per 3 units	8	2	12
Total	**19**	**37**		**23**		**26**

Of the 12 two bedroom units, the developer has indicated one of the units will be allocated two parking spaces, while the other 11 units will be allocated with one parking space. The three bedroom units will be allocated two parking spaces, while the one bedroom unit allocated one parking space. This gives an allocation of 26 parking spaces to the 19 units.

With the development being within an inner city residential suburb, the reliance on private vehicles is reduced, particularly for two bedroom units requiring more than one vehicle.

5.2 Parking spaces for the Fitness Centre

Along the road frontage of New Town Road there is a range of mixed businesses, with many relying on the supply of on-street spaces for customer parking. The Fitness Centre will be another local business relying on the on-street parking supply, as the development will not provide off-street parking for this use.

Under the planning scheme, a Fitness Centre requires 4.5 car parking spaces per 100 square metres of floor area, and with the centre operating with 360 square metres, the parking requirement is 16 parking spaces.

It is common for a Fitness Centre to generate people movement throughout the opening hours, with the average duration of stay around an hour. A comprehensive survey of gymnasiums in Sydney was conducted in 2014, and found 73 percent of members arrive as the driver, with 16 percent arriving as a passenger, and 11 percent by walking. With the location of this Fitness Centre within close proximity to an inner residential catchment area, this mode of transport could be expected for this facility.

The RTA Guide indicates the peak demand for a Fitness Centre usually occurs between 6:00pm and 7:00pm weekdays, after the other businesses in area has finished. Based on the RTA data. This Fitness Centre is predicted to generate a peak hour demand of 11 vehicles, and on average four vehicles per hour outside of this peak period.

Sharing on-street parking takes advantage of the fact that most on-street parking areas are only used part time by a particular motorist group, and many spaces become vacant after that use has finished.

5.3 Availability of the supply of on-street car parking

To understand the availability of on-street parking spaces along the surrounding streets, a comprehensive parking supply and demand survey was conducted. The survey examined available spaces and parking demand within 150 metres of the development site.

Table 5.3 – On-street parking supply and demand

Street	Kerb restrictions	Number of spaces	Spaces available at survey time				
			7:30am	10:30am	1:30pm	4:30pm	8:00pm
New Town Road (Woolworths to Cross Street)	Unlimited	10	6	4	1	7	9
	15 minutes	3	2	2	1	1	
	30 minutes	5	5	5	4	5	
New Town Road (Cross St to 119 New Town road)	30 minutes	11	11	8	8	7	11
	120 minutes	2	2	1	1	1	
	Unlimited	5	5	1	2	2	
Valentine Street (New Town Rd to Montague St)	60 minutes	4	2	2	2	3	21
	Unlimited	29	15	18	18	19	
Cross Street (Pirie to Pedder)	15 minutes	4	3	2	1	3	11
	Unlimited	19	8	4	9	12	
Roope Street (Pirie to Pedder)	120 minutes	5	3	1	1	1	22
	15 minutes	2	2	0	1	0	
	Unlimited	28	17	3	2	7	
Total		**127**	**81**	**51**	**51**	**68**	**74**

The survey found at least 127 on-street parking spaces are available within 150 metres of the development site. The patrolled survey found between 7:30am and 4:30pm there was a minimum of 51 spaces available, and at 8:00pm there were 74 spaces available.

According to the planning scheme parking requirements, the visitors could generate an on-street parking demand of five spaces, with the Fitness Centre also generating an on-street parking demand of 16 spaces. Based on a worst case scenario of the two users creating a maximum demand at the same time, the development could generate an on-street parking demand of 21 vehicles. The patrolled parking survey has demonstrated there will be more than sufficient number of on-street spaces available (minimum of 51 spaces) to easily meet the demand, without causing adverse impact to other users.

6. Existing traffic Conditions

New Town Road within the surrounding road network operates as an urban collector, to carry substantial movement of traffic between Hobart and Glenorchy. The road supports one traffic lane in each direction, with parallel parking along both sides. The road operates under the 50 km/h urban default speed limit.

Adjacent properties have direct access to the road, and motorists travelling along New Town Road recognise the need to drive vigilantly, having consideration that vehicles regularly leave and enter the road.

There is a significant movement of pedestrians crossing the road, with pedestrian refuge islands located at high demand locations, to enable pedestrians to cross in two stages.

The road is sealed, with formed footpaths along both sides and street lighting.

6.1 Traffic activity along New Town Road

A survey of the morning traffic found a peak hour traffic flow of 1,655 vehicles, with 70 percent of these vehicles traveling in a southbound direction.

6.2 Traffic entering and leaving the development site

Currently the development site has a separate entry located at the northern boundary, with a separate exit located at the southern boundary. The entry is located immediately beyond a signalised pedestrian crossing, and a right turning vehicle entering the site can restrict the flow of through traffic.

6.3 Surrounding land-use

The surrounding land-use is mixed with commercial, retail, and residential properties.

The majority of the surrounding residential properties have off-street parking available. Many of the commercial and retail properties rely on on-street parking for customers, with a variety of parking restrictions to provide a high turnover of the available spaces.

7. Impact from traffic generated by this development

As determined in section 4.4 of this assessment, the new apartment complex is expected to significantly reduce the traffic movements to and from the site compared with the current use, with the development not expected to create any adverse traffic efficiency impact.

7.1 Traffic entering and leaving the development site

The current entry and exit to the development site will be converted to a single two-way access, located at the southern boundary of the property. The width of the new access will be wide enough to accommodate two-way traffic movements.

With the reduction in the number of traffic movements entering and leaving the development site, compared to the current use, the traffic efficiency along New Town Road is expected to improve.

7.2 Sight distance for vehicles leaving the development site

The speed limit along New Town Road is the urban 50 km/h speed limit.

Sight distance leaving the proposed development access has been measured on-site, with a driver leaving the site having at least 100 metres sight distance in both directions; this exceeds the Safe Intersection Sight Distance prescribed in the planning scheme and is sufficient for vehicles to enter the road in a safe manner without causing traffic disruption to current users.

Photograph 7.2A –Drivers view when leaving the site viewing left

Photograph 7.2B – Drivers view when leaving the site viewing right

7.3 Queuing area to the basement car park

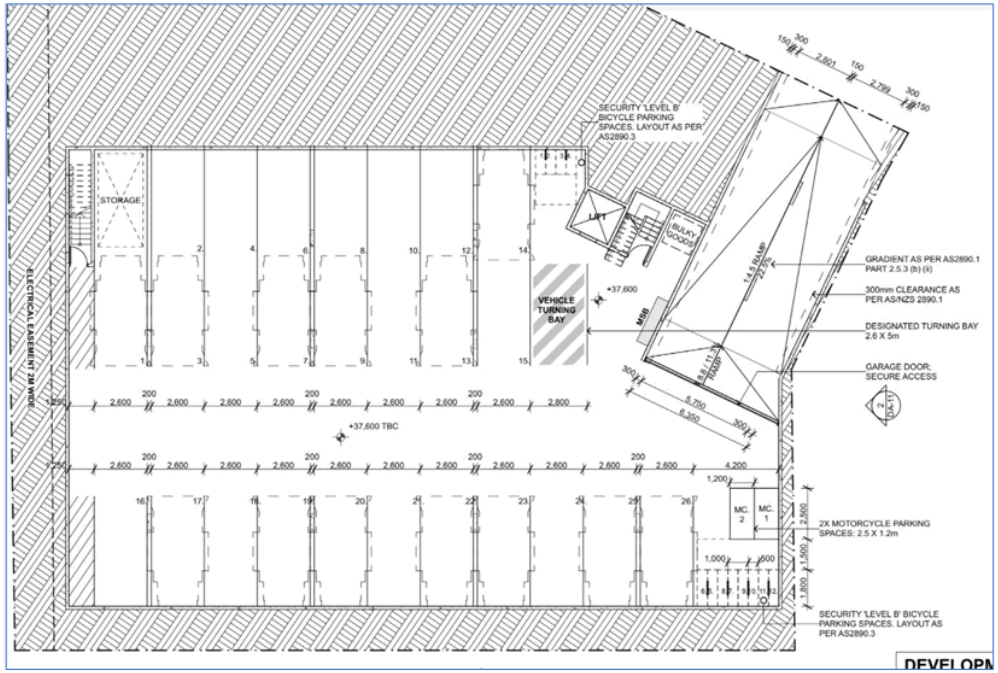
The entrance to the basement car park will be gated and controlled by a card reader or similar device, with the gate expected to be located 14 metres inside the property boundary, allowing storage for two entering vehicles.

The entrance storage length is expected to be ample to eliminate the risk of vehicles queuing back onto New Town Road. This is based on the peak hour demand of 11 trips, or on average, one vehicle arriving every five minutes, so the risk of more than two vehicles arriving to enter the basement car park is very low.

7.4 Layout of the basement car park access

The access to the basement car park is via a straight ramp from New Town Road, leading into a parking aisle, with ninety degree parking spaces located on either side.

Diagram 7.4 – Basement car park layout



7.5 Ramp layout

The straight ramp provides vehicular access between New Town Road and the basement car park.

With the ramp gradient being 1:4.5 or 22.5 percent, it will be supported with 2 metre transitional ramps with gradients of 1:8 (12.5 percent) or 1:8.8 (11.3 percent). The change in gradient for sag and crest curves complies with the Australian Standard AS 2890 requirements, to ensure there is sufficient ground clearance to minimise bottoming or scraping of vehicles, as they enter or leave.

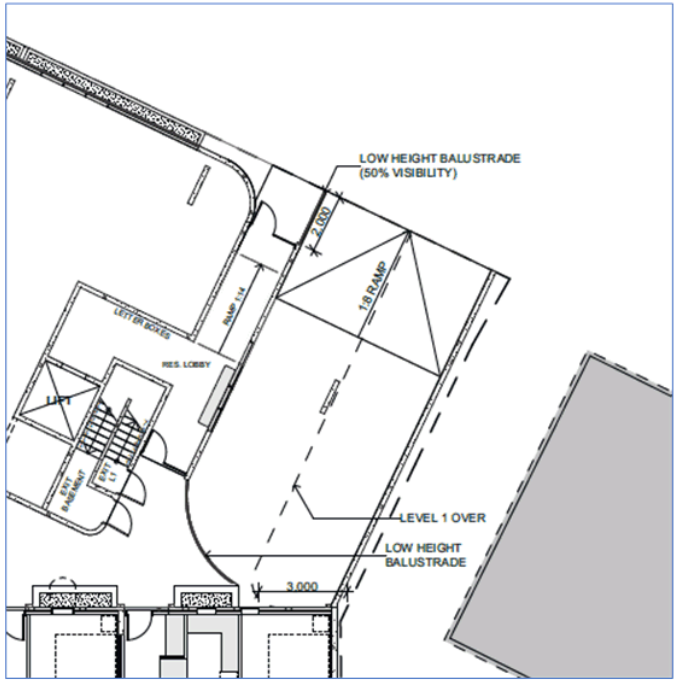
The ramp width will have sufficient width to accommodate two-way traffic movements and include appropriate clearance to vertical obstructions to ensure the ramp provides convenient, accessible, efficient, and safe vehicle movements.

7.6 Pedestrian sight line for pedestrian safety

Along the western side of the vehicle ramp, a low height balustrade will provide a minimum of 50 percent visibility, ensuring adequate sight line between pedestrians walking along the footpath and drivers leaving the basement car park.

This balustrade method to achieve the required sight distance complies with the intent of both the planning scheme and the Australian Standards section 3.2.4

Diagram 7.6 – Sight line between pedestrian and driver



7.7 Pedestrian access

A pedestrian courtyard at street level will provide direct access to the apartments, with the Fitness Centre having direct access to the street.

7.8 Commercial vehicles

Commercial vehicles to service the development site, will not have access to the basement car park and will use on-street parking spaces, similar to other businesses in the area.

Waste collection

Waste collection will be arranged with a private collection service. A central waste collection will be established on the ground floor, and have access to the street frontage.

Deliveries to the Fitness centre

The number of deliveries to the Fitness Centre is expected to be less than one delivery per week, and use on-street parking, similar to other businesses in the area.

7.9 Headroom clearance

The Australian Standards 2890 section 5.3 specifies for both cars and light vans, the height between the floor and an overhead obstruction shall be a minimum of 2.2 metres. The basement car park will have a minimum headroom height of 2.4 metres, while the minimum headroom for the ramp will be 2.38 metres. At this height, the design will provide adequate headroom to accommodate residential vehicles.

7.10 Basement car park arrangements

The internal car park layout will incorporate a two-way parking aisle with the following characteristics:

- Parking bays will be user class 1A for residential parking, with the allowance for three-point turn entry and exit into ninety degree parking spaces.
- Parking bays will be 2.6 metres wide and 5.4 metres long.
- All parking spaces to be ninety degrees to the parking aisle.
- Seven tandem (jockey) parking spaces to be allocated to the six three bedroom apartments, and one two-bedroom apartment.
- The parking aisle will be a minimum of 6.4 metres wide and incorporate 300mm minimum clearance where necessary to cater for any vertical obstructions such as walls, to ensure adequate vehicle manoeuvrability.
- At the end of the blind aisle, 1.25 metre extension to the aisle will be provided to aid with vehicle manoeuvrability.
- The length of the aisle will be less than 40 metres, this will restrict operating speeds to an acceptable level of less than 30 km/h.

7.11 Tandem parking spaces

Tandem parking has become popular within apartment buildings, as they allow for more parking spaces in constrained sites. Mainland councils are allowing tandem parking for residential unit developments, as long as the arrangement can be accommodated without causing inconvenience, or congestion. Tandem parking for residential unit development is generally permitted on the following conditions:

- No small car space is allowed within a tandem parking arrangement.
- Tandem parking is not permitted for visitor parking.
- Each tandem parking arrangement must be allocated to the same residential unit.
- Shuffling of vehicles associated with tandem parking must be carried out wholly within the site.
- Minimum length of a tandem parking space is 10.4 metres long.

It is important that `shuffling' of vehicles associated with tandem parking can be done efficiently within the development site, so that residents do not choose to park on the street, and other users of the parking area are not inconvenienced. For these reasons, the width of the tandem parking space and adjacent parking aisle are important, to ensure shuffling manoeuvres can be undertaken efficiently.

The width of angle parking spaces is derived from the base dimension of the vehicle, and adding width to accommodate door opening. The standard 2890 part 1: specifies the minimum parking width is 2.6 metres wide to allow a B85 vehicle to fully open all doors. On the assumption that the adjacent vehicle is a B85 vehicle, there should be a 0.73 metres gap between vehicles. This gap allows for doors to open, and occupants to move freely between vehicles, which is critical for tandem parking. If B99 vehicles are parked in adjacent spaces, the gap between the vehicles reduces from 0.73 to 0.66 metres.

Swept path testing for a B85 vehicle has found that the new State-Wide planning scheme that prescribed parking spaces to be 2.6 metres wide, with parking aisle of 6.4 metres, provides a higher level of service for users, allowing a B85 vehicle to enter, and leave the parking space more efficiently, and would be suitable for tandem parking.

Having consideration to the residential use, the low turnover of the parking spaces, the provision of a designated vehicle turning bay within the basement, the width of the parking spaces and parking aisle, this layout is expected to provide a suitable level of service for tandem parking, without causing adverse impact to other uses, or traffic congestion.

7.12 Manoeuvrability of vehicles within the basement car park

Diagram 7.12A – Swept path of B85 vehicle entering the parking spaces

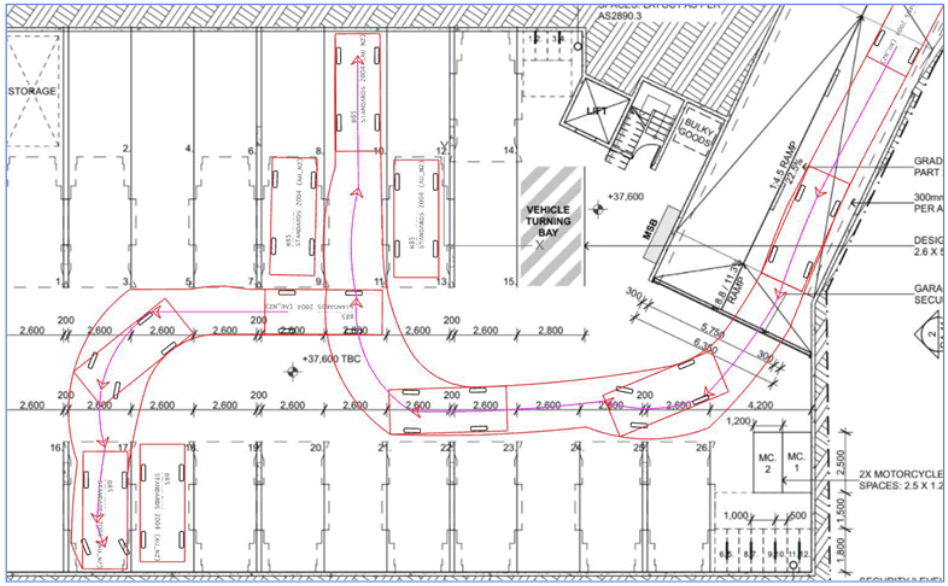


Diagram 7.12B – Swept path of B95 vehicle leaving the tandem parking spaces.

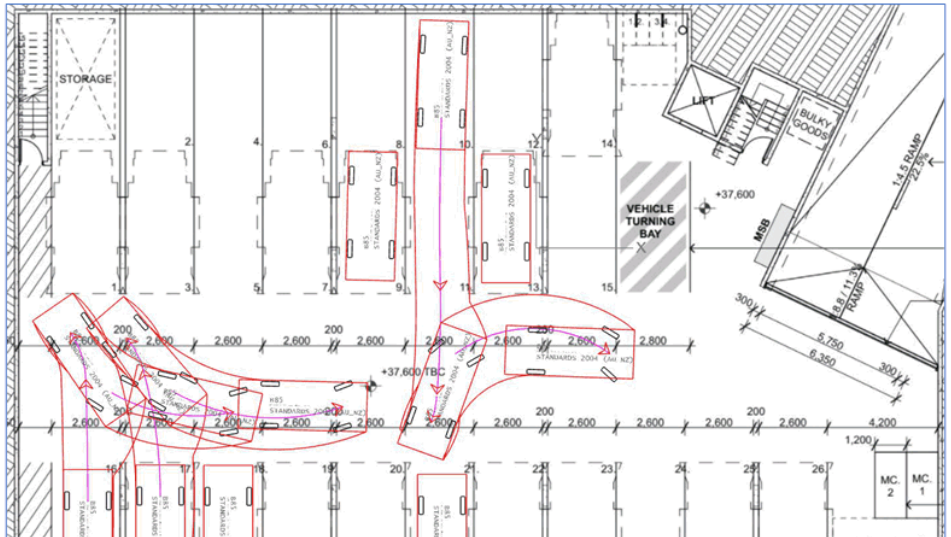
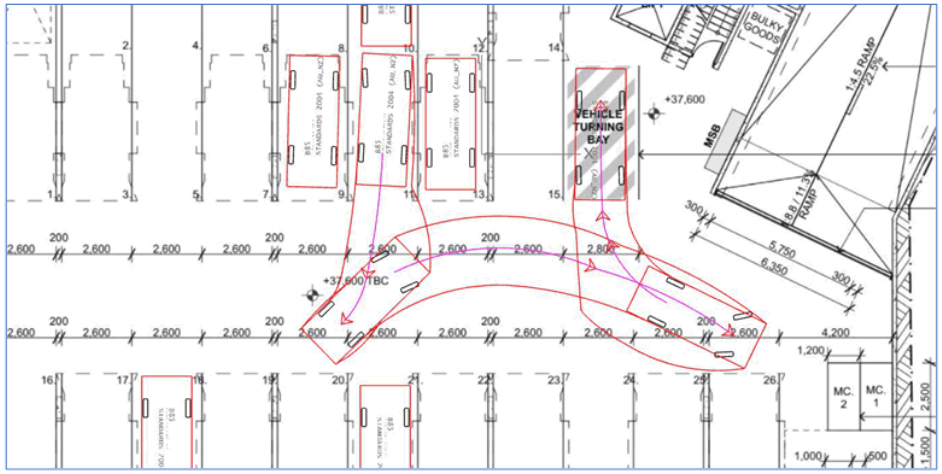


Diagram 7.12 C – Shuffling of vehicles using the designated turning bay



The wider parking spaces of 2.6 metres, combined with the parking aisle of 6.4 metres provides a higher level of service for users, and improves efficiency for vehicles entering and leaving the parking spaces.

7.13 Bicycle facilities

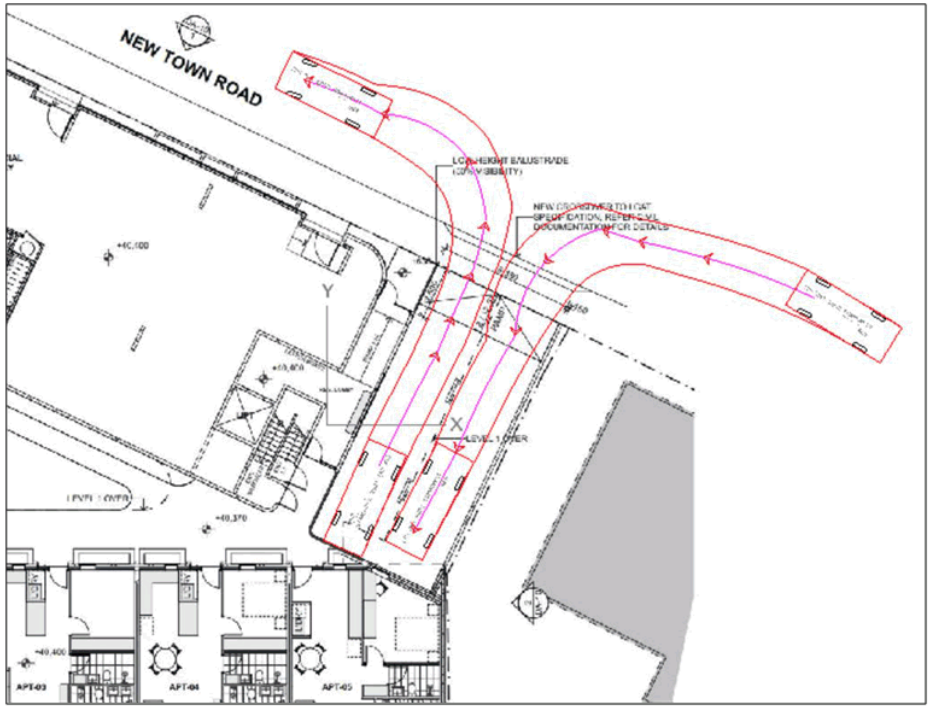
To promote the use of bicycles as a viable alternative to private vehicles, the development will provide:

- two bicycle racks for 12 bikes within the basement car park, which is consider a secure facility as only residents have access to the basement, and
- a bike wheel frame within the courtyard area for use by Fitness Centre members.

7.14 Vehicles entering and leaving the basement car park

Autoturn online vehicle turning swept path software has been used to ensure the basement car park arrangement accommodates B99 vehicles, arriving and departing simultaneously as shown in the diagram below.

Diagram 7.14 – Swept path for B99 vehicle entering and leaving simultaneously



8. Planning scheme

8.1 E5.0 Road and Railway Assets Code

E5.5.1 Existing access and junctions

The development sites current use is a drive thru coffee business (Gioconda Coffee Roasters) that operates between 6:00am and 2:00pm, with an existing entry and exit onto New Town Road. A recent traffic survey established this business can generate a peak hour traffic flow of 80 trips, and an estimated total of 468 daily trips.

The proposed development is expected to generate a reduced number of trips entering and leaving New Town Road, with 11 trips expected for peak hour, and a daily total of 104 trips.

A reduction of trips generated by this new use is expected to improve traffic efficiency along New Town Road and complies with the acceptable solution under the planning scheme.

E5.6.4 Sight distance at accesses, junction, and level crossings

This new development will convert the existing entry and exit into a single two-way access located on the southern boundary. Motorists leaving this access will have available sight distance, that exceeds the minimum Safe Intersection Sight Distance prescribed in the planning scheme for a 50 km/h speed limit.

This development will comply with the acceptable solution for Safe Intersection Sight Distance, and motorists will be able to enter New Town Road in a safe manner, without disrupting the current road users.

8.2 E6.0 Parking and Access Code

E6.6.1 Number of parking spaces for the residential apartments

The development will provide 26 on-site parking spaces, with these spaces allocated to the residential apartments.

The planning scheme indicates for multiple dwellings with two or more bedrooms, two parking spaces should be provided, and one visitor space per four dwellings.

The number of spaces required under the planning scheme is 38 spaces for the 19 apartments, which is considered excessive, as the planning scheme does not take into account the apartments inner-city residential location within four kilometres of the Hobart CBD, and location of the development on a high frequency public transport route.

The RTA Guide recognises that for medium density units located on a high frequency bus route, car space requirements are reduced, where a two-bedroom unit requires only one car space. As this Guide indicates for these apartments 23 spaces would be sufficient to meet the expected demand.

The number of parking spaces for the residential apartments must be considered under the performance criteria.

Performance criteria	Assessment
To ensure there is enough car parking to meet the reasonable needs of all users of a development, taking into account the level of parking available on or outside of the land and the access afforded of users by other modes of transport. The use or development does not detract from the amenity of users or the locality by preventing regular parking overspill and minimising the impact of car parking on heritage and local character.	
a) car parking demand;	The planning scheme specifies that 38 parking spaces are required for the 19 residential apartments, plus five spaces for visitors. The development is providing 26 spaces, based on one space for apartments with two bedrooms, and two spaces for apartments with three or more bedrooms. This number of parking spaces is considered reasonable to meet the expected demand. This number of spaces being provided is supported by the RTA Guide for medium density unit developments. In addition to the 26 spaces, two dedicated motorcycle parking spaces will be provided in the basement car park. Visitor parking will share the available supply of on-street spaces.
b) The availability of on-street and public car parking in the locality;	A recent parking supply and demand survey of the surrounding streets within 150 metres of the development site, found there is 127 spaces available. A patrolled survey found a minimum of 51 of these spaces were free during the day, and these could be used by visitors.
c) The availability and frequency of public transport within 400m walking distance of the site;	METRO Tasmania runs a high frequency bus service between Glenorchy and Hobart via New Town Road, with a bus operating every ten minutes between 7:00am to 7:00pm, Monday to Friday, every twenty minutes on Saturday, and every thirty minutes on Sunday. With bus stops located within 50 metres of the development site, this provides residents with a convenient and viable alternative transport mode.
d) the availability and likely use of other modes of transport;	The development site is located within four kilometres of the Hobart CBD, making bicycle riding a viable option, particularly with on-road cycle lanes operating along Argyle Street, extending into New Town Road. Also, the development site is located 1 kilometre from the inner-city cycle route.

f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;	The RTA guide for traffic generation developments is a nationally accepted document that provides advice on design criteria for new developments. For medium density residential units located on a high frequency bus route, one parking space is considered appropriate for a two bedroom unit, and two spaces for three or more bedrooms. The RTA Guide indicates 23 spaces would be suitable for this development.
g) Any car parking deficiencies or surplus associated with the existing use of the land;	None.
h) Any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirements, except in the case of substantial redevelopment of a site;	None.
i) The appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;	No financial contribution is considered necessary as the level of on-site parking spaces will more than meet the needs of the development, without any adverse impact to the surrounding road network.
j) Any verified prior payment of a financial contribution in lieu of parking for the land;	None required.
k) Any relevant parking plan for the area adopted by Council;	Not aware of any.
l) The impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;	None expected.
m) Whether the provision of the parking would result in the loss, directly or indirectly of one or more significant trees listed in the Significant Trees Code.	None.

E6.6.1 Number of parking spaces for the Fitness Centre

The development will not provide on-site parking for the Fitness Centre, customers will share the supply of on-street parking spaces available within the surrounding streets.

On-street parking is a resource that belongs to the community, that can be shared between the various land-users, and short term parking restrictions ensures sufficient parking turnover to meet the land-use demand. The urban Mixed Use zoning along New Town Road permits commercial development, and many of the surrounding businesses currently share the current supply of on-street parking.

A recent parking supply and demand survey of the surrounding streets found there is sufficient supply of on-street parking that can be shared with this new use, without adversely impacting other land-uses.

Parking for the Fitness Centre must be considered under the performance criteria.

Performance criteria	Assessment
To ensure there is enough car parking to meet the reasonable needs of all users of a development, taking into account the level of parking available on or outside of the land and the access afforded of users by other modes of transport. The use or development does not detract from the amenity of users or the locality by preventing regular parking overspill and minimising the impact of car parking on heritage and local character.	
a) car parking demand;	Based on the total floor area of the Fitness Centre being 360m2, the planning scheme specifies 16 parking spaces. The RTA Guide estimates that the centre could generate a peak hour demand of 11 vehicles, and outside this peak period, the parking demand is expected to be much less. The centre opening hours are restricted to 7:00am to 9:00pm, with the average stay expected to be one hour. The peak hour demand is expected to occur between 6:00pm to 7:00pm, which occurs outside of the time when most of the surrounding commercial properties operate.
b) The availability of on-street and public car parking in the locality;	A recent parking supply and demand survey of on-street parking, found within 150 metres of the development site there is a supply of 127 on-street spaces. During the day there were a minimum of 51 spaces available, while at night this increased to 74 spaces available. There is a range of parking restrictions to ensure there is a high turnover of the spaces, and this parking survey demonstrates there is sufficient parking supply to meet the Fitness Centre on-street parking demand.
c) The availability and frequency of public transport within 400m walking distance of the site;	A high frequency public bus route operates past the development site, with bus stops located within 50 metres of the development

d) the availability and likely use of other modes of transport;	The location is within an inner residential suburb, with the area being a mix of residential, commercial, and retail businesses, suggesting walking is a viable mode of transport.
e) the availability and suitability of alternative arrangements for car parking provisions;	A survey of Sydney Gymnasiums in 2014, found on average the transport mode of members using the facility, includes vehicle sharing of 16 percent and walking of 11 percent, and these modes reduce the demand of parking spaces required.
f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;	None
g) Any car parking deficiencies or surplus associated with the existing use of the land;	None.
h) Any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirements, except in the case of substantial redevelopment of a site;	None.
i) The appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;	No financial contribution is considered necessary as the level of on-street parking spaces will more than meet the needs of the development.
j) Any verified prior payment of a financial contribution in lieu of parking for the land;	None required.
k) Any relevant parking plan for the area adopted by Council;	Not aware of any.
l) The impact on the historic cultural heritage significant of the site if subject to the Local Heritage Code;	None expected.
m) Whether the provision of the parking would result in the loss, directly or indirectly of one or more significant trees listed in the	None.

E6.7 Development standards

Development standards		Comment
6.7.1	number of vehicular access;	This development site will have a single two-way access.
6.7.2	design of vehicular access;	The vehicular access will be designed to conform with the Australian Standards 2890 part 1.
6.7.3	vehicular passing areas along an access;	The internal parking aisle will be 6.4 metres wide to cater for two-way traffic movements.
6.7.4	On-site turning;	There is a designated vehicle turning bay incorporated into the basement layout, and all vehicles will be able to enter and leave the development site in a forward driving direction.
6.7.5	Layout of parking areas;	Designed to conform with AS 2890 part 1.
6.7.6	Surface treatment of parking areas;	Concrete surface.
6.7.7	Lighting of parking areas;	Lighting will be provided to satisfy the acceptable solution.
6.7.8	Landscaping of parking areas;	No landscaping is planned for the basement parking area.
6.7.9	Design of Motorcycle parking areas;	Two dedicated motorcycle parking spaces are being provided in the basement car park.
6.7.10	Design of Bicycle Parking facilities;	Secured bicycle parking spaces will be provided within the basement car park, while a bicycle frame where wheels can be locked, will be provided on the ground level for use by the Fitness Centre users.
6.7.11	Bicycle end of trip facilities;	Not required for residential apartments.
6.7.12	Siting of car parking;	The on-site parking spaces will be accommodated on a basement level and not visible to New Town Road users.
6.7.13	Facilities for commercial vehicles;	Will need to share the on-street parking facilities, similar to other commercial businesses in the street.

9. Conclusion

This development site is an ideal location to create inner suburbia apartment living, close to public transport to reduce the use of private motor vehicles, and within walking distance to work, commercial, recreational, and cultural facilities. The Fitness Centre will benefit from the location being situated near other businesses and close to a large residential catchment area.

From a traffic engineering and road safety perspective, this development is expected to generate less traffic movements than the current land-use, and this will improve the safety and traffic efficiency along New Town Road.

Traffic entering and leaving the basement car park, is not expected to create any adverse safety or traffic efficiency impacts to pedestrians or existing road users, as there will be suitable sight distance, and entering vehicles are not expected to queue beyond the development site.

The number of on-site parking spaces located within the basement, is expected to meet the reasonable demand generated by residents of the apartments, with sufficient on-street parking supply to support visitor parking.

The basement parking layout includes tandem parking to increase the number of on-site car parking spaces, and this is considered appropriate for the residential use and the low parking turnover. The layout includes a designated vehicle turning bay for shuffling of tandem vehicles to occur within the site, the width of the parking spaces and parking aisle has been designed to ensure tandem parking can operate effectively, without adversely impacting other uses, or cause traffic congestion.

Users to the Fitness Centre will rely on the supply of on-street parking, similar to other commercial businesses along New Town Road. The recent parking supply and demand survey has demonstrated there is sufficient supply to support the new use, without causing impact to surrounding land-users. The peak demand for this new use is expected to occur outside of the operating times of most surrounding commercial businesses. Also, the opening hour of this new use is restricted to 7:00am to 9:00pm, to minimise amenity impact to surrounding residential properties.

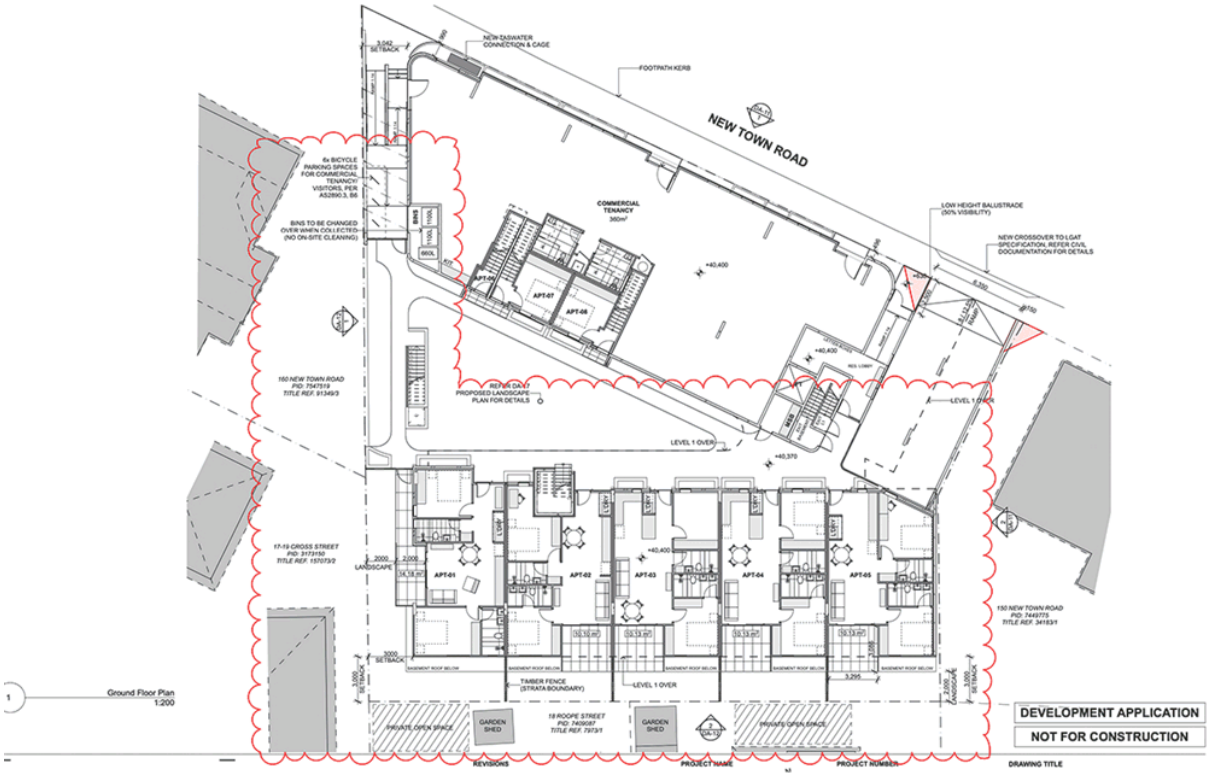
The development site will provide convenient, safe, and accessible access for pedestrians at street level.

The waste collection will be arranged through a private contractor and this operation is not expected to impede pedestrian activity along the footpath.

An examination of the geometric internal layout of the basement car park, found compliance with the planning scheme and the Australian Standards 2890.

This Traffic Impact Assessment found no reason for this development not to proceed.

10. Appendix A – Ground floor layout



Re: Development Application - 156 New Town Road - Notification to Owner 18 Roope Street, New Town

From: **Tim Lucas** | tim@tslpropertydirections.com Wednesday, 8 Dec 2021, 12:34 PM

To: **peter.white@communities.tas.gov.au** | peter.white@communities.tas.gov.au

Cc: **Sarah Lindsay | LXN Architecture** | sarah@lxn.com.au, **Josh Crossin | LXN Architecture** | josh@lxn.com.au

To: Peter White
Deputy Secretary, Housing, Disability, Community Services
Department of Communities Tasmania

Hi Peter,

In accordance with a requirement by Taswater I am notifying you (as representative of the owner) that we have lodged a Development application for our site at 156 New Town Road that borders the Director of Housing's units situated at 18 Roope Street, New Town.

Attached is a Request for Additional Information that has been sent to our architect pursuant to our application lodged and I have included a second attachment to assist your understanding of the sewer connection that needs to be upgraded if our development application is successful and we seek to proceed with the same.

I have attached emails between myself and Taswater that may also assist in the background to this notification. We understand that some future consent from the current owner of 18 Roope Street will be required to allow Taswater to undertake the abovementioned works on its land and that this notification does not infer or claim any consent.

If possible can I ask that you or an officer within Communities Tasmania acknowledge receipt of this email.

Happy to discuss if required.

Thank you.

Tim Lucas
TSL Property Directions

Development@taswater.com.au tim@tslpropertydirections.com 8:47 AM

Hi Tim,

Thank you for your email. You are correct, I think the exact wording in LUPAA is that to satisfy s52 only a declaration need be provided that the adjoining property owner has been informed of the developer's intention to make an application. This is something the Planning Authority administers but because Council is not always aware of TasWater's servicing requirements we advise them via an RAI to avoid the issue of an invalid permit.

Consent is not required at the planning stage however the wording used in the request is designed to make the developer aware that they should disclose to the owner that the development will require works on their land and if the adjoining owner refuses to provide consent at the time the works are required to be undertaken then those works cannot proceed and that owner may appeal the Planning Authority's decision to issue a planning permit.

Please note that this is a request for additional information not a permit condition so a copy of the proposed letter you describe in your email will be sufficient to satisfy my request. Please submit a copy of the letter as your formal response to Council and they will refer it to TasWater and I will issue a Submission containing TasWater conditions to be appended to the Council permit.

Regards

Phil Papps
Senior Assessment Officer

D (03) 6237 8246 / 0474 931 272
F 1300 862 066
A GPO Box 1393, Hobart TAS 7001
169 Main Road, Moonah, TAS 7009
E phil.papps@taswater.com.au
W www.taswater.com.au/

Have I been helpful? Please provide feedback by clicking here.

Proposed Service Connection – 156 New Town Road:

Image opposite shows the manhole the Development at 156 New Town Road intends to connect to presently on 18 Roope Street.

TASMANIAN LAND TITLES OFFICE

Instrument Releasing Easements or Profits a Prendre

Section 108 Land Titles Act 1980.

E229547

DESCRIPTION OF LAND			
Servient Folio of the Register		Dominant Folio of the Register	
Volume	Folio	Volume	Folio
171514	**1**	**7973**	**1**
171514	**2**		

DIRECTOR OF HOUSING of **GPO Box 44 Hobart Tasmania 7001** the registered proprietor/s of the land comprised in the above dominant folio of the Register Hereby Release unto **Renewal Developments Pty Ltd** of **level 5, 81 Elizabeth Street, Hobart in Tasmania 7000** the registered proprietor of the land comprised in the above servient folio of the Register the easement described as follows:-

Burdening Easement: a right of carriageway (appurtenant to Lot 1 on Diagram No 7973 over the Roadway shown on Plan No 171514.

Date: .....5.....January....2021.....

"SEE ANNEXURE PAGE FOR EXECUTION CLAUSE"

PIN OR STAPLE HERE
DO NOT GUM THIS
FORM TO THE INSTRUMENT

ANNEXURE PAGE

PAGE 2 OF 2 PAGES

Vol. **171514** Fol. **1**

SIGNED by Richard Robert Gilmour being and as
and pursuant to an
Instrument of delegation dated the 6th day of September 2018
In the presence of:-

DIRECTOR OF HOUSING TASMANIA

Signature of Witness
Full name of Witness Rebecca Thorpe
Address L5/22 Elizabeth St, Hobart
Occupation Home Ownership Consultant

GES

GEO-ENVIRONMENTAL

SOLUTIONS

ENVIRONMENTAL SITE ASSESSMENT

156 New Town Road, New Town, Tasmania

DOCUMENT CONTROL

Title	Version	Date	Author	Reviewed By
Environmental Site Assessment: 156 New Town Road, New Town	Version 1	5th November 2020	Mark Downie	JP Cumming

EXECUTIVE SUMMARY

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at 156 New Town Road, New Town, Tasmania - hereby referred to as 'The Site'. GES was commissioned Tim Lucas on behalf of Renewal Developments Pty Ltd, to conduct the site assessment. This ESA has been prepared by a suitably qualified and experience practitioner in accordance with procedures and practices detailed in National Environmental Protection Measure [Assessment of Site Contamination] (NEPM ASC; 2013).

The objective of this ESA was to investigate the site for contamination, we have done this by addressing E2.6.2 performance criteria under the *Hobart Interim Planning scheme 2015* for excavation. To assess the suitability and safety of the soil for excavation at a typical depth for foundation excavation, and any human or environmental risks of the soil present on site.

The following information was gathered during the desktop investigation:

- The Site is zoned *Urban Mixed Use* under the *Hobart Interim Planning Scheme of 2015*. The site slopes at around 7% to the North West, Maypole Rivulet is the nearest ecological receptor 500 m downgradient of the Site.
- The geology of the investigation area is Triassic aged sedimentary rocks (Rv), with our bore holes finding weathered sandstone at variable depths.
- Historical Aerial photographs and Dangerous Goods Records confirmed the following; an original building was present on the site since prior to 1946, with this building removed and the service station building erected prior to 1969. UPSS tanks were installed in 1962. The building was renovated between 1980 and 1989, which is likely to coincide with the service station being decommissioned around 1980 and Video Ezy operating on the site. More recently the site contains a coffee shop and laundry mat operations.
- The site is considered a potentially contaminated site due to past land use and the presence of UPSS. WorkSafe Tasmania Dangerous Goods Records indicate that petroleum fuels have been stored on site 1962-1980.
- Potential sources of contamination include the operations of a service station and workshop on the site, the presence of UPSS, and fill of undetermined origins on site.
- Contaminants Of Potential Concern (COPC) include the following: TPH/TRH; Mono Aromatic hydrocarbons: (BTEXN); PAH; and heavy metals.

From the soil assessment, it is concluded that:

- Environment: Benzo(a)pyrene and Total Recoverable Hydrocarbons Fraction 3 exceeded NEPM ASC 2013 ESL guideline limits. Zinc exceeded NEPM ASC 2013 EIL guideline limits. A Stormwater Management Plan (SWMP) will be required to account for the management and erosion of soil with ecological impacts, to prevent soil effecting nearby ecological receptors.
- Human Health: There were no human health guideline exceedances for dermal contact or vapour intrusion. There were no exceedances of NEPM ASC 2013 HIL guideline limits for dust inhalation and ingestion at commercial land use investigation limits, however there were exceedances for Benzo(a)pyrene and Lead at residential and recreational land use investigation limits. If the finalised designs indicate that the site is considered commercial operations at ground level, then there are no exceedances to guidelines and no risk to human health identified.
- Excavated Soil Management: In terms of *IB105* of the thirteen primary soil samples; Three samples are considered Level 3 Material (contaminated soil) due to Benzo(a)pyrene (in samples BH3 0.5-0.6, BH4 0.5-0.6 & BH5 0.5-0.6), and Sum of Polycyclic Aromatic Hydrocarbons (in sample BH3

GES recommends the following:

- There were no human health guideline exceedances for dermal contact, soil vapour intrusion or trench worker vapour risk. There were no HIL guideline exceedances for dust inhalation and ingestion at commercial land use class, but there were exceedances at residential and recreational land use for Benzo(a)pyrene and Lead. If developments include open space or residential apartments at ground level, the Site will require a Contamination Management Plan (CMP) relating to human receptors prior to soil disturbance during construction, and including mitigation measures post construction. If the entirety of the site is considered commercial land use at ground floor level (this may include the apartments being above the basement car park, and the soil at the open space area being excavated and replaced with clean fill), then the CMP will not be required.
- There is potential for ecological impact from hydrocarbons and heavy metals entering the waterway or impacting other ecological receptors during excavation, and a Stormwater Management Plan (SWMP) is required, to control erosion of excavated soil that may have an ecological impact.
- For soil disposal, the soil on site is a mixture of Level 1 (clean fill), Level 2 (low level contaminated soil) and Level 3 (contaminated soil) according to IB105. Any disposal of soil off-site must be in accordance with IB105 and the controlled waste regulations. We recommend excavated material be stockpiled on-site where additional testing can better delineate the areas of contamination prior to soil disposal, noting that most of the contamination appears to be concentrated in the upper soil horizons.
- It is likely that inactive Underground Petroleum Storage Systems (UPSS) infrastructure is present on the site, and will require decommissioning and removal.

Table of Contents

DOCUMENT CONTROL I

EXECUTIVE SUMMARY II

ABREVIATIONS VIII

1 INTRODUCTION 1

1.1 GENERAL 1
1.2 SITE LAYOUT 2
1.3 SITE DETAILS 3
1.4 INVESTIGATION OBJECTIVES 3
1.5 SCOPE OF WORKS 4

2 PLANNING 4

2.1 OVERVIEW 4
2.2 INTERIM PLANNING SCHEME 4
2.2.1 ACCEPTABLE SOLUTIONS 4
2.2.2 EXCAVATION WORKS E2.6.2 P1 4
2.2.3 STATEMENT OF SUITABILITY 4

3 DESKTOP STUDY 5

3.1 SITE ZONING 5
3.2 SITE WALKOVER 5
3.3 MRT GEOLOGY MAPPING 6
3.4 HISTORICAL AERIAL PHOTOGRAPHY INTERPRETATION 7
3.5 WORKSAFE TASMANIA DANGEROUS GOODS RECORDS 8
3.6 ENVIRONMENT PROTECTION AUTHORITY RECORDS 8
3.7 SITE TOPOGRAPHY, DRAINAGE & HYDROGEOLOGY 9
3.8 GROUNDWATER 9
3.8.1 POTENTIAL UP-GRADIENT CONTAMINATION SOURCES 9
3.8.2 DOWNGRADIENT ECOSYSTEM RECEPTORS 9
3.8.3 REGISTERED WATER BORES 9
3.8.4 ACID SULFATE SOILS 9
3.9 POTENTIAL CONTAMINATION ISSUES 10
3.9.1 AREAS OF POTENTIAL CONCERN 10
3.9.2 CONTAMINANTS OF POTENTIAL CONCERN 10

4 FIELD INVESTIGATION PROCEDURES 10

4.1 WORKS SUMMARY 10

5.1 FIELD **15**
5.2 LABORATORY **16**

6 FIELD INVESTIGATION FINDINGS **16**

6.1 SOIL BORES **16**
6.1.1 GEOLOGICAL INTERPRETATION 16
6.1.2 GRAIN & DEPTH CLASS INTERPRETATION 16
6.1.3 SOIL CONTAMINATION OBSERVATIONS 17
6.1.4 LAND USE CLASS 18

7 SOIL ECOLOGICAL IMPACT ASSESSMENT **19**

7.1 PROTECTED ENVIRONMENTAL VALUES **19**
7.2 NEPM ASC (2013) GUIDELINES **19**
7.3 GUIDELINES **20**
7.3.1 ECOLOGICAL SCREENING LEVELS 20
7.3.2 ECOLOGICAL INVESTIGATION LEVELS 20
7.4 FINDINGS **22**
7.4.1 ECOLOGICAL SCREENING LEVELS 22
7.4.2 ECOLOGICAL INVESTIGATION LEVELS 23

8 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT **24**

8.1 GUIDELINES **24**
8.1.1 LAND USE CLASSIFICATION 24
8.1.2 ADOPTED LAND USE CLASSIFICATION 24
8.1.3 HEALTH INVESTIGATION & SCREENING LEVELS 24
8.2 FINDINGS **25**
8.2.1 DERMAL CONTACT - PETROLEUM HYDROCARBONS 25
8.2.2 DUST INHALATION & SOIL INGESTION 26

9 INDOOR INHABITANT PVI ASSESSMENT – HSL'S **28**

9.1 SELECTED MEDIA FOR ASSESSING PVI RISK **28**
9.2 LAND USE CLASS **29**
9.3 SOIL ASSESSMENT **29**

10 TRENCH WORKER PVI ASSESSMENT – HSL'S **30**

10.1 CLASSIFICATION **30**
10.2 FINDINGS **30**

11 SOIL DISPOSAL ASSESSSMENT **31**

12.3 POTENTIAL ECOLOGICAL RECEPTORS **33**
12.4 IDENTIFIED RECEPTORS **33**
12.4.1 IDENTIFIED HUMAN RECEPTORS 33
12.4.2 IDENTIFIED ECOLOGICAL RECEPTORS 33

13 CONCLUSIONS & RECOMMENDIATIONS **35**

13.1 DESKTOP ASSESSMENT **35**
13.2 ADOPTED GUIDELINE SETTINGS **35**
13.3 SOIL ASSESSMENT **36**
13.4 CONCLUSION SUMMARY **36**

REFERENCES **38**

LIMITATIONS STATEMENT **39**

APPENDIX 1 GES STAFF **40**

APPENDIX 2 PLANS FOR PROPOSED DEVELOPMENT (SOURCE LXN ARCHITECTURE) **41**

APPENDIX 3 SITE PHOTOGRAPHS **46**

APPENDIX 4 HISTORICAL AERIAL PHOTOGRAPHS AND IMAGES **55**

APPENDIX 5 WORKSAFE TASMANIA DANGEROUS GOODS SEARCH **60**

APPENDIX 6 CHAIN OF CUSTODY (COC) AND SAMPLE RECEIPT NOTIFICATION (SRN) **69**

APPENDIX 7 QUALITY ASSURANCE AND QUALITY CONTROL **74**

APPENDIX 8 CERTIFICATE OF ANALYSIS **85**

Figures

FIGURE 1 SITE LOCATION (IMAGE C/O THE LIST) 1
FIGURE 2 EXISTING SITE LAYOUT (IMAGE C/O GOOGLE EARTH) 2
FIGURE 3 HOBART INTERIM PLANNING SCHEME ZONES (2015) 5
FIGURE 4 MINERAL RESOURCES TASMANIA 1:25.000 SCALE MAPPING. 6
FIGURE 5 EPA REGULATED PREMISES AND REGISTERED UPSS 8
FIGURE 6 CONTOUR ELEVATIONS AND INFERRED SURFACE AND GROUNDWATER FLOW DIRECTION 9
FIGURE 7 BOREHOLE PLAN (BORE HOLE LOCATIONS ILLUSTRATED ON AERIAL PHOTOGRAPH WITH 1962 SITE PLAN OVERLAID) 11
FIGURE 8 BOREHOLE PLAN (BORE HOLE LOCATIONS ILLUSTRATED ON 1962 SITE PLAN) 12

Tables

TABLE 1 SITE DETAILS 3
TABLE 2 SUMMARY OF SITE INVESTIGATION WORK DATES 10
TABLE 3 SUMMARY OF SOIL SAMPLING METHODS 14
TABLE 4 OVERVIEW OF SOIL ANALYSIS AND QUALITY CONTROL 14
TABLE 5 SOIL FIELD QA/QC PROCEDURES AND COMPLIANCE 15
TABLE 6 SOIL LABORATORY QA/QC PROCEDURES AND COMPLIANCE 16
TABLE 7 SUMMARY OF GRAIN CLASS BASED ON USCS CLASSIFICATION 17
TABLE 8 SUMMARY OF SOIL CONTAMINATES CONSIDERED AS PART OF THIS INVESTIGATION, BASED ON NEPM (2013) ASC 19
TABLE 9 ADOPTED LAND USE SCENARIO FOR THE SOIL BORES 20
TABLE 10 CATION EXCHANGE AND CLAY CONTENT, ADOPTED FOR THE SITE 21
TABLE 11 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED WITH ESL'S FOR URBAN/RESIDENTIAL LAND USE. 22
TABLE 12 SOIL ANALYTICAL RESULTS COMPARED AGAINST ECOLOGICAL INVESTIGATION LEVELS AT COMMERCIAL LAND USE 23
TABLE 13 SUMMARY OF LAND USE SETTING AND DENSITY FOR DETERMINING EXPOSURE RISK 24
TABLE 14 SUMMARY OF EXPOSURE PATHWAYS AND PRELIMINARY (TIER 1) METHODS FOR ASSESSING HUMAN EXPOSURE RISK 24
TABLE 15 SOIL ANALYTICAL RESULTS COMPARED AGAINST CRC CARE (FRIEBEL & NADEBAUM, 2011) GUIDELINES FOR DERMAL CONTACT 25
TABLE 16 SOIL ANALYTICAL RESULTS COMPARED AGAINST NEPM ASC (2013) HEALTH INVESTIGATION LEVELS GUIDELINES 27
TABLE 17 PREFERRED METHODS FOR DETERMINING SITE PVI RISK 28
TABLE 18 SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL A FOR INDOOR VAPOUR RISK 29
TABLE 19 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL'S FOR ASSESSING PVI RISK TO TRENCH WORKERS 30
TABLE 20 SUMMARY OF IB105 CLASSIFICATION GUIDELINES 31
TABLE 21 SOIL ANALYTICAL RESULTS COMPARED AGAINST IB105 INVESTIGATION LIMITS FOR SOIL DISPOSAL 32

ABREVIATIONS

AEC	Areas of Environmental Concern
AHD	Australian Height Datum
ALS	Analytical Laboratory Services
ANZECC	Australia and New Zealand Environment and Conservation Council
BGS	Below Ground Surface
BH	Borehole
BTEXN	Benzene Toluene Ethylbenzene Xylene Naphthalene
COA	Certificate of Analysis
COC	Chain of Custody
COPC	Contaminant of Potential Concern
CRC CARE	Corporative Research Centre for Contamination Assessment and Remediation of the Environment
CSM	Conceptual Site Model
DQO	Data Quality Objectives
EOH	End Of Hole
EIL	Ecological Investigation Levels
ESL	Ecological Screening Levels
EPA	Environmental Protection Authority
ESA	Environmental Site Assessment
GDA94	Geocentric Datum of Australia 1994
GES	Geo-Environmental Solutions Pty. Ltd.
HIL	Health Investigation Levels
HSL	Health Screening Levels
IL	Investigation Levels
LOR	Limits of Reporting
MDL	Mean Detection Limit
NATA	National Association of Testing Authorities
NEPM ASC	National Environmental Protection (Assessment of Site Contamination) Measure
NHMRC	National Health and Medical Research Council
NL	Non Limiting
NRMMC	Natural Resource Management Ministerial Council
PAH	Polynuclear Aromatic Hydrocarbons
PCP	Physio-Chemical Parameters
PHC	Petroleum Hydrocarbons

1 INTRODUCTION

1.1 General

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at 156 New Town Road, New Town, Tasmania - hereby referred to as 'The Site'. The Site location is presented in Figure 1 and the aerial photograph is presented in Figure 2. GES was commissioned by Tim Lucas of Renew Developments Pty Ltd, to conduct the site assessment.

The Site is located in a commercial/retail precinct, surrounded by residential properties, in New Town, approximately 2.5 km NNW of Hobart CBD. The ESA has been requested by the client prior to submitting a planning permit. The ESA will compare contamination against E2.6.2 Excavation code of the Potentially Contaminated Land Code which will account for any future potential contact or excavation of earth such as services trenches or digging for foundations.

This ESA has been prepared by a suitably qualified and experience practitioner in accordance with procedures and practices detailed in National Environmental Protection Measure [Assessment of Site Contamination] (NEPM ASC; 2013) guidelines and key regulations and policies identified in the References section of this document. Personnel engaged in preparing this ESA are listed in Appendix 1 along with their relevant qualifications and years of experience.

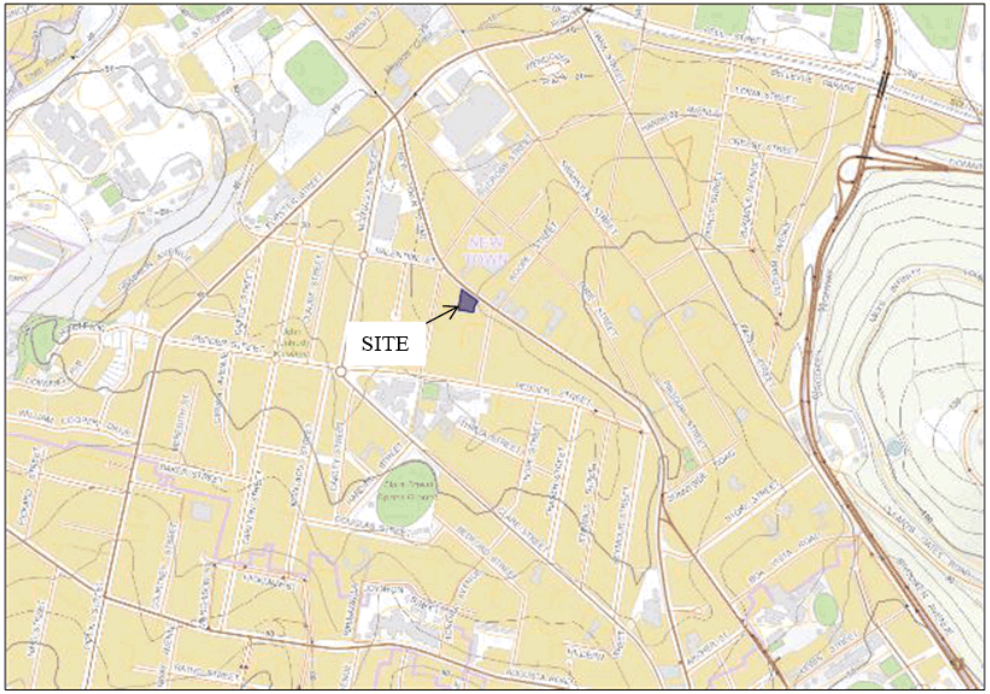


Figure 1 Site Location (Image C/O the LIST)

1.2 Site Layout

An aerial image of the existing site layout is presented in Figure 2.

Figure 2 Existing Site Layout (Image C/O Google Earth)

1.3 Site Details

Site details are presented in Table 1.

Table 1 Site Details

SITE LOCATION: 156 New Town Road, New Town, Tasmania, Australia
INVESTIGATION AREA The footprint of the site location
SITE ELEVATION & GRADIENT Approximately 38-40 m AHD, average slope around 7% to the WSW.
SITE SURFACING The site surface in the investigation area is predominantly sealed asphalt driveway and carparking areas and sealed concrete floor buildings, with natural soil (fill with disturbed appearance) present along the western and south western parts of the site.
TITLE REFERENCES PID 5516671, CT 171514/1
SITE OWNER Renewal Developments Pty Ltd
PREVIOUS LANDUSE Commercial operations; service station, workshop, residential (prior to 1962).
SITE SURROUNDING LAND ZONING *Hobart Interim Planning Scheme 2015 – Urban Mixed Use*
SITE LAND USE Commercial. Coffee shop and laundry mat.
PROPOSED LAND USE Construction of new residential apartments, with ground floor commercial operations and car parking basement.

1.4 Investigation Objectives

The objective of this ESA was to:

- To address E2.6.2 of the HCC Interim Planning Scheme 2015, through an invasive soil investigation.
- Report findings in an Environmental Site Assessment report, detailing specific onsite human health or environmental risk which may source from potentially detected contamination

1.5 Scope of Works

The scope of work for this ESA was to:

- Conduct a desktop investigation, and undertake an invasive soil investigation at the Site.
- Conduct a site walkover.
- Excavate seven (7) bore holes and collect thirteen (13) primary soil samples; the primary samples were sent for analysis of total recoverable hydrocarbons (TRH) Benzene Toluene Ethylbenzene Xylene Naphthalene (BTEXN), Polynuclear Aromatic Hydrocarbons (PAH), and a suit of fifteen (15) metals to a National Association of Testing Authorities (NATA) accredited laboratory.
- Soil samples were sent with quality assurance/ quality control (QA/QC) samples including one duplicate split sample and one rinsate blank sample.
- Determine the absence or presence and if present the level of site contamination and compare soil results against the relevant guidelines.
- Conduct a risk assessment, known as a Conceptual Site Model; and
- Report findings in an Environmental Site Assessment report, detailing specific onsite human health or environmental risk which may source from potentially detected contamination.

2 PLANNING

2.1 Overview

The client has requested an Environmental Site Assessment (ESA) of the Site in due diligence prior to submitting a Planning Permit with Hobart City Council (HCC) for a potential 3 storey building featuring commercial operations at ground floor level and a car parking basement. Draft designs are presented in Appendix 2 and are subject to change before final plans are submitted.

2.2 Interim Planning Scheme

2.2.1 Acceptable Solutions

As the history of the Site suggests that potentially contaminating activities may have taken place on and near the site, for any future potential ***excavation*** at the Site, there are no acceptable solutions to proposed works, and therefore E2.6.2 P1 performance criteria are to be addressed.

2.2.2 Excavation Works E2.6.2 P1

As there is proposed excavation works at the Site, there are no acceptable solutions to proposed works, E2.6.2 P1 performance criteria are to be addressed. The performance criteria identify that the excavation works must not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human health and the environment that includes:

  i. an environmental site assessment;

  ii. any specific remediation and protection measures required to be implemented before excavation commences; and

  iii. a statement that the excavation does not adversely impact on human health or the environment.

3 DESKTOP STUDY

3.1 Site Zoning

The Site is zoned *Urban Mixed Use* under the Hobart Interim Planning Scheme of 2015. The land use surrounding the Site is *Urban Mixed Use* and *Inner Residential,* with New Town Road zoned *Utilities*. (Figure 3). The site is to be assessed against land use Class D for assumed ground floor commercial use, and also compared against land use classes A, B and C to account for the potential of ground floor residential use.

Figure 3 Hobart Interim Planning Scheme Zones (2015)

3.2 Site Walkover

A site walkover was completed by GES staff on the 2nd September 2020. No obvious signs of contamination such as staining or odour was observed, however it should be noted that most of the soil is covered by asphalt and concrete. Photographs from the site including excavated soil cores from the bore holes, are presented in Appendix 3.

3.3 MRT Geology Mapping

The 1:25,000 scale geology map of the Greater Hobart area (see excerpt in Figure 4) shows that the investigation area overlays Triassic sedimentary rocks (Rv). Nearby geological units include Jurassic dolerite to the north east and Quaternary alluvial deposits downgradient to the west and north west of the site. The following geological units are displayed in Figure 4:

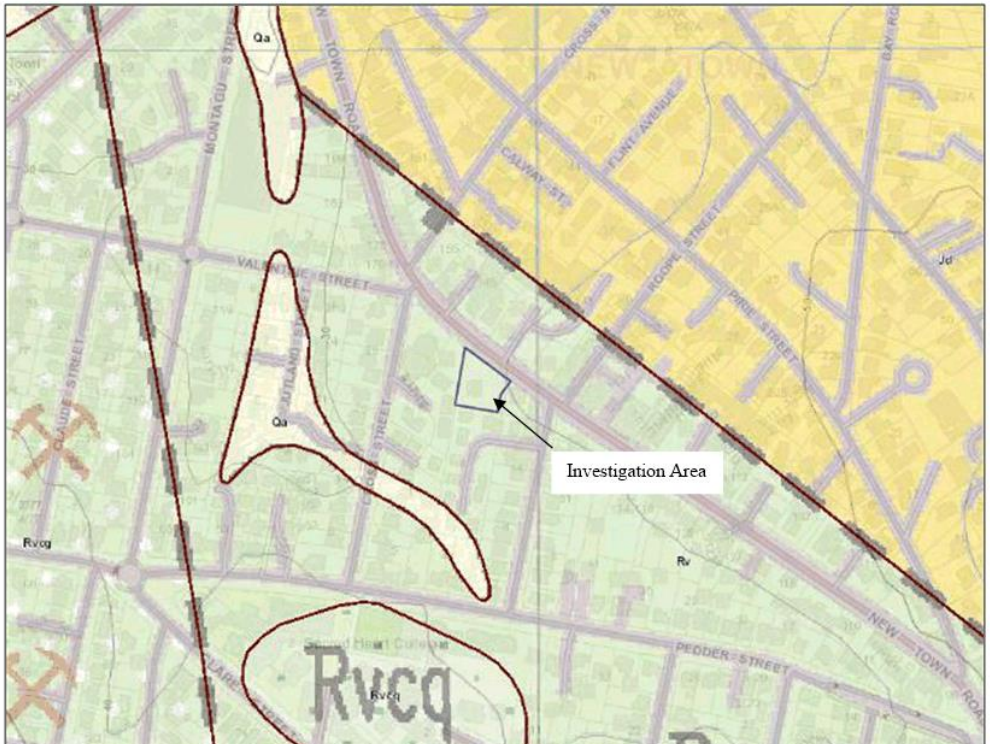
Rv - Undifferentiated volcaniclastic, quartz-rich lithic and quartzose sandstone, siltstone, mudstone, carbonaceous beds and coal seams

Rvcq - Interbedded cross-bedded white quartzose sandstone, quartz-rich lithic sandstone, siltstone and mudstone

Rvcg - Thickly- to thinly-bedded volcanic lithic sandstone, siltstone, mudstone and coal seams, fossil plants on some horizons (Newtown Coal Measure)

Jd - Dolerite and related rocks

Qa - Alluvial gravel, sand and clay.



3.4 Historical Aerial Photography Interpretation

The 1946, 1957, 1969, 1977, 1980, 1989 historical aerial photographs and Google Earth images from 2003 to 2020 were viewed as part of this ESA. The photographs are presented in Appendix 4.

In summary the following observations can be made from the historical aerial photographs, historical photographs:

1946 & 1957 aerial photographs – A large house is present on the site, with gardens and shrubs at the road frontage.

1969 & 1977 & 1980 aerial photographs – The orioginal house has been demolished and the new service station structure is visible, with an awning covering the bowsers.

Note - the site is licenced to store dangerous goods (petrol and kerosine) from 1962 (Section 3.5).

1989 aerial photograph – The service station building has been renovated, with the awning over the bowsers removed, and an addition to the south east.

Note - real estate listing history has building construction date as 1980, which could coincide with the addition to the building, it may be around this time that the service station ceased operation and Video Ezy operated from the premises. The site was sold in 2017, which could coincide with the coffee shop and laundry mat operations commencing.

2003-2015 Google Earth images – the site is consistent with the 1989 aerial photograph.

2016-2020 Google Earth images – the blue ice dispenser machine is visible, and fresh road markings (arrows and parking bays) are visible.

3.5 WorkSafe Tasmania Dangerous Goods Records

WorkSafe Tasmania (WST) was contacted regarding the Site. Correspondence with WST is presented in Appendix 5. The information contained within the Dangerous Goods Records is summarised as follows:

Documents approving storage of dangerous goods for year "74/75"

Application for storage of petrol and kerosine dated "7 Dec 1962"

Approval of tank 31/8/1962, inspected 28/11/1962

Driveway Layout for Service Station, site plan 25/5/1962

3.6 Environment Protection Authority records

Environmental Protection Authority (EPA) Tasmania, Property Information Requests (PIR)s are currently unavailable while staff have been allocated other tasks relating to the COVID-19 pandemic. The EPA Regulated Premises layer on The LIST shows no regulated premises within a 1 km radius of the site, three decommissioned UPSS (black pin) and one active UPSS (green pin) as illustrated in Figure 5. The UPSS 120 m to the ESE (upgradient) at 119 New Town Road was decommissioned in 2016, with GES undertaking testing and reporting for this site in 2013 and 2016. The active UPSS is at 101-103 Augusta Road, Lenah Valley, which is an active Caltex Service Station. This site is 930 m from the site, and in a different groundwater catchment to the site.

3.7 Site Topography, Drainage & Hydrogeology

The site has a gentle slope tending to a steeper bank of fill at the rear (south west) of the property, the average gradient of the area is 7%. Groundwater and surface water is expected to follow the topography and tend WSW around the Site to then follow a N trajectory around Montagu Street and then to Maypole Rivulet, which is the nearest ecological receptor approximately 500 m NNW of the site. Surface water is likely to enter stormwater infrastructure, and may discharge into Maypole Rivulet. Groundwater and surface water inferred flow directions are illustrated in Figure 6.

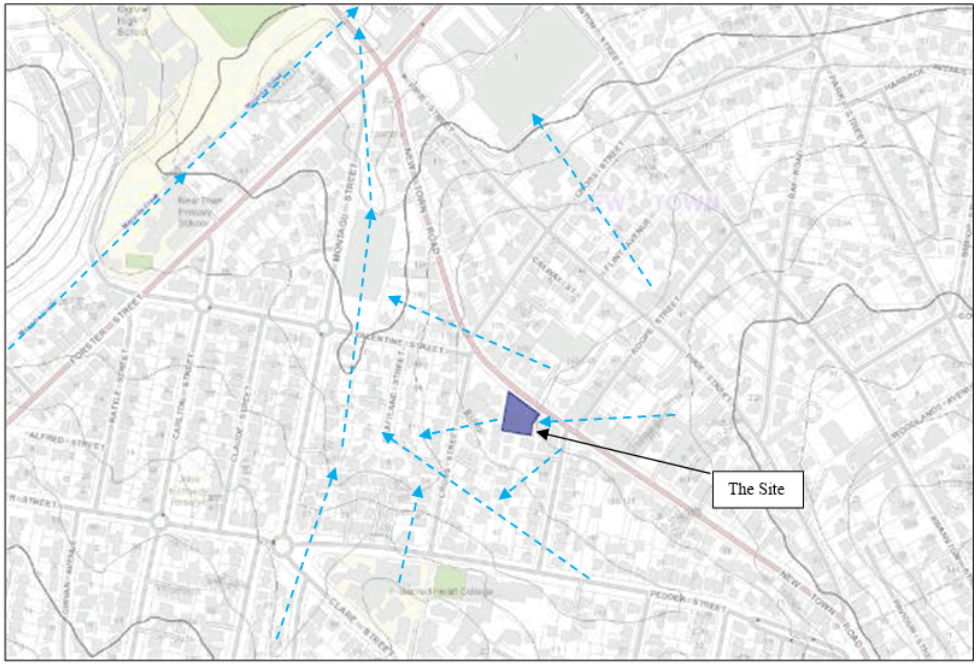


Figure 6 Contour Elevations and Inferred Surface and Groundwater Flow Direction

3.8 Groundwater

3.8.1 Potential Up-Gradient Contamination Sources

The majority of the land upgradient of the Site is residential, and not likely to feature contamination sources, with the exception of 119 New Town Road (former Mayne's Marine), where the UPSS was decommissioned and removed from the site.

3.8.2 Downgradient Ecosystem Receptors

Maypole Rivulet is present 500 m downgradient of the Site. Maypole Rivulet discharges into the River Derwent approximately 1.3 km to the NE of the Site.

3.8.3 Registered Water Bores

3.9 Potential Contamination Issues

3.9.1 Areas of Potential Concern

The Site is considered an area of potential concern due to the following potential contamination pathways.

- Use of the site as a service station, with UPSS storing petroleum chemicals present on site approximately 1962-1980.
- Unknown decommissioning dates of UPSS infrastructure, with UPSS potentially remaining on site since 1980.
- Fill of undetermined origins present at the site in the south western corner.

3.9.2 Contaminants of Potential Concern

Contaminants of potential concern (COPC) that have been considered include the following:

- Total Petroleum/Recoverable Hydrocarbons (TPH/TRH);
- Mono Aromatic hydrocarbons: Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene (BTEXN);
- Polynuclear Aromatic Hydrocarbons (PAHs);
- A suite of 15 Metals (south west part of the site); and
- Lead (entire site).

4 FIELD INVESTIGATION PROCEDURES

4.1 Works Summary

Site investigation works are summarised in Table 2, Figure 7, Figure 8 and Figure 9.

Table 2 Summary of Site Investigation Work Dates

Scope	Date	Lab Report	Details
Drilling/ Soil Sample Collection	2nd September 2020	EM2015530	13 primary soil samples, 1 duplicate sample and 1 Rinsate blank sample were collected from 7 bore holes.

Figure 7 Borehole Plan (Bore hole locations illustrated on aerial photograph with 1962 site plan overlaid)

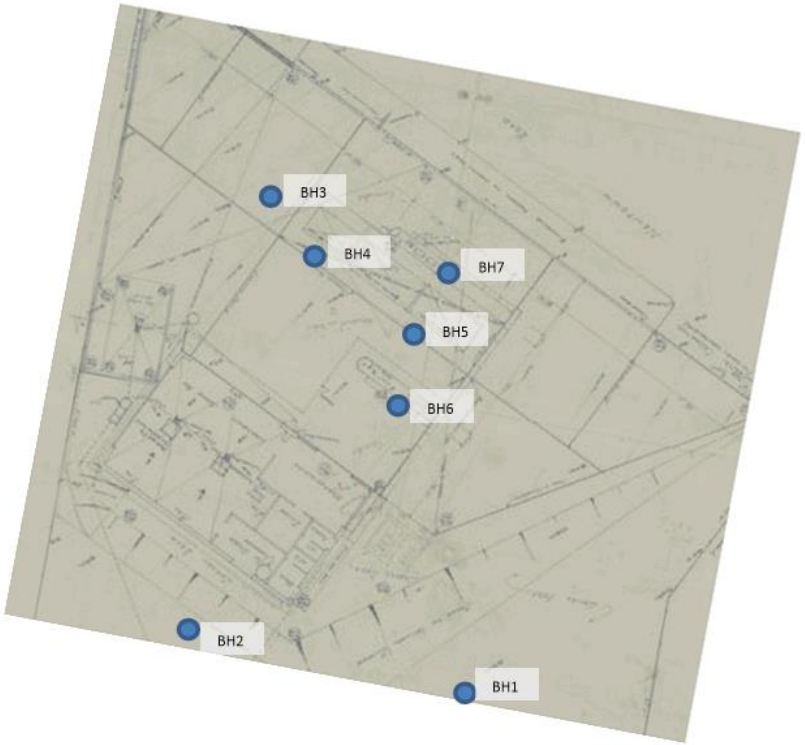


Figure 8 Borehole Plan (Bore hole locations illustrated on 1962 site plan)

Figure 9 Borehole Plan (Bore hole locations illustrated on aerial photograph)

4.2 Soil Investigation

4.2.1 Borehole Drilling

A total of seven holes were drilled for sampling for contamination impact. The bores were drilled by GES using the industry recognized Geoprobe direct push drilling system. The selected drilling method involved using a Geoprobe dual tube to retain wall integrity and eliminates risk of profile collapse whilst allowing extraction of 1.0 m length sample cores and allows for deployment of pre-packed well systems. The test holes were dug to depths of 2.0m or to refusal on underlying rock, to extract soil required for analysis, and to assess underlying geological conditions.

4.2.2 Soil Sampling

Soil sampling was conducted per the National Environmental Protection Measure (NEPM ASC 2013) and AS4482 sampling guidelines. Table 3 presents a summary of the soil assessment methodology adopted at the Site.

Table 3 Summary of Soil Sampling Methods

Activity	Details / Comments
Drilling Method	Geoprobe direct push drilling.
Soil Logging	Logging the soil was conducted in accordance with the unified soil classification system (USCS) as detailed in AS1726 (1993).
Decontamination of Sampling Equipment	Quantum Clean Laboratory Detergent (R213) was used to decontaminate reusable sampling equipment (hand auger) between each borehole sampling event.
Soil Screening	In accordance with AS4482.2. Individual soil samples were collected at 0.5 intervals below ground surface (bgs) and/or change in geology. Collected samples were deemed to not have odour associated with hydrocarbon contamination, and screening for volatile fractions using a photoionisation Detector (PID) was deemed not necessary.
Laboratory Soil Sample Collection	In accordance with AS4482.2. All samples were collected using disposable nitrile gloves. Samples were selected for laboratory analysis at; 0.5-0.6m below ground surface (BGS) (or 0.85-0.90m BGS in the case of BH7 due to deep concrete). and 1.5-1.6m BGS. A minimum number of samples were carefully selected which would provide enough information to delineate soil contamination.
Sample preservation	Samples were placed into a jar for laboratory analysis. Soil jars were placed in a pre-chilled cool box with ice bricks.
Sample holding times	Sample holding times exceeded acceptable range (based on NEPM ASC B3-2013), time from collection to extraction.

4.2.3 Soil Analysis

Primary and QC samples were submitted to Analytical Laboratory Services (ALS), Springvale, Melbourne for analysis. A total of 13 primary samples were selected for analysis. Chain of Custody (COC) documentation was completed and is provided in Appendix 6 along with the Sample Receipt Notification (SRN) for each batch. Table 4 presents a summary of the laboratory analyses undertaken.

Table 4 Overview of Soil Analysis and Quality Control

Analytes	Primary Samples	Duplicate[a]	Rinsate[c]
TPH	13	1	1
BTEX	13	1	1
PAH	13	1	1
Suite 15 Metals	13	1	1

Sampling Quality Control Standards (AS4482):
a – Duplicate one (1) in twenty (20) primary samples
b – Inter-lab duplicate split sample one (1) in twenty (20) primary samples
c – Single rinse sample per piece of equipment per day
d – Trip blank and Field blank where hydrocarbon odour is discernible

Given metals were analysed, there was a requirement to assess the following soil physical properties to determine soil threshold investigation levels: Soil grain class (sand/silt or clay); % Clay content; Cation exchange capacity (CEC); and Soil pH. The soil physical properties were based on knowledge of similar soil types encountered around the greater Hobart area.

5 QUALITY CONTROL

All Field and laboratory Quality Assurance and Quality Control (QA/QC) details and outputs are presented in Appendix 7.

5.1 Field

It is standard to expect up to 10% error in field duplication and up to 10% laboratory error. Therefore, in theory up to 20% error can be assumed on duplicate analysis. Some variation may exist in soil and groundwater because even though all efforts are made to split samples homogeneously, fragments of materials may bias samples in certain elements.

Relative Percentage Differences (RPDs) for the duplicate and triplicate samples where applicable are calculated using the method outlined below.

The acceptance criteria used for the RPDs depend on the levels of contaminants detected and the laboratory's Method Detection Limits. The closer the levels detected are to the MDL the greater the acceptable RPD. RPDs are calculated as follows:

- RPD <50% for low level results (<20 * MDL)
- RPD <30% for medium level results (20-100 * MDL)
- RPD <15% for high level results (>100 * MDL)
- No limit applies at <2 * MDL (Method Detection Limit)

Field QA/QC procedures and compliance are summarised in Table 5

Table 5 Soil Field QA/QC procedures and Compliance

QA/QC Requirement	Compliance	Comments
Appropriate sampling strategy used and representative samples collected	Yes	Sampling program was undertaken in accordance with AS4482.1-2005
Appropriate and well documented sample collection, handling, logging and transportation procedures.	Yes	Appropriate and well documented
Decontamination	Yes	Appropriate decontamination such as cleaning tools before sampling and between sample locations was undertaken
Chain-of-custody documentation completed	Yes	COC were completed in accordance with NEPM ASC Schedule B2, Section 5.4.5 and transported under strict COC procedures. The signed COC documents are included in this report, which includes the condition report on arrival of samples to the Laboratory, cross checking of sample identification and paperwork and preservation method.
Required number of splits: Duplicate & inter-lab splits: 1 per 20 primary samples	No	One duplicate sample was collected and tested, for 13 primary samples, as per AS4482.1-2005. An inter-laboratory split sample was not collected.
QA/QC samples reported RPD's within indicated MDL guidelines.	No	For Duplicate and BH1 0.5-0.6 pairs, 90% of analytes complied. Non compliances include: an RPD of 43% for Lead where <15% was expected; Inconsistent Detection for C10 - C36 Fraction (sum) an RPD of 79% for >C16 - C34 Fraction where <50% was expected; an RPD of 79% for >C10 - C40 Fraction (sum) where <50% was expected;
Required numbers of rinse blank samples collected with no laboratory detections?	Yes	One rinse blank sample was collected as per AS4482.1-2005
Trip blanks collected with no laboratory detections?	NA	According to AS4482.2-1999, soil trip blanks are required where volatile hydrocarbons are discernible. This was not required.
Field blanks collected with no laboratory detections?	NA	According to Australian Standards, there is no requirement to collect field blanks, unless there is concern with cross contamination risks.
Samples delivered to the laboratory within sample holding times and with correct preservative	Yes	All samples were sent to the laboratory with correct preservative, and within required holding time.

5.2 Laboratory

Soil laboratory QA/QC procedures and compliance are summarised in Table 6.

Table 6 Soil Laboratory QA/QC Procedures and Compliance

QA/QC Requirement	Compliance	Comments
All analyses NATA accredited	Yes	ALS Laboratories is NATA Accredited. Appropriate analytical methods used, in accordance with Schedule B(3) of the NEPM ASC 2013. Acceptable laboratory limits of reporting (LORs) adopted.
Method Blanks: zero to <Practical Quantitation Limit (PQL)	Yes	There were no method blank value outliers in the QCI report.
Laboratory Control Samples: 70% to 130% recovery for soil.	No	For EM2015530: Polynuclear Aromatic Hydrocarbons in sample QC-3253362-001, Benzo(a)pyrene, recovery greater than upper control limit.
Matrix spikes: 70% to 130% recovery for organics or 80%-120% recovery for inorganics	No	For EM2015530: Total Petroleum Hydrocarbons in sample EM2015530-003, C29-C26 Fraction, recovery greater than upper data quality objective. Total Recoverable Hydrocarbons (NEPM 2013) in sample EM2015530-003, >C34-C40 Fraction, recovery greater than upper data quality objective.
Duplicate Samples: 0% to <20% RPD.	Yes	There were no duplicate sample RPD outliers in the QCI report.
Surrogates: 70% to 130% recovery	Yes	There were no surrogate recovery outliers in the QCI report.
Analysis holding time outliers	Yes	There were no laboratory control outliers in the QCI report.
Quality Control Sample Frequency Outliers	No	For EM2015530: For NEPM 2013 B3 & ALS QC Standard; TRH – Semivolatile Fraction; Matrix Spikes 0, expected 5.

6 FIELD INVESTIGATION FINDINGS

6.1 Soil Bores

6.1.1 Geological Interpretation

The geology of the investigation area appears to be consistent with the Rv geological unit. Weathered sandstone rock was found at depths around 1.5m – 1.7m BGS. Some gravels and clay mineralogy of the soil suggest that upslope Jurassic dolerite may have influenced the soil in the profile, however the bedrock appears to be Triassic sandstone.

6.1.2 Grain & Depth Class Interpretation

Grain size classifications are applied to all soils at the Site to determine threshold screening level concentrations for hydrocarbons (and chromium) to assess soil ecological and human health risks.

Grain class threshold values are determined based on either the:

- sample grain size (in the case of ecological screening levels or chromium limits); or
- average grain class overlying the sample point (when assessing petroleum vapour screening levels) relative to the proposed finished floor level.

Table 7 provides a summary of the grain class averages for material overlying the sample.

Table 7 Summary of Grain Class Based on USCS Classification

Sample	Footing Excavation Depth^ - Red Fill Thickness^ - Green	Sample PVI Depth (m) Relative to Slab/Cut Depth	Soil Grain Size Class Averaging Above Soil Sample																	Attenuation			Petroleum Vapour Intrusion HSL Grain Class*	SAMPLE USCS
			GW	GP	GM	GC	SW	SP	SM	SC	ML	CL	OL	MH	CH	OH	CI	Rock (R)	Existing Pavement (P)	Crawl Space Thickness (m)	Proposed CONCRETE (CH)	Crawl Space	Biodegradation	
BH1 0.5-0.6	3.0	0.5								0.4										NA	0.1	1.0	1.0	SAND	SC
BH1 1.5-1.6	3.0	1.5				0.1				0.9							0.4			NA	0.1	1.0	1.0	SAND	GC
BH2 0.5-0.6	3.0	0.5								0.4										NA	0.1	1.0	1.0	SAND	SC
BH2 1.5-1.6	3.0	1.5								1.4										NA	0.1	1.0	1.0	SAND	SC
BH3 0.5-0.6	0.4	0.5								0.4								0.0		NA	0.1	1.0	1.0	SAND	SC
BH3 1.5-1.6	0.4	1.5				0.2				0.7							0.5	0.0		NA	0.1	1.0	1.0	SAND	GC
BH4 0.5-0.6	0.4	0.5						0.3		0.1								0.0		NA	0.1	1.0	1.0	SAND	SC
BH4 1.5-1.6	0.4	1.5						0.3		0.4							0.7	0.0		NA	0.1	1.0	1.0	CLAY	GC
BH5 0.5-0.6	0.4	0.5						0.2		0.2								0.0		NA	0.1	1.0	1.0	SAND	SC
BH5 1.5-1.6	0.4	1.5						0.2		0.5							0.7	0.0		NA	0.1	1.0	1.0	CLAY	CI
BH6 0.5-0.6	0.4	0.5				0.4												0.0		NA	0.1	1.0	1.0	SAND	GC
BH7 0.85-0.95	0.4	0.8																0.7		NA	0.1	1.0	1.0	CLAY	CI
BH7 1.5-1.6	0.4	1.5															0.7	0.7		NA	0.1	1.0	1.0	CLAY	CI

Footnotes:
* Grain class is modified based on proposed building construction: concrete is interpreted to have similar vapour intrusion properties to clay and is therefore designated as CLAY within the grain size averaging assessment; backfill is inferred to comprise of gravel (GW)
< Sample has been collected from above the proposed excavation (base of slab or proposed ground level) and is not relevant in PVI risk assessment
^ Excavation depths are approximate and may vary due to change in services depths or overall building/footing construction design

6.1.3 Soil Contamination Observations

No staining or odour consistent with hydrocarbon contamination were observed in excavated soil during the site visit.

6.1.4 Land Use Class

For surrounding properties, the potential PVI risk is characterized through application of CRC CARE HSL's for each individual property based on their existing land use (NEPM 2013; Friebel & Nadebaum 2010). The CRC CARE guidelines have been referenced to ensure that the correct land use and density category has been adopted for surrounding land use to ensure health risks are consistent with the HSL models. Aspects considered include the:

- Sensitivity of the existing or potential land use;
- Percentage of paved area for defining potential vapour migration risk;
- Type of basement garage which may influence the confinement of PHC vapours;
- Presence of a slab or cavity for discerning vapour intrusion risk.

If hydrocarbon impacted soil is resulting in ambient vapours discerned at the site, consideration is given to downgradient receptors. Where applicable, land use class therefore considers:

- Downgradient receptors where onsite HSL exceedances have been identified in passive vapour investigations; and
- Variations in land use for different parts of the proposed development.

The following land use classes are applied:

- *HSL D for Commercial*

We consider this land use class most applicable. Pending finalisation of plans, some parts of the site that may be open space or residential apartments may be nearby to natural soil. For this reason, we have presented results against multiple land use classes, to account for several scenarios.

7 SOIL ECOLOGICAL IMPACT ASSESSMENT

7.1 Protected Environmental Values

The requirement for protecting soil from contaminated activities in Tasmania is managed under the Environmental Management and Pollution Control Act 1994 (EMPCA) which states in Part 5A:

(2) An area of land is a contaminated site if –

(a) there is in, on or under that area of land a pollutant in a concentration that –

(i) is above the background concentration; and

(ii) is causing or is likely to be causing serious or material environmental harm or environmental nuisance, or is likely to cause serious or material environmental harm or environmental nuisance in the future if not appropriately managed;

Potential soil impact at the site is assessed through application of the following environmental investigation guidelines.

7.2 NEPM ASC (2013) Guidelines

The following ecological investigation guidelines are to be addressed in order to assess acceptable levels of risk to terrestrial ecosystems:

- NEPM ASC (2013) Ecological Investigation Levels (EIL's) – have been developed for selected metal and organic substances. EIL's depend on specific soil and physicochemical properties and land use scenarios and generally apply to the top two (2) metres of the soil profile (NEPM ASC 2013);
- NEPM ASC (2013) Ecological Screening Levels (ESL's) – have been developed for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon fractions. ESL's broadly apply to coarse- and fine-grained soils and various land use scenarios within the top two (2) metres of the soil profile (NEPM ASC 2013).

Soil analytical results are compared against ESL and EIL limits presented in Table 8.

Table 8 Summary of Soil Contaminates Considered as part of this investigation, based on NEPM (2013) ASC

Investigation Levels (IL)	Analytes Investigated						
	Hydrocarbons				Metals		DDT
	BTEX	TRH (F1 to F4)	Benzo(a) pyrene (PAH)	Naphthalene (PAH)	Zn, Cu, Cr(III), Ni & As	Lead	
ESL's	Analysed	Analysed	Analysed				
EIL's				Analysed	Analysed	Analysed	Not Analysed

7.3 Guidelines

7.3.1 Ecological Screening Levels

The following compounds were compared against NEPM ASC (2013) Ecological Screening Levels (ESL's):

- BTEX;
- F1 to F4 TRH; and
- Benzo(a)pyrene (PAH)

Selection of ESL threshold investigation limits are set out in the NEPM ASC (2013) guidelines and require classification of the soil according to:

- Land use sensitivity:
    - Areas of ecological significance
    - Urban residential and public open space; and
    - Commercial and industrial.

- Dominant particle size passing through a 2 mm sieve into:
    - Coarse – sand sizes and greater; and
    - Fine – clay and silt sizes.

Adopted NEPM ASC (2013) soil and land use classifications are presented below.

7.3.2 Ecological Investigation Levels

The following compounds were compared against Environmental Investigation Levels:

- Lead;
- Nickel;
- Chromium;
- Zinc;
- Copper;
- Arsenic; and
- Naphthalene.

There was a requirement to classify the soil according to physicochemical properties to develop investigation limits for the above listed compounds. Adopted physicochemical parameters are presented in the results tables.

Selection of EIL threshold investigation limits are set out in the NEPM ASC (2013) guidelines and require classification of the soil per specific soil and physicochemical properties which are presented in the results tables. The adopted land use scenarios presented in Table 9.

Table 9 Adopted Land Use Scenario for the Soil Bores

Land Use Scenario	Applicable Soil Bores
Areas of Ecological Significance	
Urban Residential & Public Open Space	*All soil bores*
Commercial & Industrial	*All soil bores*

Based on a preliminary assessment of site soil conditions, the following physicochemical properties are applied to assess guideline EIL's:

- Clay content consistent with field observations;
- A soil pH and cation exchange capacity (CEC) consistent with Table 10.

Table 10 Cation Exchange and Clay content, Adopted for the Site

Soil Physicochemical Properties			
USCS	Clay %	CEC	pH
R	100.00	10.00	4.5
GW	0.00	10.00	4.5
GP	0.00	10.00	4.5
GM	10.00	15.00	4.5
GC	30.00	20.00	4.5
SW	0.00	10.00	4.5
SP	0.00	10.00	4.5
SM	10.00	15.00	4.5
SC	20.00	20.00	4.5
ML	30.00	20.00	4.5
CL	100.00	35.00	4.5
OL	50.00	35.00	4.5
MH	30.00	35.00	4.5
CH	100.00	45.00	4.5
OH	100.00	60.00	4.5
PT	100.00	80.00	4.5
P	0.00	0.00	4.5
CM	100.00	35.00	4.5
CI	100.00	35.00	4.5
Rock	0.00	10.00	4.5

7.4 Findings

7.4.1 Ecological Screening Levels

Laboratory analytical results are presented in Appendix 8. Table 11 compares soil analytical results against relevant NEPM ASC (2013) ESL's. Concentrations which exceeded laboratory limit of reporting (LOR) are highlighted in bold, ESL exceedances are highlighted with a coloured cell, and samples within the proposed excavation zone would be marked with an X.

Benzo(a)pyrene was detected above ESL guideline limits for urban land use in four samples; 2-5x above ESL in BH1 0.5-0.6 & BH4 0.5-0.6, and 5-20x ESL in BH3 0.5-0.6 & BH5 0.5-0.6. Total Recoverable Hydrocarbons Fraction 3 was detected above ESL guideline limits for urban land use in four samples; 1-2x above ESL in BH1 0.5-0.6 & BH2 1.5-1.6, 2-5x above ESL in BH3 0.5-0.6, and 5-20 above ESL in BH2 0.5-0.6.

Table 11 Summary of Soil Analytical Results Compared with ESL's for urban/residential land use.

NEPM Ecological Screening Levels for Soil				BTEX				PAH	TRH			
Bold - Indicates LOR Exceedances X - Indicates Sample has been Excavated Colour Shading - Indicates ESL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x				Benzene	Toluene	Ethylbenzene	Xylenes	Benzo(a)pyrene	F1 (C6 - C10)	F2 (>C10 - C16)	F3 (>C16 - C34)	F4 (>C34 - C40)
Sample ID	Sample Date	Soil Texture Class (fine / coarse)	Land Use	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 0.5	LOR 10	LOR 50	LOR 100	LOR 100
BH1 0.5-0.6 X	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	**2***	<10	<50	**370**	<100
BH1 1.5-1.6 X	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH2 0.5-0.6 X	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	**1910****	**1160**
BH2 1.5-1.6 X	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	**330**	**220**
BH3 0.5-0.6	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	**12.7****	<10	<50	**750***	**240**
BH3 1.5-1.6	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH4 0.5-0.6	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	**3.3***	<10	<50	**230**	<100
BH4 1.5-1.6	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH5 0.5-0.6	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	**3.6****	<10	<50	**260**	<100
BH5 1.5-1.6	2/9/20	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH6 0.5-0.6	2/9/20	C	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	**120**	<100
BH7 0.85-0.95	2/9/20	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH7 1.5-1.6	2/9/20	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100

7.4.2 Ecological Investigation Levels

Table 12 compares soil analytical results against relevant EIL's. Concentrations which exceeded laboratory LOR are reported in the table, EIL exceedances are highlighted with a coloured cell, and samples within the proposed excavation zone would be marked with an X. Metals were tested at BH2 due to that area containing fill of unknown origins. There were exceedances of EIL guidelines at commercial land use for Zinc in BH2 0.5-0.6.

Table 12 Soil Analytical Results Compared Against Ecological Investigation Levels at commercial land use

NEPM Ecological Investigation Levels for Soil

Bold - Indicates LOR Exceedances
X - Indicates Sample Within Inferred Excavation

Colour Shading - Indicates EIL Exceedances:
>1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x

Sample ID	Sample Date	EIL Land Use Sensitivity Class	Soil CEC (cmolc/kg)	Soil pH	Soil Texture Class (fine /coarse)	Copper (CEC)	Copper (pH)	Nickel	Zinc	Chromium III	Lead	Arsenic	Naphthalene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1 0.5-0.6 X	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	718	----	<1
BH1 1.5-1.6 X	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	11	----	<1
BH2 0.5-0.6 X	2/9/20	URBAN	20	4.5 (3)	C	47	47	11	260*	10	804	6	<1
BH2 1.5-1.6 X	2/9/20	URBAN	20	4.5 (3)	C	38	38	13	114	8	110	<5	<1
BH3 0.5-0.6	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	227	----	<1
BH3 1.5-1.6	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	6	----	<1
BH4 0.5-0.6	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	89	----	<1
BH4 1.5-1.6	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	12	----	<1
BH5 0.5-0.6	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	97	----	<1
BH5 1.5-1.6	2/9/20	URBAN	35	4.5 (3)	F	----	----	----	----	----	11	----	<1
BH6 0.5-0.6	2/9/20	URBAN	20	4.5 (3)	C	----	----	----	----	----	16	----	<1
BH7 0.85-0.95	2/9/20	URBAN	35	4.5 (3)	F	----	----	----	----	----	<5	----	<1
BH7 1.5-1.6	2/9/20	URBAN	35	4.5 (3)	F	----	----	----	----	----	7	----	<1

pH Designation:
(1) Using 0.01M CaCl2 extract. Rayment, G.E. and Lyons, D.J. (2011). "Soil Chemical Methods – Australasia". 495+20 pp. CSIRO Publishing, Melbourne.
(2) pHF (1:5). Adjusted by subtracting 0.75 with +/- 0.25 error to calibrate to the CaCl2 method (per comm. ALS Brisbane Acid Sulphate Soils Laboartory). Methods in accordance with Ahern, C.R., Stone Y., and Blunden B. (1998b). 'Acid Sulfate Soils Assessment Guidelines'. Acid Sulfate Soils Management Advisory Committee, Wollongbar, NSW, Australia.
(3) Classified in accordance with parent material typical soil pH as per the Tasmanian soils database

8 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT

8.1 Guidelines

Guidelines presented are based on potential exposure of human receptors to soil impact which may include:

- Trench workers repairing or building services (typically to 1 m BGS). This classification is not dependent on the land use class.
- Onsite workers which may be exposed to potential shallow soil impact in non-paved areas of the site; and
- Onsite excavation works which may include basement carparks and deep foundations.

8.1.1 Land Use Classification

The NEPM ASC (2013) guidelines have been referenced to ensure that the correct land use and density category has been adopted for the site and the surrounding properties (where applicable). As per NEPM ASC 2013 guidelines, the adopted land use class is dependent on the building density and the opportunity for soil access by site occupants (exposure to potentially impacted soil). Aspects needing to be considered include:

- Whether the site is of sensitive land use such as a childcare centre, preschool, primary school or aged care facility in which case land use Class A is applicable;
- The percentage of paved area to determine direct contact exposure risk and therefore classification as low or high density; and
- Classification based on residential, recreational or commercial/industrial setting.

8.1.2 Adopted Land Use Classification

The adopted land use class is presented in Table 13. Land use class is based on the opportunity for soil access as per NEPM ASC 2013 guidelines. Soil access is anticipated to include current and future residents on site, and future potential construction workers, and trenchworks on site.

Table 13 Summary of Land Use Setting and Density for Determining Exposure Risk

Soil Bores	Construction Phase	Location	Land Use	Pathway	Land Use Class
All soil	During	Site	Construction workers and trench workers	ALL	D and trench worker specific
		Offsite	Neighbouring residential land users	DI	A
	Post	Site	Future trench workers	ALL	D and trench worker specific
			Future commercial workers	ALL	D
			Possible future open space users if soil is left remaining on the site	ALL	B

DC – Dermal Contact - Trench Worker Guidelines (CRC CARE 2013)
DI – Dust Inhalation - HIL Guidelines (NEPM ASC 2013)
SI – Soil Ingestion - HIL Guidelines (NEPM ASC 2013)
ALL – All of above

8.1.3 Health Investigation & Screening Levels

The main exposure pathways and methods for assessing heath risk from contaminated soils are presented in Table 14.

Table 14 Summary of Exposure Pathways and Preliminary (Tier 1) Methods for Assessing Human Exposure Risk

Exposure Scenario	Contaminant Type	Tier 1 Assessment Method	Reference
Vapour Inhalation – Indoor (PVI)	Petroleum Hydrocarbons	HSL's (addressed in PVI sections)	NEPM ASC (2013)
Vapour Inhalation – Trench (PVI)			CRC CARE (Friebel & Nadebaum, 2011)
Dermal Contact		HSL's	
Dust Inhalation	Metals PAH's	Health Investigation Levels (HIL's)	NEPM ASC (2013)
Soil Ingestion			

PVI – Petroleum Vapour Intrusion

8.2 Findings

8.2.1 Dermal Contact - Petroleum Hydrocarbons

Laboratory analytical results are presented in Appendix 8. Table 15 presents soil hydrocarbon analytical results compared against CRC CARE (Friebel & Nadebaum, 2011) HSL guidelines for assessing dermal contact risk. Concentrations which exceeded laboratory LOR are highlighted in bold, HSL exceedances would be highlighted with a coloured cell indicating the highest HSL land used class which is exceeded.

There were detections of TRH in seven samples, however there were no guideline exceedances for dermal contact and no dermal contact risk identified at any land use levels.

Table 15 Soil Analytical Results Compared Against CRC CARE (Friebel & Nadebaum, 2011) Guidelines for Dermal Contact

CRC CARE Health Screening Level Dermal Contact Hazard from Soil Hydrocarbons'		EP080: BTEXN					EP080/071: TRH			
		Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.2	0.5	0.5	0.5	1	10	50	100	100
HSL A Low Density Residential		100	14000	4500	12000	1400	4400	3300	4500	6300
HSL B High Density Residential		140	21000	5900	17000	2200	5600	4200	5800	8100
HSL C Recreational		120	18000	5300	15000	1900	5100	3800	5300	7400
HSL D Commercial/Industrial		430	99000	27000	81000	11000	26000	20000	27000	38000
Intrusive Maintenance Worker		1100	120000	85000	130000	29000	82000	62000	85000	120000
Date	Sample									
2/09/2020	BH1 0.5-0.6 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**370**	<100
2/09/2020	BH1 1.5-1.6 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
2/09/2020	BH2 0.5-0.6 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**1910**	**1160**
2/09/2020	BH2 1.5-1.6 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**330**	**220**
2/09/2020	BH3 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**750**	**240**
2/09/2020	BH3 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
2/09/2020	BH4 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**230**	<100
2/09/2020	BH4 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
2/09/2020	BH5 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**260**	<100
2/09/2020	BH5 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
2/09/2020	BH6 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**120**	<100
2/09/2020	BH7 0.85-0.95	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
2/09/2020	BH7 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100

8.2.2 Dust Inhalation & Soil Ingestion

Laboratory analytical results are presented in Appendix 8. Soil analytical results compared against combined dust inhalation and soil ingestion risk assessed through the application of NEPM ASC (2013) Health Investigation Levels (HILs) for exposure to soil contaminants are presented in Table 16. Concentrations which exceeded laboratory LOR are highlighted in bold (except for the metals), and HIL exceedances are highlighted with a coloured cell indicating the highest HIL land used class which is exceeded. There were no exceedances for dust inhalation and soil ingestion HIL guidelines at Commercial land class. Other land classes are presented as they may be relevant pending finalised designs of the development.

Lead exceeds Low Density Residential and Recreational land use classes at BH1 and BH2, however the material in these areas will be excavated and removed for the proposed car parking basement, hence this risk can be dismissed.

Benzo(a)pyrene exceeds Low Density Residential, High Density Residential and Recreational land use levels in BH3, BH4 & BH5, which represents the northern part of the site. The majority of the northern part of the site will feature commercial properties, and the majority of the open space will be overlying the basement and feature imported (clean fill) soil, so these exceedances may not be applicable. However they are presented pending the final development designs, in case soil from the northern part of the site will be in contact with either residential apartments or open space.

9 INDOOR INHABITANT PVI ASSESSMENT – HSL's

This PVI assessment has been conducted in accordance with relevant CRC CARE Technical Documentation and NEPM 2013 guidelines presented in references section of this report. The HSL assessment approach is generally the first (Tier 1) investigation phase adopted for assessing PVI risk at petroleum hydrocarbon (PHC) impacted sites. HSL guidelines have been applied for samples collected from the site to account for risks that may be associated with volatile hydrocarbon vapour intrusion into confined spaces where there may be an inhalation risk through longer term exposure. This does not constitute a full vapour risk assessment but provides additional information from which to further quantify any risk.

A detailed investigation (Tier 2 to 3) is recommended over an HSL assessment where an acute risk has been identified at the site (CRC CARE 2013) because of:

- Migrating product on surface soils beneath buildings;
- Strong PHC odours;
- Flammable risk in confined spaces; and/or
- Health complaints from occupants.

Based on the site visits, none of the above conditions have been identified at the site. If the outcome of this Tier 1 assessment reveals HSL exceedances for hydrocarbon vapour intrusion, a more detailed (Tier 2) assessment will be required to further evaluate the human health risk.

PVI risk is initially interpreted through the development of HSL threshold limits from the following classifications:

- The geology and or hydrogeology of the investigation point; and
- Land use sensitivity:

The resulting HSL threshold limits are compared with laboratory analytical results.

9.1 Selected Media for Assessing PVI Risk

Table 17 presents a summary of the preferred HSL approach to assessing PVI risk. In this case Radiello Vapour Samplers were used to determine ambient vapour concentrations of selected chemicals. Concentrations of PHC in soil were calculated, and were below all investigation limits (data not presented).

Table 17 Preferred Methods for Determining Site PVI Risk

Media Analysed	Method	Limitations	Order of Preference
Soil Gas	Concentrations of a soil gas through a soil vapor sampler	This approach provides the most reliable data in interpreting PVI risk, although direct modelling should be applied if concentrations exceed HSL threshold limits.	Primary
Groundwater	Concentrations of PHC in groundwater through deployment of monitoring wells	More robust and reliable that soil in determining onsite and in particular, offsite risks. Determining PVI risk based on groundwater is inherently conservative when interpreting vapour risk to account for not readily discernible preferential pathways. Reference may be drawn to alternative assessment approaches: 1) Application of site-specific conditions to the CRC CARE model for assessing PVI risk 2) Soil gas interpretation for areas where a PVI risk is identified from groundwater analysis.	Secondary
Soil	Concentrations of PHC in soil	Concentrations in soil may be subject variability due to soil moisture, organic content and oxygen ingress all which create significant bias in threshold values. Reliance is place on utilizing groundwater analysis over soil. Soil results provide localised information.	Tertiary

9.2 Land Use Class

For surrounding properties, the potential PVI risk is characterized through application of CRC CARE HSL's for each individual property based on their existing land use (NEPM 2013; Friebel & Nadebaum 2010). The CRC CARE guidelines have been referenced to ensure that the correct land use and density category has been adopted for surrounding land use to ensure health risks are consistent with the HSL models. Aspects considered include the:

- Sensitivity of the existing or potential land use;
- Percentage of paved area for defining potential vapour migration risk;
- Type of basement garage which may influence the confinement of PHC vapors;
- Presence of a slab or cavity for discerning vapour intrusion risk.

If hydrocarbon impacted soil is discerned at the site, consideration is given to downgradient receptors. Where applicable, land use class therefore considers:

- Downgradient receptors where onsite HSL exceedances have been identified in soil; and
- Variations in land use for different parts of the proposed development.

The following land use classes are applied:

- *HSL D for Commercial*
- *HSL A for Residential*

Results are presented against HSL A to account for the potential of some residential space being at ground level, and also as it is the most conservative level to compare results against.

9.3 Soil Assessment

Laboratory analytical results are presented in Appendix 8. Table 18 presents the results against a potential indoor vapour risk at HSL class A. Concentrations which exceeded laboratory LOR would be highlighted in bold. HSL exceedances would be highlighted with a coloured cell. There were no exceedances of HSL Class A or HSL Class D guideline limits, and no indoor vapour risk identified.

Table 18 Soil Analytical Results Compared Against HSL A for Indoor Vapour Risk

Soil Hydrocarbon HSL's for Assessing Indoor Vapour Intrusion (NEPM 2013) **Soil Sample Analysis**					EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances Colour Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x					Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	F1	F2
Sample ID	Sample Date	Depth Class	Grain Class	HSL	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
					LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH1 0.5-0.6	2/09/2020	0 - 1	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH1 1.5-1.6	2/09/2020	1 - 2	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH2 0.5-0.6	2/09/2020	0 - 1	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH2 1.5-1.6	2/09/2020	1 - 2	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH3 0.5-0.6	2/09/2020	0 - 1	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH3 1.5-1.6	2/09/2020	1 - 2	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH4 0.5-0.6	2/09/2020	0 - 1	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH4 1.5-1.6	2/09/2020	1 - 2	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH5 0.5-0.6	2/09/2020	0 - 1	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH5 1.5-1.6	2/09/2020	1 - 2	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH6 0.5-0.6	2/09/2020	0 - 1	SAND	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH7 0.85-0.95	2/09/2020	0 - 1	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH7 1.5-1.6	2/09/2020	1 - 2	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

10 TRENCH WORKER PVI ASSESSMENT – HSL's

10.1 Classification

The following Health Screening Assessment is based on hydrocarbon vapour intrusion risk to subsurface excavation workers within excavations. This is assessed through analysis of vapours from soil and soil vapours. Groundwater is generally not used to assess risk as threshold limits for all depth and grain classes are non-limiting. Land use classes are not applicable when assessing vapour intrusion into trenches.

Soil and soil vapour HSL's for assessing hydrocarbon risk to maintenance workers are based on CRC CARE Technical Report 10 guidelines (Friebel & Nadebaum 2011) and the following variables:

- Dominant grain size class of material at the soil sample depth or based on the dominant grain class of the backfill material based on US Agriculture Soil Classification System (SCS) and partitioning into either sand, silt or clay; and
- Classifying soil according to depth ranges: 0 to 2 m; 2 to 4 m; 4 to 8 m; and greater than 8 m;

10.2 Findings

Laboratory analytical results are presented in Appendix 8. Summary of Soil Analytical Results Compared against HSL's for Assessing PVI Risk to Trench Workers are presented in Table 19. Concentrations that exceeded laboratory LOR would be highlighted in bold, and if there were any HSL exceedances they would be highlighted with a coloured cell. There were no exceedances of the CRC CARE HSL guidelines for Assessing PVI Risk to Trench Workers and no risk identified.

Table 19 Summary of Soil Analytical Results Compared against HSL's for Assessing PVI Risk to Trench Workers

CRC CARE Health Screening Level Assessment for PHC Inhalation Risk To Trench Workers From Soil Sample Analysis				EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances										
Dark Grey Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x				Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction
Sample ID	Sample Date	Depth Class	Grain Class	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH1 0.5-0.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH1 1.5-1.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH2 0.5-0.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH2 1.5-1.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH3 0.5-0.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH3 1.5-1.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH4 0.5-0.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH4 1.5-1.6	2/09/2020	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH5 0.5-0.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH5 1.5-1.6	2/09/2020	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH6 0.5-0.6	2/09/2020	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH7 0.85-0.95	2/09/2020	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH7 1.5-1.6	2/09/2020	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

11 SOIL DISPOSAL ASSESSSMENT

11.1 Guidelines

Soil which is excavated from the Site for landfill disposal is to be assessed against Information Bulletin 105 (IB105) for Classification and Management of Contaminated Soil for Disposal. The EPA uses four categories to classify contaminated soil as per Table 20:

- (Level 1) Fill Material;
- (Level 2) Low Level Contaminated Soil;
- (Level 3) Contaminated Soil; and
- (Level 4) Contaminated Soil for Remediation.

Fixed numerical values are presented for soil concentrations and leachable fraction concentrations.

Table 20 Summary of IB105 Classification Guidelines

	Classification (with reference to Table 2)	Controlled Waste[1]	Comments
Fill Material[2] (Level 1)	Soil that exhibits levels of contaminants below the limits defined under *Fill Material* in Table 2.	Unlikely	Soil classified as *Fill Material* can still be a 'pollutant' under the *Environmental Management and Pollution Control Act 1994* and needs to be responsibly managed.
Low Level Contaminated Soil (Level 2)	Soil that exhibits levels of contaminants above the limits defined under *Fill Material* but below the limits defined under *Low Level Contaminated Soil* in Table 2.	Likely	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil (Level 3)	Soil that exhibits levels of contaminants above the limits defined under *Low Level Contaminated Soil* but below the limits defined under *Contaminated Soil* in Table 2.	Yes	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil for Remediation (Level 4)	Soil that exhibits levels of contaminants above the limits defined under *Contaminated Soil* in Table 2 (regardless of the maximum total concentrations) is generally ***not*** considered acceptable for off-site disposal without prior treatment.	Yes	Soil that contains contaminants that do not have criteria for leachable concentrations (*e.g.* petroleum hydrocarbons), and the levels of contaminants exceed the maximum total concentrations listed in *Contaminated Soil*, are generally classified as *Contaminated Soil for Remediation*.

[1] Controlled Waste is defined in the *Environmental Management and Pollution Control Act 1994*.
[2] Criteria for *Fill Material* are the limits set by the Director for the purposes of R.9(2)(a)(ii) in the *Regulations*.

11.2 Findings

The soil samples have been compared against IB105 guidelines for potential future soil disposal, see Table 21. The following conclusions can be made:

- 3 of the 13 samples are considered IB105 Level 3 (Contaminated Soil), these being; sample BH3 0.5-0.6 for Benzo(a)pyrene and Sum of Polycyclic Aromatic Hydrocarbons, sample BH4 0.5-0.6 for Benzo(a)pyrene, and sample BH4 0.5-0.6 for Benzo(a)pyrene.
- 2 of the 13 samples are considered IB105 Level 2 (Low Level Contaminated Soil), these being BH1 0.5-0.6 and BH2 0.5-0.6, due to; Cadmium, Lead, Zinc and hydrocarbons.
- 8 of the 13 samples are considered IB105 Level 1 (Clean Fill)

The Level 2 and Level 3 material is identified in the upper horizon (0.5-0.6m BGS), and the samples from lower depths are all considered Level 1 material. The contamination levels across the site can be considered as.

- Natural soil at depth is free of contamination
- Fill material at the southern and south western parts of the site is considered Level 2 material due to heavy metals and hydrocarbons.
- Contaminated soil at IB105 Level 3 impacted from historical hydrocarbon use and storage is present in the surface horizons around the northern part of the site.

Table 21 Soil Analytical Results Compared Against IB105 Investigation Limits for soil Disposal

Information Bulletin 105 Classification and Management of Contaminated Soil For Disposal		Arsenic	Barium	Beryllium	Cadmium	Chromium Total	Copper	Cobalt	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Benzo(a)pyrene	C6 - C9 Fraction	C10 - C36 Fraction (sum)	Sum of polycyclic aromatic hydrocarbons	Benzene	Toluene	Ethylbenzene	Total Xylenes
Unit		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		5	10	1	1	2	5	2	5	5	0.1	2	5	5	0.5	10	50	0.5	0.2	0.5	0.5	0.5
Investigation Level Selected																						
IB105 Level 1		<20	<300	<2	<3	<50	<100	<100	<300	<500	<1	<60	<10	<200	<0.08	<65	<1000	<20	<1	<1	<3	<14
IB105 Level 2		20	300	2	3	50	100	100	300	500	1	60	10	200	0.08	65	1000	20	1	1	3	14
IB105 Level 3		200	3000	40	40	500	2000	200	1200	5000	30	600	50	14000	2	650	5000	40	5	100	100	180
IB105 Level 4		750	30000	400	400	5000	7500	1000	3000	25000	110	3000	200	50000	20	1000	10000	200	50	1000	1080	1800
2/09/2020	BH1 0.5-0.6 X	----	----	----	----	----	----	----	718	----	----	----	----	----	2	<10	430	14	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH1 1.5-1.6 X	----	----	----	----	----	----	----	11	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH2 0.5-0.6 X	6	80	<1	4	10	47	6	804	188	<0.1	11	<5	260	<0.5	<10	2450	0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH2 1.5-1.6 X	<5	80	<1	<1	8	38	8	110	234	0.2	13	<5	114	<0.5	<10	440	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH3 0.5-0.6	----	----	----	----	----	----	----	227	----	----	----	----	----	12.7	<10	900	115	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH3 1.5-1.6	----	----	----	----	----	----	----	6	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH4 0.5-0.6	----	----	----	----	----	----	----	89	----	----	----	----	----	3.3	<10	270	27.1	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH4 1.5-1.6	----	----	----	----	----	----	----	12	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH5 0.5-0.6	----	----	----	----	----	----	----	97	----	----	----	----	----	3.6	<10	300	29.1	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH5 1.5-1.6	----	----	----	----	----	----	----	11	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH6 0.5-0.6	----	----	----	----	----	----	----	16	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH7 0.85-0.95	----	----	----	----	----	----	----	<5	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
2/09/2020	BH7 1.5-1.6	----	----	----	----	----	----	----	7	----	----	----	----	----	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5

12 CONCEPTUAL SITE MODEL

12.1 Potential Contaminants

The site is considered a potentially contaminated site due to the presence of UPSS.

Potential sources of contamination on site include; the use of the site as a service station, unknown decommissioning of UPSS infrastructure, and fill of undetermined origins present at the site in the south western corner.

Figure 10 illustrates potential risks that may be associated with potential site contamination. Potential pathways have been identified and ruled out in the Conceptual Site Model. The risks are considered to be potential risks rather than present risks as there were no exceedances of commercial land use investigation limits and the present land use is for commercial operations.

12.2 Potential Human Receptors

Potential human receptors considered during this investigation include; current and future commercial users of the site, any potential onsite constructions workers during any future potential site redevelopment and future trench workers (commercial land users / trench worker specific), the migration of dust off the site to nearby residential properties, and the possibility of open space or apartments being in contact with soil on the site (pending finalised designs).

12.3 Potential Ecological Receptors

The closest ecological receptor is the Maypole Rivulet, which is 500 m downgradient of the site.

12.4 Identified Receptors

12.4.1 Identified Human Receptors

No CRC CARE (2011) Health Screening Levels were found to be exceeded. NEPM ASC (2013) human Health Investigation Limits for dust ingestion and inhalation were not exceeded at commercial land use (HIL D), however Benzo(a)pyrene at bore holes 3, 4 & 5, and Lead at bore holes 1 & 2 exceed residential and recreational guidelines. This could affect future land users, pending the finalised designs of the proposed developments.

12.4.2 Identified Ecological Receptors

Exceedances of NEPM ASC (2013) Ecological Screening Levels were identified for Benzo(a)pyrene and Total Recoverable Hydrocarbons Fraction 3 (TRH F.3). Exceedances of NEPM ASC (2013) Ecological Investigation Levels were identified for Zinc. These identified contaminants could have an impact on ecological receptors if soil from the site is transported to ecological receptors.

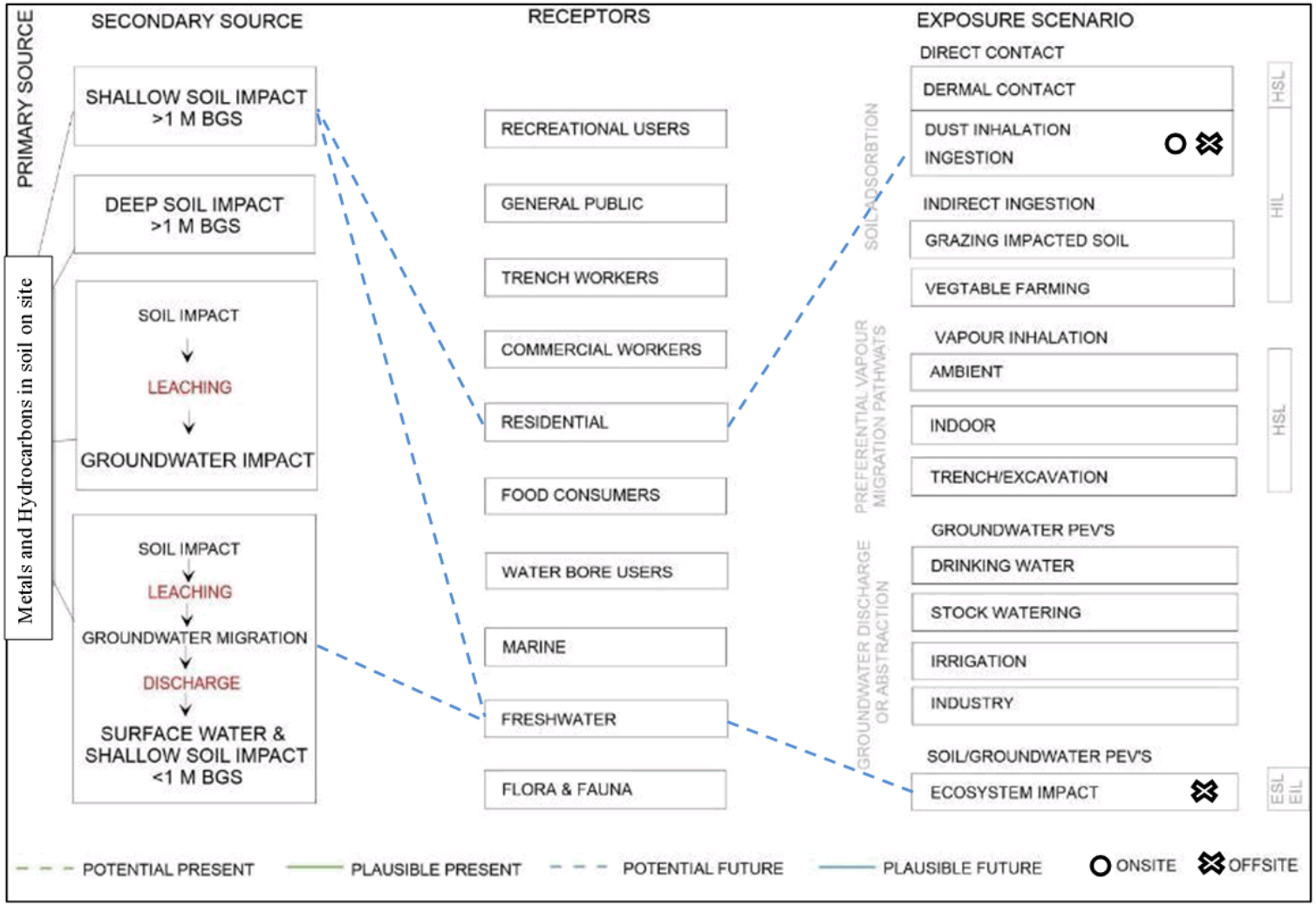


Figure 10 Conceptual Site Mode

13 CONCLUSIONS & RECOMMENDIATIONS

13.1 Desktop Assessment

The following information was gathered during the desktop investigation:

- The Site is zoned *Urban Mixed Use* under the *Hobart Interim Planning Scheme of 2015*. The site slopes at around 7% to the North West, Maypole Rivulet is the nearest ecological receptor 500 m downgradient of the Site.
- The geology of the investigation area is Triassic aged sedimentary rocks (Rv), with our bore holes finding weathered sandstone at variable depths.
- Historical Aerial photographs confirmed that an original building was present on the site since prior to 1946, with this building removed and the service station building erected prior to 1969. UPSS tanks were installed in 1962. The building was renovated between 1980 and 1989, which is likely to coincide with the service station being decommissioned around 1980 and Video Ezy operating on the site. More recently the site contains a coffee shop and laundry mat operations.
- The site is considered a potentially contaminated site due to past land use and the presence of UPSS. WorkSafe Tasmania Dangerous Goods Records indicate that petroleum fuels have been stored on site 1962-1980.
- Potential sources of contamination include the operations of a service station and workshop on the site, the presence of UPSS, and fill of undetermined origins on site.
- Contaminants Of Potential Concern (COPC) include the following: TPH/TRH; Mono Aromatic hydrocarbons: (BTEXN); PAH; and heavy metals.

13.2 Adopted Guideline Settings

The following investigation limits were adopted for the Site:

- Ecosystem receptor
  - Maypole Rivulet, freshwater ecosystem, Urban land use ESL and EILs
- Human Receptor
  - HSL D/ HSL D for soil direct contact risk to current and future site users (commercial) / Construction workers that may have access to the soil during developments
  - HIL D / HIL D for soil ingestion and dust inhalation risk to current and future site users (commercial) / Future construction workers soil direct contact risk
    - Note HIL land use classes A, B & C, are also compared in case open space or residential apartments at ground floor level are in contact with soil on the site.
  - HSL A/ HSL D indoor vapour risk to site users (residential) / Future potential trench workers

13.3 Soil Assessment

From the soil assessment, it is concluded that:

- Environment: Benzo(a)pyrene and Total Recoverable Hydrocarbons Fraction 3 exceeded NEPM ASC 2013 ESL guideline limits. Zinc exceeded NEPM ASC 2013 EIL guideline limits. A Stormwater Management Plan (SWMP) will be required to account for the management and erosion of soil with ecological impacts, to prevent soil effecting nearby ecological receptors, including Maypole Rivulet.
- Human Health: There were no human health guideline exceedances for dermal contact or vapour intrusion. There were no exceedances of NEPM ASC 2013 HIL guideline limits for dust inhalation and ingestion at commercial land use investigation limits, however there were exceedances for Benzo(a)pyrene and Lead at residential and recreational land use investigation limits. If the finalised designs indicate that the site is considered commercial operations at ground level, then there are no exceedances to guidelines and no risk to human health identified. However if areas of open space are placed on the soil found on site, or if apartments are placed at ground level, then a Contamination Management Plan (CMP) will be required to mitigate the risk to human health to residents post construction.
- Excavated Soil Management: In terms of *IB105* of the thirteen primary soil samples; Three samples are considered Level 3 Material (contaminated soil) due to Benzo(a)pyrene (in samples BH3 0.5-0.6, BH4 0.5-0.6 & BH5 0.5-0.6), and Sum of Polycyclic Aromatic Hydrocarbons (in sample BH3 0.5-0.6). Two samples are considered Level 2 Material (low level contaminated soil) due to Cadmium, Lead, Zinc and hydrocarbons. The remaining eight samples are considered Level 1 Material (clean fill). All of the samples taken at lower depths (0.85-0.90m and 1.5-1.6m) were considered Level 1 Material, suggesting that contamination is restricted to the upper horizons.

13.4 Conclusion Summary

GES recommends the following:

- There were no human health guideline exceedances for dermal contact, soil vapour intrusion or trench worker vapour risk. There were no HIL guideline exceedances for dust inhalation and ingestion at commercial land use class, but there were exceedances at residential and recreational land use for Benzo(a)pyrene and Lead. If developments include open space or residential apartments at ground level, the site will require a Contamination Management Plan (CMP) relating to human receptors prior to soil disturbance during construction, and including mitigation measures post construction. If the entirety of the site is considered commercial land use at ground floor level (this may include the apartments being above the basement car park, and the soil at the open space area being excavated and replaced with clean fill), then the CMP will not be required.
- There is potential for ecological impact from hydrocarbons and heavy metals entering the waterway or impacting other ecological receptors during excavation, and a Stormwater Management Plan (SWMP) is required, to control erosion of excavated soil that may have an ecological impact.
- For soil disposal, the soil on site is a mixture of Level 1 (clean fill), Level 2 (low level contaminated soil) and Level 3 (contaminated soil) according to IB105. Any disposal of soil off-site must be in accordance with IB105 and the controlled waste regulations. We recommend excavated material be stockpiled on-site where additional testing can better delineate the areas of contamination prior to soil disposal, noting that most of the contamination appears to be concentrated in the upper soil horizons. We also recommend leachate testing of excavated soil given Benzo(a)pyrene may be present in a less mobile state, hence retesting excavated soil could lead to lower IB105 contamination levels, reducing the costs of soil remediation and disposal to the client.
- It is likely that inactive Underground Petroleum Storage Systems (UPSS) infrastructure is present on the site, and will require decommissioning and removal. Soil testing around the area of the UPSS found mostly low levels of hydrocarbons, not exceeding human health guidelines at commercial land use investigation limits.

Given the past land use and presence of UPSS, localised areas of soil contamination may be present on the site not identified during this investigation. If during excavation, areas of hydrocarbon odour or staining are uncovered, we suggest that the developer contact GES or a suitably qualified environmental consultant immediately for assessment.

Yours faithfully,

Mark Downie B.Agr.Sci
Soil Scientist

REFERENCES

ANZECC, 2000. *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*. Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council.

AS/NZS 1726:1993. Geotechnical Site Investigations. Standards Australia, 1993.

AS 4482:2005 Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds, Standards Australia, 2005.

CRC CARE 2013, Petroleum Vapour Intrusion assessment: Australian guidance, CRC CARE Technical Report no. 23, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

CRC CARE 2017b, Risk-based Management and Remediation guidance for benzo(a)pyrene. Technical Report no. 39, CRC for Contamination Assessment and Remediation of the Environment, Newcastle, Australia.

Davis, GB, Merrick, NP & McLaughlan, RG 2006, Protocols and techniques for characterising sites with subsurface petroleum hydrocarbons – a review, Technical Report no. 2, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Patterson, BM & Trefry, MG 2009a, Biodegradation of petroleum hydrocarbon vapours, Technical Report no. 12, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

DPIPWE (2020), Groundwater Bore Access Portal. Department of Primary Industries, Parks, Water and Environment. https://wrt.tas.gov.au/groundwater-info/

EPA Tasmania, 2018. Information Bulletin (IB)105. *Classification and Management of Contaminated Soil for Disposal.* Version 3. Environmental Protection Authority Tasmania.

Friebel, E & Nadebaum, 2011a, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document', CRC for Contamination Assessment and Remediation of the Environment, CRC CARE Technical Report no. 10, Adelaide.

Friebel, E & Nadebaum, 2011b, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 2: Application document', CRC for Contamination Assessment and Remediation of the Environment, CRC CARE Technical Report no. 10, Adelaide.

GES, 2016.Environmental Site Assessment, 119 New Town Road, New Town, June 2016. Geo-Environmental Solutions, 29 Kirskway Place, Battery Point, Tasmania.

NEPC, 1999. Guideline on Data Collection, Sample Design and Reporting Schedule B (2), National Environmental Protection Measure (Assessment of Site Contamination), National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)

NEPM, 1999.Guideline on Investigation Levels for Soil and Groundwater, Schedule B (1), National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1).

Rayment, G. E. & Lyons, D. J. 2011. Soil Chemical Methods Australasia. CSIRO Publishing.

The LIST (2020). Land Information System Tasmania Online Database. Department of Primary Industries, Parks, Water and Environment. 2020. https://www.thelist.tas.gov.au/app/content/home

LIMITATIONS STATEMENT

This *Environmental Site Assessment* Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and Renewal Developments Pty Ltd ('the Client'). To the best of GES's knowledge, the information presented herein represents the Client's requirements at the time of printing of the Report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that described in this Report. In preparing this Report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this Report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible soil and groundwater contaminant over the whole area of the site. Samples collected from the investigation area are assumed to be representative of the areas from where they were collected and indicative of the contamination status of the site at that point in time. The conclusions described within this report are based on these samples, the results of their analysis and an assessment of their contamination status.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third party.

Appendix 1 GES Staff

Geo-Environmental Solutions (GES) is a specialist geotechnical and environmental consultancy providing advice on all aspects of soils, geology, hydrology, and soil and groundwater contamination across a diverse range of industries.

Geo Environmental Solutions Pty Ltd:

- ACN – 115 004 834
- ABN – 24 115 004 834

GES STAFF - ENGAGED IN SITE INVESTIGATION WORKS

Dr John Paul Cumming B.Agr.Sc (Hons) Phd CPSS GAICD

- Principle Author and Principle Environmental Consultant
- PhD in Environmental Soil Chemistry from the University of Tasmania in 2007
- 18 years' experience in environmental contamination assessment and site remediation.

Mr Mark Downie B.Agr.Sc

- Soil Scientist – 15 years' professional work experience
- 8 years' experience in contamination assessment and reporting of soils and groundwater.

Mr Aaron Plummer (Cert. IV)

- Soil Technician
- 6 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

Mr Grant McDonald (Adv. cert. hort.)

- Soil Technician
- 10 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

GES STAFF – CONTAMINATED SITES EXPERIENCE

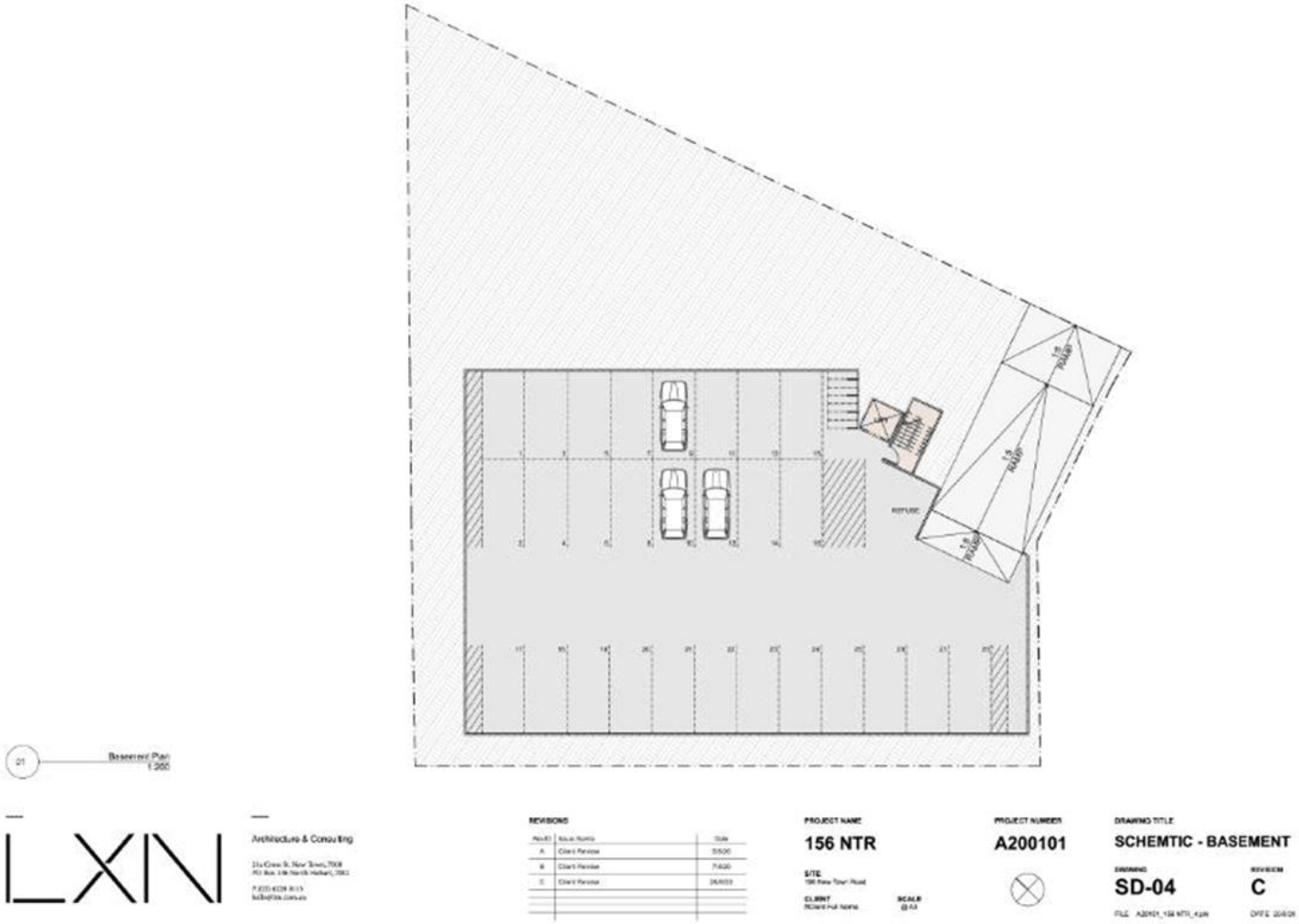
Ms Sarah Joyce BSc (Hons)

- Senior Environmental Scientist
- Honours in Geography and Environmental Science at the University of Tasmania in 2003;
- Undergraduate Degree Double Major in Geology and Geography & Environmental Science
- 15 years professional work experience and 7 years contaminated site assessment
- Attendance to recent relevant workshops by ALGA – Risk Assessment 101 (May 2018); Vapour Intrusion Workshop (Part A) – Petroleum Hydrocarbons (July 2017)

Dr Sam Rees B.Agr.Sc (Phd)

- Soil & Environmental Scientist
- 6 years' experience in hydrocarbon and heavy metal contamination assessment and reporting of soils and groundwater.

Appendix 2 Plans for proposed development (source LXN Architecture)



Environmental Site Assessment: 156 New Town Road, New Town

Environmental Site Assessment: 156 New Town Road, New Town

Environmental Site Assessment: 156 New Town Road, New Town

Environmental Site Assessment: 156 New Town Road, New Town

APARTMENT SCHEME REV C

Subject Site	1372 (sqm)	
Building Area (GFA)	3530 (sqm)	(excludes podium)

Building Area by Floor

	Carpark (sqm)	Circulation (sqm)	Apartments (incl balconies)	Commercial Tenancy (sqm)	Total GFA (sqm)
Basement	720	0	-	-	720
Ground Floor	-	40	539	340	919
Ground Floor Podium	-	225	0	0	225
Level 1* incl GF study	-	120	1030	0	1150
Level 2	-	60	456	0	516

* Circulation includes lift, stair and common zones

Apartments

Unit Number	TYPE	APT GFA	POS	COMMERCIAL TENANCY	Total GFA (sqm)
TEN-01	COMM	-	-	312	312
TEN-02	COMM	-	-	28	28
TEN-03	COMM	-	-		0
TEN-04	COMM	-	-		0
APT-01	2 BED	75	70	-	145
APT-02	2 BED	67	28	-	95
APT-03	2 BED	70	28	-	98
APT-04	2 BED	70	28	-	98
APT-05	2 BED	75	28	-	103
APT-06	4 BED	127	13	-	140
APT-07	4 BED	110	13	-	123
APT-08	2 BED	77	13	-	90
APT-09	2 BED	67	10	-	77
APT-10	2 BED	66	13	-	79
APT-11	2 BED	83	9	-	92
APT-12	2 BED	71	10	-	81
APT-13	2 BED	85	9	-	94
APT-14	2 BED	68	7	-	75
APT-15	2 BED	69	7	-	76
APT-16	3 BED	120	30	-	150
APT-17	2 BED	83	12	-	95
APT-18	3 BED	120	15	-	135
APT-19	3 BED	115	15	-	130

Car Parks

	Residential	Visitor	Commercial	Motocycle	Bicycle
Basement (28)	27	0	1	0	7

P.O.S - Private open space

LXN

Architecture & Consulting

REVISIONS

Rev ID	Issue Name	Date
A	Client Review	22/7/20
B	Client Review	7/8/20
C	Client Review	24/9/20

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

SCALE
@ A3

PROJECT NUMBER
A200101

DRAWING TITLE
AREA SCHEDULES

DRAWING
SD-09

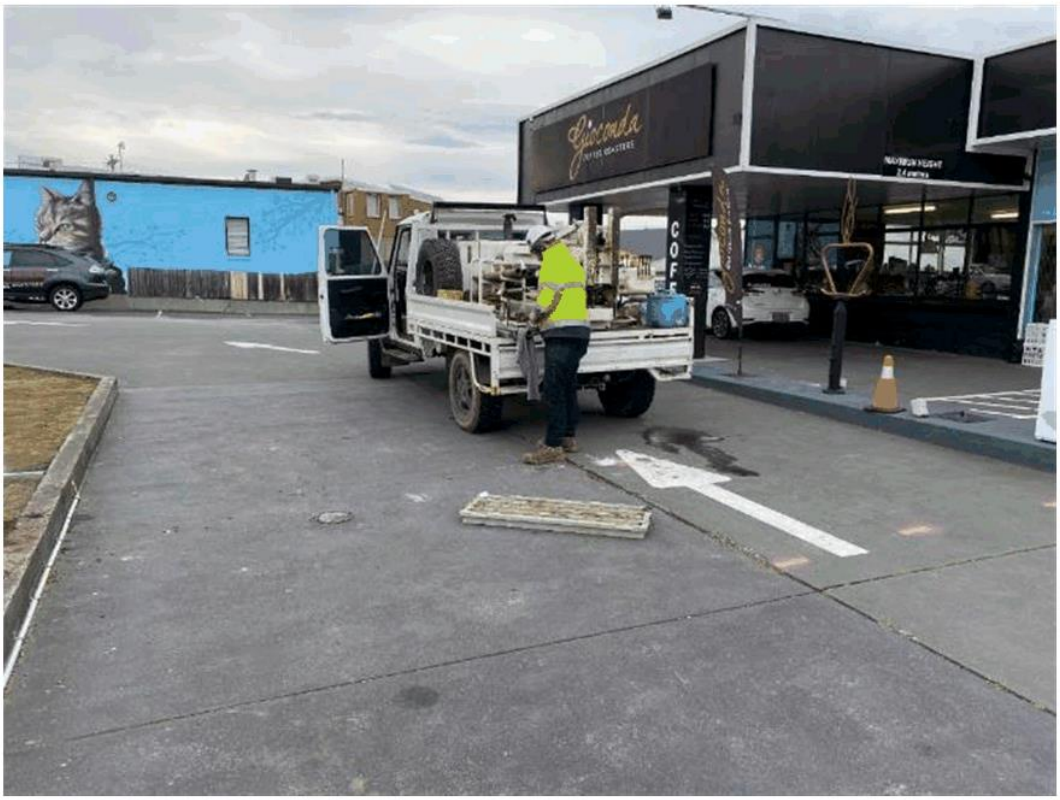
REVISION
C

FILE A200101_156 NTR_4.pln

DATE 26/8/20

Appendix 3 Site Photographs

LAUNDRY
156


Giacomo

"Fresh Today...Fresh Ice...Pure Water"
Takeaway
COFFEE

Appendix 4 Historical Aerial Photographs and Images

1946 – Source DPIPWE

1957 – Source DPIPWE

1969 – Source DPIPWE

1977 – Source DPIPWE

1980– Source DPIPWE

1989 – Source DPIPWE

October 2003 – Source Google Earth

March 2008 – Source Google Earth

January 2016 – Source Google Earth

April 2019 – Source Google Earth

Appendix 5 WorkSafe Tasmania Dangerous Goods Search

Search Results (Environmentally Relevant Activity)

Site ID: 215
Address: 156 New Town Rd
New Town 7008
File Number: B420
Held By: Workplace Standards Tasmania
File From: 1962 ***To:*** 1980
Location Status: Confirmed
PID: 5516671
Comments:
Activity:
Underground Storage Tank/s

Wednesday, 8 January 2020 *Page 1 of 1*

Search Results (Names Associated With Site)

Site ID: 215
Address: 156 New Town Rd
New Town 7008
File Number: B420
Held By: Workplace Standards Tasmania
File From: 1962 ***To:*** 1980
Location Status: Confirmed
PID: 5516671
Comments:
Names Associated With Site:
Boomerang Service Station
Shell
Albert William Walters

Wednesday, 8 January 2020 *Page 1 of 1*

File No. B420

DEPARTMENT OF MINES, TASMANIA

NAME OR SUBJECT: Boomerang Service Station
(A. G. Burton)

ADDRESS: 156 New Town Rd.

New Town

Doc/16/56305

Environmental Site Assessment: 156 New Town Road, New Town

34476 THE DANGEROUS GOODS ACT 1976 252 NAPP-199

DETAILS OF BULK STORAGE									INSTALLATIONS PENDING			
Approved	Pumps	Type	Tanks	Capacity	Total	Aggregate Storage	Company	Remarks	Approved	Installed	Company	Details
							Shell					

Package Storages:

CLASS A ..... kilolitres CLASS B ..... kilolitres ..... kg/tonnes

LICENSED QUANTITIES							LICENCES ISSUED					
Year	Class A	Class B	LPG	Fee $	c	Amended	Date	Year	Licence Number	Date	Year	Licence Number
74/75	25.00	2.28		22	00		7.5.71	79/80	6240			

Situation of Storage 156 New Town Rd.

Name: Boomerang S/ST. Address: 156 NEW TOWN ROAD, N/TOWN Ref No. B420

34476 THE DANGEROUS GOODS ACT 1976 NAPP-199

DETAILS OF BULK STORAGE									INSTALLATIONS PENDING			
Approved	Pumps	Type	Tanks	Capacity	Total	Aggregate Storage	Company	Remarks	Approved	Installed	Company	Details

Package Storages:

CLASS A ..... kilolitres CLASS B ..... kilolitres ..... kg/tonnes

LICENSED QUANTITIES							LICENCES ISSUED					
Year	Class A	Class B	LPG	Fee $	c	Amended	Date	Year	Licence Number	Date	Year	Licence Number

Environmental Site Assessment: 156 New Town Road, New Town

FORM 6

Inflammable Liquids Act 1929

RECEIVED - 7 DEC 1962
DEPT. OF MINES

APPLICATION FOR LICENCE IN RESPECT OF PREMISES FOR MANUFACTURE OF OR KEEPING INFLAMMABLE LIQUIDS OR DANGEROUS COMMODITIES

1. Applicant's Full Name ALBERT WILLIAM WATERS
2. Applicant's Occupation Service Station proprietor
3. Applicant's Postal Address 11 Hull St. Glenorchy
4. Situation of Premises to be Licensed 156 New Town Road
5. Name of Municipality and Town or Township within which, or within five miles of which, the Premises is situated New Town
6. Name and quantity to be manufactured / kept under this Application:—
   - Inflammable Liquid Class A (Petrol, &c.) 6,500
   - Inflammable Liquid Class B (Kerosene, &c.) 500.
   - Dangerous Commodity
7. Number of Tanks and ~~Package Storage Areas~~ under this Application 1x3,000, 1x3,000 & 2x500.
8. Name and Total Quantity to be kept:—
   - Inflammable Liquid Class A (Petrol, &c.) 6,500 (5,000 N/S 500 Pre-Mix).
   - Inflammable Liquid Class B (Kerosene, &c) 500 Kerosene
   - Dangerous Commodity —
9. Total Number of Tanks and ~~Package Storage Areas~~ installed 1x2,000 (~~[illegible]~~ not in use) 2x3,000 & 2x500.

I declare that the above statements and answers are true to the best of my knowledge and belief.

(Signed) A Waters

Dated this Sixth day of December, 1962

(*This Application, with Licence Fee of* ~~[illegible]~~ £11-0-0, *to be forwarded to—*
Director of Mines, Hobart)

(*Scale of fees is shown on reverse hereof*)

7257
28880
£11
7/12/62

Environmental Site Assessment: 156 New Town Road, New Town

SCALE OF FEES

Licence Fee for keeping Inflammable Liquids, Classes A and B:—

		£			£
	Up to 500 gallons	1	From	12,001 to 24,000 gallons	19
From	500 to 1,000 gallons	2	From	24,001 to 36,000 gallons	22
From	1,001 to 1,500 gallons	3	From	36,001 to 48,000 gallons	25
From	1,501 to 2,000 gallons	4	From	48,001 to 61,000 gallons	27
From	2,001 to 2,500 gallons	5	From	61,001 to 74,000 gallons	29
From	2,501 to 3,000 gallons	6	From	74,001 to 87,000 gallons	31
From	3,001 to 3,500 gallons	7	From	87,001 to 100,000 gallons	33
From	3,501 to 4,000 gallons	8	From	100,001 to 200,000 gallons	37
From	4,001 to 5,000 gallons	9	From	200,001 to 300,000 gallons	41
From	5,001 to 6,000 gallons	10	From	300,001 to 400,000 gallons	45
From	6,001 to 7,000 gallons	11	From	400,001 to 500,000 gallons	49
From	7,001 to 8,000 gallons	12	From	500,001 to 600,000 gallons	53
From	8,001 to 9,000 gallons	13	From	600,001 to 700,000 gallons	57
From	9,001 to 10,000 gallons	14	From	700,001 to 800,000 gallons	61
From	10,001 to 11,000 gallons	15	From	800,001 to 900,000 gallons	65
From	11,001 to 12,000 gallons	16			

every 300,000 gallons or part thereof in excess of 900,000 gallons £4

Department of Mines

Tasmania

Date 30 / 11 / 62.

MEMORNANDUM

For the Director of Mines, Hobart.
From the Inspector of Explosives,... Hobart.....

Record of Inspection of Installation

Premises of: Shell Oil Co. (Wiggins) 156 New Town Rd, Hobart.

Known as:

Oil Company: Shell.

Date of Approval: 31 Aug 62.

Date of inspection: 28/11/62

Finding: ~~Unsuitable~~ Suitable) for licensing

Pump Outfit ~~Package Storage Area~~:

Variation from Approval:

1 x 2000 gallon tank not in use.

Application Form: Left with occupier/~~Forwarded herewith.~~

Amount of Fee advised: Yes/~~No~~

.....

INSPECTOR OF EXPLOSIVES

(Regulation 78)

FORM 5

TASMANIA

Inflammable Liquids Act 1929 Nº 707

Fee, £1

Granted to The Shell Co of Aust. Ltd.,

Evans Street,

HOBART.

Approval of Site and Construction of Premises for Keeping Inflammable Liquids or Dangerous Commodities or the Alteration thereof.

Approval for the * ~~site and construction,~~/* ~~alteration of the site and construction~~ as shown on he approved plans and specifications of a * ~~package storage area~~/* tank for the undermentioned inflammable liquids and dangerous commodities, subject to the provisions of the *Inflammable Liquids Act* 1929, and regulations being observed and subject to the undermentioned special conions, situate at 156 New Town Road, Hobart.

This approval is valid only for one year from the date of issue.

Date of issue 31st August, 19 62

Chief Inspector of Explosives.

Inspector of Explosives.

Inflammable liquid: Class A 8,500 Gallons.

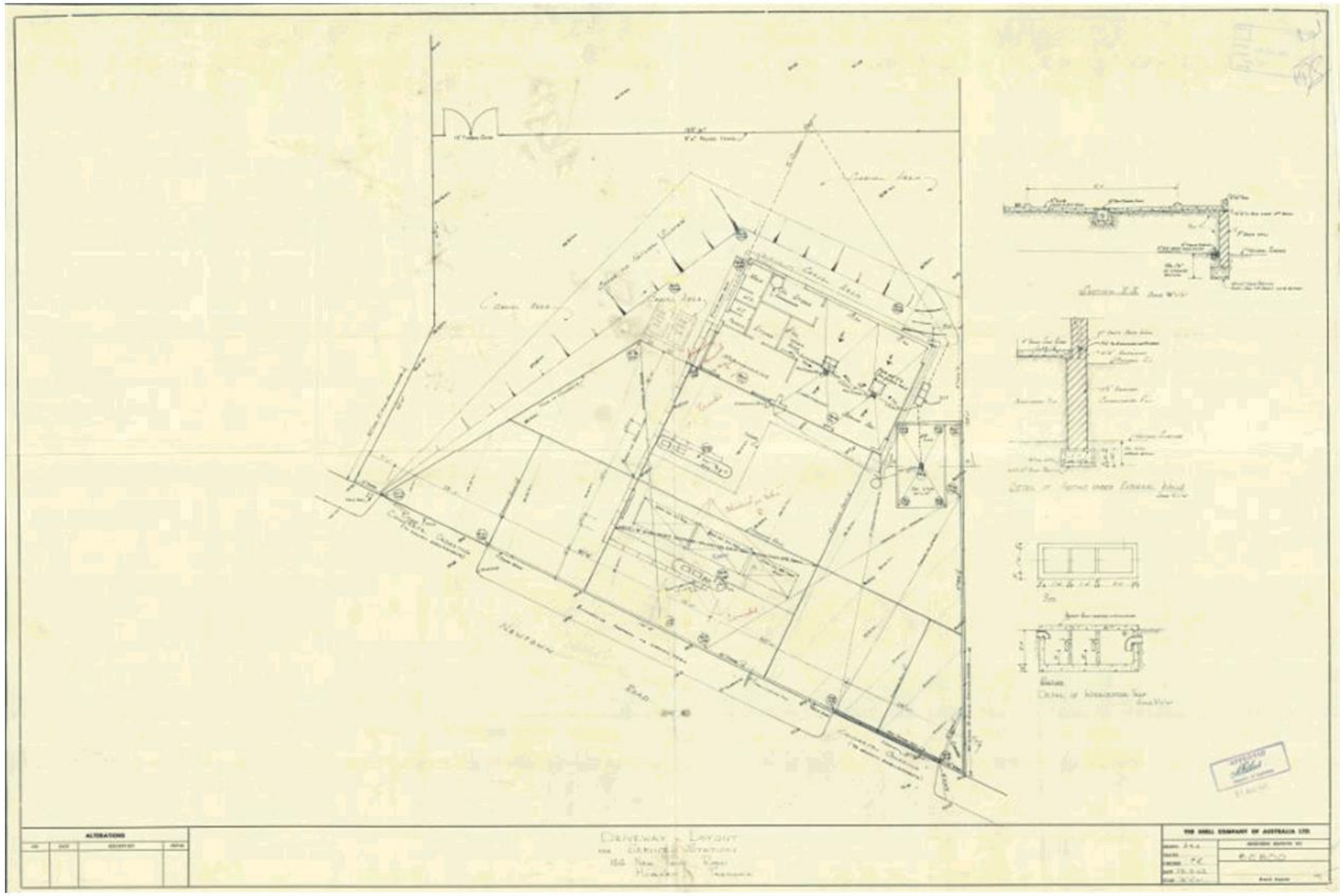
Class B 500 Gallons.

Dangerous commodities:

SPECIAL CONDITIONS.

2 x 3,000, 1 x 2,000 and 2 x 500 gallon U/G tanks connected to four S/E and 2 S/M pump.

* Strike out if inapplicable.



Appendix 6 Chain of Custody (COC) and Sample Receipt Notification (SRN)

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM2015530**

Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Contact	: Shirley LeCornu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: jcumming@geosolutions.net.au	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6223 1839	Telephone	: +6138549 9630
Facsimile	: +61 03 6223 4539	Facsimile	: +61-3-8549 9626
Project	: New Town	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017GEOENVSOL0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: JPC		

Dates

Date Samples Received	: 09-Sep-2020 13:30	Issue Date	: 09-Sep-2020
Client Requested Due Date	: 16-Sep-2020	Scheduled Reporting Date	: **16-Sep-2020**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 5.3°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 15 / 15

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

RIGHT SOLUTIONS | RIGHT PARTNER

Issue Date	: 09-Sep-2020
Page	: 2 of 3
Work Order	: EM2015530 Amendment 0
Client	: GEO-ENVIRONMENTAL SOLUTIONS

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-21 TRHBTEXNPAH + Pb
EM2015530-001	02-Sep-2020 00:00	BH1 0.5-0.6	✓		✓
EM2015530-002	02-Sep-2020 00:00	BH1 1.5-1.6	✓		✓
EM2015530-003	02-Sep-2020 00:00	BH2 0.5-0.6	✓	✓	✓
EM2015530-004	02-Sep-2020 00:00	BH2 1.5-1.6	✓	✓	✓
EM2015530-005	02-Sep-2020 00:00	BH3 0.5-0.6	✓		✓
EM2015530-006	02-Sep-2020 00:00	BH3 1.5-1.6	✓		✓
EM2015530-007	02-Sep-2020 00:00	BH4 0.5-0.6	✓		✓
EM2015530-008	02-Sep-2020 00:00	BH4 1.5-1.6	✓		✓
EM2015530-009	02-Sep-2020 00:00	BH5 0.5-0.6	✓		✓
EM2015530-010	02-Sep-2020 00:00	BH5 1.5-1.6	✓		✓
EM2015530-011	02-Sep-2020 00:00	BH6 0.5-0.6	✓		✓
EM2015530-012	02-Sep-2020 00:00	BH7 0.85-0.95	✓		✓
EM2015530-013	02-Sep-2020 00:00	BH7 1.5-1.6	✓		✓
EM2015530-014	02-Sep-2020 00:00	Duplicate	✓		✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-21 TRHBTEXNPAHFiltered Pb
EM2015530-015	02-Sep-2020 00:00	Rinsate	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Issue Date	: 09-Sep-2020
Page	: 3 of 3
Work Order	: EM2015530 Amendment 0
Client	: GEO-ENVIRONMENTAL SOLUTIONS

Requested Deliverables

JOHN PAUL CUMMING		
- *AU Certificate of Analysis - NATA (COA)	Email	jcumming@geosolutions.net.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jcumming@geosolutions.net.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jcumming@geosolutions.net.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jcumming@geosolutions.net.au
- A4 - AU Tax Invoice (INV)	Email	jcumming@geosolutions.net.au
- Chain of Custody (CoC) (COC)	Email	jcumming@geosolutions.net.au
- EDI Format - ENMRG (ENMRG)	Email	jcumming@geosolutions.net.au
- EDI Format - ESDAT (ESDAT)	Email	jcumming@geosolutions.net.au
- EDI Format - XTab (XTAB)	Email	jcumming@geosolutions.net.au
M IRAN		
- A4 - AU Tax Invoice (INV)	Email	miran@geosolutions.net.au
SARAH JOYCE		
- *AU Certificate of Analysis - NATA (COA)	Email	sjoyce@geosolutions.net.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	sjoyce@geosolutions.net.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	sjoyce@geosolutions.net.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	sjoyce@geosolutions.net.au
- A4 - AU Tax Invoice (INV)	Email	sjoyce@geosolutions.net.au
- Chain of Custody (CoC) (COC)	Email	sjoyce@geosolutions.net.au
- EDI Format - ENMRG (ENMRG)	Email	sjoyce@geosolutions.net.au
- EDI Format - ESDAT (ESDAT)	Email	sjoyce@geosolutions.net.au
- EDI Format - XTab (XTAB)	Email	sjoyce@geosolutions.net.au

Environmental Site Assessment: 156 New Town Road, New Town

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	Geoenvironmental Solutions
OFFICE:	29 Kirksway Place, Battery Point, 7004
PROJECT:	New Town
ORDER NUMBER:	
PROJECT MANAGER:	JP Cumming
SAMPLER:	JPC
COC emailed to ALS? (YES / NO)	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au
Email Invoice to:	jcumming@geosolutions.net.au; miran@geosolutions.net.au, sjoyce@geosolutions.net.au

TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)
★ Standard TAT (List due date):
☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: N/A

CONTACT PH: ~~0438250259~~ 0413 541 331

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY: JP Cumming DATE/TIME: 8/9/20 1pm

RECEIVED BY: DATE/TIME:

RELINQUISHED BY: DATE/TIME:

RECEIVED BY: Marvin DATE/TIME:

COC SEQUENCE NUMBER (Circle): 1 2 3 4 5 6 7

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH + Pb		15 metals						
1	BH1 0.5-0.6	2/2/20	Soil	Jar	1	✓								
2	BH1 1.5-1.6				1	✓		✓						
3	BH2 0.5-0.6				1	✓		✓						
4	BH2 1.5-1.6				1	✓								
5	BH3 0.5-0.6				1	✓								
6	BH3 1.5-1.6				1	✓								
7	BH4 0.5-0.6				1	✓								
8	BH4 1.5-1.6				1	✓								
9	BH5 0.5-0.6				1	✓								
10	BH5 1.5-1.6				1	✓								
11	BH6 0.5-0.6				1	✓								
12	BH7 0.85				1	✓								
				TOTAL	12									

Additional Information: Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

Environmental Division Melbourne
Work Order Reference
EM2015530
Telephone: +61-3-8549 9600

Received: 9/9 13:30 Carrier: TAS FAST
C/note: 826363
Temp: 5.3 °C Seal: Y/N
Ice / Icebrick / NA

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Appendix 6 Chain of Custody and SRN

Environmental Site Assessment: 156 New Town Road, New Town

ALS Environmental

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

CLIENT:	GEOENVIRONMENTAL SOLUTIONS
OFFICE:	29 Kirksway Pl, Battery Point TAS 7004
PROJECT	new town
ORDER NUMBER:	
PROJECT MANAGER:	JP Cumming
SAMPLER:	Sarah Joyce
CC emailed to ALS? (YES / NO)	
Email Reports to	jcumming@geosolutions.net.au; sjoyce@geosolutions.net.au
Email Invoice to	jcumming@geosolutions.net.au; mram@geosolutions.net.au, sjoyce@geosolutions.net.au

TURNAROUND REQUIREMENTS: ★ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.:

CONTACT PH:

SAMPLER MOBILE: 0438 255 259

EDD FORMAT: default plus AECOM EDAT EDD

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
JPC			
DATE/TIME: 8/8/22	DATE/TIME:	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TPH, BTEXN, PAH, Metals (Dissolved) + Pb	Tas EPA IB109 (Inc. SPOC)	TOC/COD/Alk	TPH C6-C10	PCOC				Additional Information
13	BH7 1.5-1.6	2/8/22	Soil	Jar	1	✓								
14	Replicate			"	1	✓								
15	rinsate		Water	1 AG, 2 SAV, 1 P	4									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
					6									
					7									
					12									
					18									
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Appendix 6 Chain of Custody and SRN

Environmental Site Assessment: 156 New Town Road, New Town

Appendix 7 Quality Assurance and Quality Control

Duplicate Comparrison	Sample	Lead	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3,cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of polycyclic aromatic hydr	Benzo(a)pyrene TEQ (WHO)	Benzene	Toluene	Ethylbenzene	meta & para-Xylene	ortho-Xylene	Sum of BTEX	Total Xylenes	Naphthalene	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C6 - C9 Fraction	F1	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	>C10 - C40 Fraction (sum)	F2	Benzo(a)pyrene TEQ (lvd ½ LOR)	Benzo(a)pyrene TEQ (LOR)
Unit		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.2	0.5	1	10	50	100	100	50	10	10	50	100	100	50	50	0.5	0.5
2/09/2020	Duplicate	463	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	1.9	2.1	1.4	1.2	2	0.8	2	1	<0.5	1.4	14.4	2.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1	<10	<50	<100	<100	<50	<10	<10	<50	160	<100	160	<50	2.8	3
2/09/2020	BH1 0.5-0.6	718	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	1.8	2.1	1.2	1	2	0.8	2	1.1	<0.5	1.5	14	2.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1	<10	<50	250	200	450	<10	<10	<50	370	<100	370	<50	2.8	3
Relative Percentage Difference (RPD) %		43.2	NA	NA	NA	NA	18.2	NA	5.4	0.0	15.4	18.2	0.0	0.0	0.0	9.5	NA	6.9	2.8	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	79.2	NA	79.2	NA	0.0	0.0
RPD Compliance Limit %		15	NA	NA	NA	NA	NA	NA	50	50	50	50	50	NA	50	50	NA	50	80	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	NA	NA	NA	50	NA	50	NA	50	50
Method Detection Limit (MDL)		>500	NA	NA	NA	NA	NA	NA	10	10	10	10	10	NA	10	10	NA	10	50	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000	NA	NA	NA	2000	NA	1000	NA	10	10
MDL Class		HIGH	NONE	NONE	NONE	NONE	NONE	NONE	LOW	LOW	LOW	LOW	LOW	NONE	LOW	LOW	NONE	LOW	MED	LOW	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	LOW	NONE	NONE	NONE	LOW	NONE	LOW	NONE	LOW	LOW
RPD Compliance With MDL?	38/42 (90%)	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	NO	YES	NO	YES	YES	YES

***Footnote: For Duplicate and BH1 0.5-0.6 pairs, 90% of analytes complied. Non compliances include: an RPD of 43% for Lead where <15% was expected; Inconsistent Detection for C10 - C36 Fraction (sum) an RPD of 79% for >C16 - C34 Fraction where <50% was expected; an RPD of 79% for >C10 - C40 Fraction (sum) where <50% was expected;**

Quality Control Blanks		Lead	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Sum of BTEX	Naphthalene	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	>C10 - C40 Fraction (sum)	>C10 - C16 Fraction minus Naphthalene (F2)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b+j)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3,cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of polycyclic aromatic hydrocarbons	Benzo(a)pyrene TEQ (zero)
Unit		mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		0.001	1	2	2	2	2	2	1	5	20	50	100	50	50	20	20	100	100	100	100	100	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	0.5	0.5
Date	Sample																																							
2/09/2020	Rinsate	<0.001	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: EM2015530	Page	: 1 of 11
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Contact	: Shirley LeCornu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +6138549 9630
Project	: New Town	Date Samples Received	: 09-Sep-2020
Order number	: ----	Date Analysis Commenced	: 09-Sep-2020
C-O-C number	: ----	Issue Date	: 15-Sep-2020
Sampler	: JPC		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 15		
No. of samples analysed	: 15		

ilac-MRA NATA

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Diani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 11
Work Order	: EM2015530
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: New Town

ALS

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process for.
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL

							Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Analyte/ Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3251145)									
EM2015530-010	BH5 1.5-1.6	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	150	150	6.61	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	7	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	12	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	13	14.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	77	81	4.53	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	46	46	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM2015530-003	BH2 0.9-0.6	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	4	4	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	80	70	15.1	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	13	29.7	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	6	8	26.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	15	32.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	47	52	9.99	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	804	798	0.697	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	188	228	19.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Environmental Site Assessment: 156 New Town Road, New Town

Page: 3 of 11
Work Order: EM2015530
Client: GEO-ENVIRONMENTAL SOLUTIONS
Project: New Town

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Analytical Determinand	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3251145) - continued									
EM2015530-003	BH2 0.5-0.6	EG005T: Vanadium	7440-62-2	5	mg/kg	27	37	31.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	260	260	3.60	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3246612)									
EM2015500-005	Anonymous	EA055: Moisture Content	---	0.1	%	28.5	31.9	11.2	0% - 20%
EM2015530-005	BH3 0.5-0.6	EA055: Moisture Content	---	0.1	%	22.3	21.8	2.20	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3251148)									
EM2015530-003	BH2 0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3253362)									
EM2015530-001	BH1 0.5-0.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	1.0	85.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.9	2.7	40.7	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	2.1	2.8	28.9	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.2	1.4	14.9	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.0	1.2	12.9	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	2.0	2.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	0.8	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	2.0	1.9	0.00	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	1.1	1.1	0.00	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	1.5	1.5	0.00	No Limit
EM2015530-011	BH8 0.5-0.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page: 4 of 11
Work Order: EM2015530
Client: GEO-ENVIRONMENTAL SOLUTIONS
Project: New Town

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Analytical Determinand	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3253362) - continued									
EM2015530-011	BH8 0.5-0.6	EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3248462)									
EM2015388-003	Anonymous	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.00	No Limit
EM2015530-005	BH3 0.5-0.6	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3253363)									
EM2015530-001	BH1 0.5-0.6	EP071: C15 - C28 Fraction	---	100	mg/kg	230	<100	77.8	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	200	<100	64.9	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	---	50	mg/kg	430	<50	158	No Limit
EM2015530-011	BH8 0.5-0.6	EP071: C15 - C28 Fraction	---	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	---	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	---	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	---	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3248462)									
EM2015388-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM2015530-005	BH3 0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3253363)									
EM2015530-001	BH1 0.5-0.6	EP071: >C16 - C34 Fraction	---	100	mg/kg	370	100	113	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	---	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	---	50	mg/kg	370	100	115	No Limit
EM2015530-011	BH8 0.5-0.6	EP071: >C16 - C34 Fraction	---	100	mg/kg	120	<100	20.8	No Limit
		EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	---	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	---	50	mg/kg	120	<50	82.4	No Limit
EP080: BTEXN (QC Lot: 3248462)									
EM2015388-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM2015530-005	BH3 0.5-0.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page 5 of 11
Work Order EM2015530
Client GEO-ENVIRONMENTAL SOLUTIONS
Project New Town

Sub-Matrix: SOIL									
				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 3248482) - continued									
EM2015530-005	BH3 2.5-0.6	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: WATER									
				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3248526)									
EM2015235-001	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM2015520-003	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	<0.001	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3247879)									
EM2015535-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3247512)									
EM2015518-001	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
EM2015512-001	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3247876)									
EM2015551-003	Anonymous	EP071: C15 - C28 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	---	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	---	50	µg/L	<50	<50	0.00	No Limit
EM2015535-002	Anonymous	EP071: C15 - C28 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	---	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	---	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3247512)									
EM2015518-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit

Page 6 of 11
Work Order EM2015530
Client GEO-ENVIRONMENTAL SOLUTIONS
Project New Town

Sub-Matrix: WATER									
				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3247512) - continued									
EM2015512-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3247876)									
EM2015551-003	Anonymous	EP071: >C10 - C16 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
EM2015535-002	Anonymous	EP071: >C10 - C16 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	---	100	µg/L	<100	<100	0.00	No Limit
EP080: BTEXN (QC Lot: 3247512)									
EM2015518-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM2015512-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Page 7 of 11
Work Order EM2015530
Client GEO-ENVIRONMENTAL SOLUTIONS
Project New Town

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	Recovery Limits (%) High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3255145)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	78.5	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	92.1	76.4	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	100	85.4	114
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	110	64.4	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	94.0	76.2	106
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.5	77.2	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	97.1	78.1	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	99.4	78.1	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	104	78.4	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	100.0	80.8	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	105	79.9	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	105	92.0	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	95.9	78.5	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	79.1	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3251146)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.7	76.9	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3253362)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	114	84.6	128
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	112	76.9	127
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	113	85.3	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	110	82.1	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	114	85.4	133
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	117	88.7	136
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	115	83.4	136
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	119	85.1	140
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	107	82.7	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	120	85.2	141
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	102	68.5	120
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	126	80.1	132
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	# 122	67.4	120
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	105	66.0	126
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	101	65.4	127
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	105	67.8	127

Page 8 of 11
Work Order EM2015530
Client GEO-ENVIRONMENTAL SOLUTIONS
Project New Town

Sub-Matrix: SOIL

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	Recovery Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3248462)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	35 mg/kg	94.2	41.2	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3253363)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	900 mg/kg	97.2	71.8	129
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	3030 mg/kg	100	83.9	125
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	1520 mg/kg	95.5	77.9	119
EP071: C10 - C36 Fraction (sum)	---	50	mg/kg	<50	---	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3248462)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	95.3	58.5	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3253363)								
EP071: >C10 - C16 Fraction	---	50	mg/kg	<50	1160 mg/kg	96.6	72.2	128
EP071: >C16 - C34 Fraction	---	100	mg/kg	<100	4020 mg/kg	96.0	82.1	122
EP071: >C34 - C40 Fraction	---	100	mg/kg	<100	280 mg/kg	104	55.1	131
EP071: >C10 - C40 Fraction (sum)	---	50	mg/kg	<50	---	---	---	---
EP080: BTEXN (QCLot: 3248462)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	82.9	62.7	119
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	84.8	66.8	126
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	82.8	66.3	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	86.4	67.5	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	87.1	73.0	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	93.9	61.2	129

Sub-Matrix: WATER

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	Recovery Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3248526)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.3	84.0	107
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3247879)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	90.6	41.1	116
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	94.7	47.2	121
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	94.2	47.3	118
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	94.3	49.4	121
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	98.9	52.5	124
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	98.1	52.3	125
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	97.6	52.4	127
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	97.3	51.3	130
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	101	50.0	130
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	101	49.6	131

Environmental Site Assessment: 156 New Town Road, New Town

Page : 9 of 11
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Sub-Matrix: WATER

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	Recovery Limits (%) High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3247979) - continued								
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	105	51.5	132
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	102	54.0	131
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	104	52.3	133
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	107	50.4	127
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	107	50.0	127
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	108	50.8	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3247512)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	360 µg/L	97.9	65.9	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3247876)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	3330 µg/L	81.4	44.8	125
EP071: C15 - C28 Fraction	---	100	µg/L	<100	16500 µg/L	78.1	51.3	135
EP071: C29 - C36 Fraction	---	50	µg/L	<50	7800 µg/L	77.8	49.4	134
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3247512)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	98.9	64.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3247876)								
EP071: >C10 - C16 Fraction	---	100	µg/L	<100	5690 µg/L	72.9	47.3	129
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	20700 µg/L	78.9	50.4	133
EP071: >C34 - C40 Fraction	---	100	µg/L	<100	1510 µg/L	83.0	45.2	138
EP080: BTEXN (QCLot: 3247512)								
EP080: Benzene	71-43-2	1	µg/L	<1	30 µg/L	97.4	69.8	126
EP080: Toluene	108-88-3	2	µg/L	<2	30 µg/L	99.5	73.8	126
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	30 µg/L	101	72.0	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	103	71.5	132
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	106	76.5	132
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	102	70.5	127

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an laboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method / Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	Recovery Limits (%) High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3251146)							
EM2015530-004	BH2 1.5-1.6	EG005T: Lead	7439-92-1	250 mg/kg	101	80.0	120
EM2015530-004	BH2 1.5-1.6	EG005T: Arsenic	7440-38-2	50 mg/kg	92.6	78.0	124

Page : 10 of 11
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method / Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	Recovery Limits (%) High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3251146) - continued							
EM2015530-004	BH2 1.5-1.6	EG005T: Cadmium	7440-43-9	50 mg/kg	92.8	84.0	116
		EG005T: Chromium	7440-47-3	50 mg/kg	87.1	76.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	86.2	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	87.8	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	89.4	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3251146)							
EM2015530-004	BH2 1.5-1.6	EG035T: Mercury	7439-97-6	0.5 mg/kg	81.2	76.0	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3253362)							
EM2015530-002	BH1 1.5-1.6	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	101	67.0	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	109	52.0	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3249462)							
EM2015530-001	BH1 0.5-0.6	EP080: C6 - C9 Fraction	---	25 mg/kg	75.0	42.0	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3253363)							
EM2015530-003	BH2 0.5-0.6	EP071: C10 - C14 Fraction	---	900 mg/kg	93.8	53.0	123
		EP071: C15 - C28 Fraction	---	2030 mg/kg	103	70.0	124
		EP071: C29 - C36 Fraction	---	1520 mg/kg	# 125	54.0	116
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3249462)							
EM2015530-001	BH1 0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	74.7	39.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3253363)							
EM2015530-003	BH2 0.5-0.6	EP071: >C10 - C16 Fraction	---	1160 mg/kg	95.8	65.0	123
		EP071: >C16 - C34 Fraction	---	4030 mg/kg	106	67.0	121
		EP071: >C34 - C40 Fraction	---	280 mg/kg	# 253	44.0	126
EP080: BTEXN (QCLot: 3249462)							
EM2015530-001	BH1 0.5-0.6	EP080: Benzene	71-43-2	2 mg/kg	90.7	50.0	136
		EP080: Toluene	108-88-3	2 mg/kg	94.0	56.0	139

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method / Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	Recovery Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3246526)							
EM2015236-001	Anonymous	EG020A-F: Lead	7439-92-1	0.2 mg/L	109	75.0	133
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3247979)							
EM2015551-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	5 µg/L	82.4	42.0	122
		EP075(SIM): Pyrene	129-00-0	5 µg/L	85.6	40.0	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3247512)							
EM2015512-002	Anonymous	EP080: C6 - C9 Fraction	---	280 µg/L	51.2	43.0	125

Page	: 11 of 11
Work Order	: EM2015530
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: New Town

Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3247512)							
EM2015512-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	350 µg/L	54.4	44.0	122
EP080: BTEXN (QCLot: 3247512)							
EM2015512-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	68.6	68.0	130
		EP080: Toluene	108-88-3	20 µg/L	75.3	72.0	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM2015530	Page	: 1 of 9
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Telephone	: +6138549 9630
Project	: New Town	Date Samples Received	: 09-Sep-2020
Site	: ----	Issue Date	: 15-Sep-2020
Sampler	: JPC	No. of samples received	: 15
Order number	: ----	No. of samples analysed	: 15

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page	2 of 9
Work Order	EM2015530
Client	GEO-ENVIRONMENTAL SOLUTIONS
Project	New Town

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	QC-1053312-001	—	**Benzo(a)pyrene**	50-32-8	122 %	67.4-120%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EP080/071: Total Petroleum Hydrocarbons	EM2015530-003	BH2 0.5-0.6	**C29 - C36 Fraction**	—	125 %	64.0-118%	**Recovery greater than upper data quality objective**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM2015530-003	BH2 0.5-0.6	**>C34 - C40 Fraction**	—	253 %	44.0-126%	**Recovery greater than upper data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	18	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** — Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH1 0.5-0.6, BH1 1.5-1.6, BH2 0.5-0.6, BH2 1.5-1.6, BH3 0.5-0.6, BH3 1.5-1.6, BH4 0.5-0.6, BH4 1.5-1.6, BH5 0.5-0.6, BH5 1.5-1.6, BH6 0.5-0.6, BH7 0.85-0.95, BH7 1.5-1.6, Duplicate	**02-Sep-2020**	—	—	—	**10-Sep-2020**	16-Sep-2020	✓

Page	3 of 9
Work Order	EM2015530
Client	GEO-ENVIRONMENTAL SOLUTIONS
Project	New Town

Matrix: **SOIL** — Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH1 0.5-0.6, BH1 1.5-1.6, BH2 0.5-0.6, BH2 1.5-1.6, BH3 0.5-0.6, BH3 1.5-1.6, BH4 0.5-0.6, BH4 1.5-1.6, BH5 0.5-0.6, BH5 1.5-1.6, BH6 0.5-0.6, BH7 0.85-0.95, BH7 1.5-1.6, Duplicate	**02-Sep-2020**	**12-Sep-2020**	01-Mar-2021	✓	**12-Sep-2020**	01-Mar-2021	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH2 0.5-0.6, BH2 1.5-1.6	**02-Sep-2020**	**12-Sep-2020**	30-Sep-2020	✓	**14-Sep-2020**	30-Sep-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH1 0.5-0.6, BH1 1.5-1.6, BH2 0.5-0.6, BH2 1.5-1.6, BH3 0.5-0.6, BH3 1.5-1.6, BH4 0.5-0.6, BH4 1.5-1.6, BH5 0.5-0.6, BH5 1.5-1.6, BH6 0.5-0.6, BH7 0.85-0.95, BH7 1.5-1.6, Duplicate	**02-Sep-2020**	**14-Sep-2020**	16-Sep-2020	✓	**14-Sep-2020**	24-Oct-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BH1 0.5-0.6, BH1 1.5-1.6, BH2 0.5-0.6, BH2 1.5-1.6, BH3 0.5-0.6, BH3 1.5-1.6, BH4 0.5-0.6, BH4 1.5-1.6, BH5 0.5-0.6, BH5 1.5-1.6, BH6 0.5-0.6, BH7 0.85-0.95, BH7 1.5-1.6, Duplicate	**02-Sep-2020**	**11-Sep-2020**	16-Sep-2020	✓	**11-Sep-2020**	16-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH1 0.5-0.6, BH1 1.5-1.6, BH2 0.5-0.6, BH2 1.5-1.6, BH3 0.5-0.6, BH3 1.5-1.6, BH4 0.5-0.6, BH4 1.5-1.6, BH5 0.5-0.6, BH5 1.5-1.6, BH6 0.5-0.6, BH7 0.85-0.95, BH7 1.5-1.6, Duplicate	**02-Sep-2020**	**14-Sep-2020**	16-Sep-2020	✓	**14-Sep-2020**	24-Oct-2020	✓

Page : 4 of 9
Work Order : ENG0015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Matrix: SOIL — Evaluation: × = Holding time breach ; ✓ = Within holding time

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH1 0.5-0.6, BH1 1.5-1.6,	02-Sep-2020	11-Sep-2020	16-Sep-2020	✓	11-Sep-2020	16-Sep-2020	✓
BH2 0.5-0.6, BH2 1.5-1.6,							
BH3 0.5-0.6, BH3 1.5-1.6,							
BH4 0.5-0.6, BH4 1.5-1.6,							
BH5 0.5-0.6, BH5 1.5-1.6,							
BH6 0.5-0.6, BH7 0.85-0.95,							
BH7 1.5-1.6, Duplicate							
Soil Glass Jar - Unpreserved (EP071)							
BH1 0.5-0.6, BH1 1.5-1.6,	02-Sep-2020	14-Sep-2020	16-Sep-2020	✓	14-Sep-2020	24-Oct-2020	✓
BH2 0.5-0.6, BH2 1.5-1.6,							
BH3 0.5-0.6, BH3 1.5-1.6,							
BH4 0.5-0.6, BH4 1.5-1.6,							
BH5 0.5-0.6, BH5 1.5-1.6,							
BH6 0.5-0.6, BH7 0.85-0.95,							
BH7 1.5-1.6, Duplicate							
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH1 0.5-0.6, BH1 1.5-1.6,	02-Sep-2020	11-Sep-2020	16-Sep-2020	✓	11-Sep-2020	16-Sep-2020	✓
BH2 0.5-0.6, BH2 1.5-1.6,							
BH3 0.5-0.6, BH3 1.5-1.6,							
BH4 0.5-0.6, BH4 1.5-1.6,							
BH5 0.5-0.6, BH5 1.5-1.6,							
BH6 0.5-0.6, BH7 0.85-0.95,							
BH7 1.5-1.6, Duplicate							

Matrix: WATER — Evaluation: × = Holding time breach ; ✓ = Within holding time

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)							
Rinsate	02-Sep-2020	—	—	—	10-Sep-2020	01-Mar-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
Rinsate	02-Sep-2020	09-Sep-2020	09-Sep-2020	✓	12-Sep-2020	19-Oct-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate	02-Sep-2020	09-Sep-2020	09-Sep-2020	✓	12-Sep-2020	19-Oct-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate	02-Sep-2020	09-Sep-2020	16-Sep-2020	✓	09-Sep-2020	16-Sep-2020	✓

Page : 5 of 9
Work Order : ENG0015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Matrix: WATER — Evaluation: × = Holding time breach ; ✓ = Within holding time

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate	02-Sep-2020	09-Sep-2020	09-Sep-2020	✓	12-Sep-2020	19-Oct-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate	02-Sep-2020	09-Sep-2020	16-Sep-2020	✓	09-Sep-2020	16-Sep-2020	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate	02-Sep-2020	09-Sep-2020	16-Sep-2020	✓	09-Sep-2020	16-Sep-2020	✓

Page : 6 of 9
Work Order : ENG0115530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reqmnt	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER** Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reqmnt	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 7 of 9
Work Order : ENG0115530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Matrix: **WATER** Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reqmnt	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	18	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	8 of 9
Work Order	EM2015530
Client	GEO-ENVIRONMENTAL SOLUTIONS
Project	New Town

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020. ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015. The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270. Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260. Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Preparation Methods	**Method**	**Matrix**	**Method Descriptions**

Page	9 of 9
Work Order	EM2015530
Client	GEO-ENVIRONMENTAL SOLUTIONS
Project	New Town

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion. 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510. 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Appendix 8 Certificate of Analysis

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: EM2015530	Page	: 1 of 12
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Contact	: Shirley LeGonu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61386549 9630
Project	: New Town	Date Sample Received	: 09-Sep-2020 13:30
Order number	: —	Date Analysis Commenced	: 09-Sep-2020
C-O-C number	: —	Issue Date	: 15-Sep-2020 13:29
Sampler	: JPC		
Site	: —		
Quote number	: EN/222		
No. of samples received	: 15		
No. of samples analysed	: 15		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 12
Work Order	: EM2015530
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: New Town

ALS

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
* = This result is computed from individual analyte concentrations at or above the level of reporting
a = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero. For 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.8mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: EM2015531_033 higher than expected matrix spike recovery due to sample matrix. Confirmed by re-extraction and re-analysis.

Page : 3 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1 0.5-0.6	BH1 1.5-1.6	BH2 0.5-0.6	BH2 1.5-1.6	BH3 0.5-0.6
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00
Compound	CAS Number	LOR	Unit	EM2015530-001	EM2015530-002	EM2015530-003	EM2015530-004	EM2015530-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.8	12.2	15.3	19.2	22.3
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	6	<5	----
Barium	7440-39-3	10	mg/kg	----	----	80	80	----
Beryllium	7440-41-7	1	mg/kg	----	----	<1	<1	----
Boron	7440-42-8	50	mg/kg	----	----	<50	<50	----
Cadmium	7440-43-9	1	mg/kg	----	----	4	<1	----
Chromium	7440-47-3	2	mg/kg	----	----	10	8	----
Cobalt	7440-48-4	2	mg/kg	----	----	6	8	----
Copper	7440-50-8	5	mg/kg	----	----	47	38	----
Manganese	7439-96-5	5	mg/kg	----	----	188	234	----
Nickel	7440-02-0	2	mg/kg	----	----	11	13	----
Selenium	7782-49-2	5	mg/kg	----	----	<5	<5	----
Vanadium	7440-62-2	5	mg/kg	----	----	27	26	----
Zinc	7440-66-6	5	mg/kg	----	----	260	114	----
Lead	7439-92-1	5	mg/kg	718	11	804	110	227
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	0.2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.8
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.5
Phenanthrene	85-01-8	0.5	mg/kg	0.6	<0.5	<0.5	<0.5	7.7
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	1.8
Fluoranthene	206-44-0	0.5	mg/kg	1.8	<0.5	<0.5	<0.5	18.5
Pyrene	129-00-0	0.5	mg/kg	2.1	<0.5	<0.5	<0.5	19.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	1.2	<0.5	<0.5	<0.5	9.3
Chrysene	218-01-9	0.5	mg/kg	1.0	<0.5	<0.5	<0.5	9.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	2.0	<0.5	<0.5	<0.5	13.3
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	<0.5	<0.5	<0.5	3.7
Benzo(a)pyrene	50-32-8	0.5	mg/kg	2.0	<0.5	<0.5	<0.5	12.7
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	1.1	<0.5	<0.5	<0.5	6.3
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	2.1

Page : 4 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1 0.5-0.6	BH1 1.5-1.6	BH2 0.5-0.6	BH2 1.5-1.6	BH3 0.5-0.6
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00
Compound	CAS Number	LOR	Unit	EM2015530-001	EM2015530-002	EM2015530-003	EM2015530-004	EM2015530-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	1.5	<0.5	0.5	<0.5	8.3
* Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	14.0	<0.5	0.5	<0.5	115
* Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.5	<0.5	<0.5	<0.5	18.2
* Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	2.8	0.6	0.6	0.6	18.2
* Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	3.0	1.2	1.2	1.2	18.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	230	<100	790	130	460
C29 - C36 Fraction	----	100	mg/kg	200	<100	1700	310	440
* C10 - C36 Fraction (sum)	----	50	mg/kg	430	<50	2490	440	900
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	370	<100	1910	330	750
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	1160	220	240
* >C10 - C40 Fraction (sum)	----	50	mg/kg	370	<50	3070	550	990
* >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
* Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
* Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	110	90.9	94.3	94.1	93.7
2-Chlorophenol-D4	93951-73-6	0.5	%	97.4	86.9	89.0	89.6	92.0
2,4,6-Tribromophenol	118-79-6	0.5	%	83.9	84.5	91.0	86.0	94.1

Page : 5 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1 0.5-0.6	BH1 1.5-1.6	BH2 0.5-0.6	BH2 1.5-1.6	BH3 0.5-0.6
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00
Compound	CAS Number	LOR	Unit	EM2015530-001	EM2015530-002	EM2015530-003	EM2015530-004	EM2015530-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	104	101	104	103	106
Anthracene-d10	1719-06-8	0.5	%	111	107	100	107	107
4-Terphenyl-d14	1718-51-0	0.5	%	104	105	101	104	96.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	88.3	91.9	89.5	88.5	88.7
Toluene-D8	2037-26-5	0.2	%	83.2	85.4	85.2	84.4	78.8
4-Bromofluorobenzene	460-00-4	0.2	%	88.2	94.8	90.1	95.9	83.0

Page : 6 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH3 1.5-1.6	BH4 0.5-0.6	BH4 1.5-1.6	BH5 0.5-0.6	BH5 1.5-1.6
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00
Compound	CAS Number	LOR	Unit	EM2015530-006	EM2015530-007	EM2015530-008	EM2015530-009	EM2015530-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.9	19.3	24.3	21.1	21.1
EG005(ED093)T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	6	89	12	97	11
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.6	<0.5	0.6	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.1	<0.5	1.2	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3.8	<0.5	4.1	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	4.4	<0.5	4.7	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2.3	<0.5	2.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	2.2	<0.5	2.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3.7	<0.5	3.7	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.3	<0.5	1.4	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3.3	<0.5	3.6	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.7	<0.5	1.8	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5	<0.5	0.6	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	2.2	<0.5	2.4	<0.5
* Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	27.1	<0.5	29.1	<0.5
* Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	4.7	<0.5	5.2	<0.5
* Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	4.7	0.6	5.2	0.6
* Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	4.7	1.2	5.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	130	<100	140	<100
C29 - C36 Fraction	----	100	mg/kg	<100	140	<100	160	<100
* C10 - C36 Fraction (sum)	----	50	mg/kg	<50	270	<50	300	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10

Environmental Site Assessment: 156 New Town Road, New Town

Page : 7 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH3 1.5-1.6	BH4 0.5-0.6	BH4 1.5-1.6	BH5 0.5-0.6	BH5 1.5-1.6
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00
Compound	CAS Number	LOR	Unit	EM2015530-006	EM2015530-007	EM2015530-008	EM2015530-009	EM2015530-010
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	---	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	---	100	mg/kg	<100	230	<100	260	<100
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	<100
* >C10 - C40 Fraction (sum)	---	50	mg/kg	<50	230	<50	260	<50
* >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 108-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
* Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
* Total Xylenes	---	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	92.7	94.1	95.7	88.4	87.9
2-Chlorophenol-D4	93951-73-6	0.5	%	86.6	91.1	90.4	85.3	86.7
2,4,6-Tribromophenol	118-79-6	0.5	%	79.1	93.1	86.2	84.0	88.4
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	103.0	107	104	98.9	100
Anthracene-d10	1719-06-8	0.5	%	105	111	108	102	106
4-Terphenyl-d14	1718-51-0	0.5	%	102	105	107	97.0	103
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	93.0	90.4	92.2	91.2	91.2
Toluene-D8	2037-26-5	0.2	%	90.4	87.2	88.8	87.6	89.4
4-Bromofluorobenzene	460-00-4	0.2	%	101	94.7	96.6	96.0	102

Page : 8 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH6 0.5-0.6	BH7 0.85-0.95	BH7 1.5-1.6	Duplicate	---
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	---
Compound	CAS Number	LOR	Unit	EM2015530-011	EM2015530-012	EM2015530-013	EM2015530-014	------
				Result	Result	Result	Result	---
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	---	1.0	%	14.7	12.9	22.5	10.9	---
EG005(ED093)T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	16	<5	7	463	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	---
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	1.9	---
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	2.1	---
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	1.4	---
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	1.2	---
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	2.0	---
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	0.8	---
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	2.0	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	1.0	---
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	1.4	---
* Sum of polycyclic aromatic hydrocarbons	---	0.5	mg/kg	<0.5	<0.5	<0.5	14.4	---
* Benzo(a)pyrene TEQ (zero)	---	0.5	mg/kg	<0.5	<0.5	<0.5	2.5	---
* Benzo(a)pyrene TEQ (half LOR)	---	0.5	mg/kg	0.6	0.6	0.6	2.8	---
* Benzo(a)pyrene TEQ (LOR)	---	0.5	mg/kg	1.2	1.2	1.2	3.0	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	<10	<10	<10	<10	---
C10 - C14 Fraction	---	50	mg/kg	<50	<50	<50	<50	---
C15 - C28 Fraction	---	100	mg/kg	<100	<100	<100	<100	---
C29 - C36 Fraction	---	100	mg/kg	<100	<100	<100	<100	---
* C10 - C36 Fraction (sum)	---	50	mg/kg	<50	<50	<50	<50	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	---
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	---

Page : 9 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH6 0.5-0.6	BH7 0.85-0.95	BH7 1.5-1.6	Duplicate	---
			Client sampling date / time	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	02-Sep-2020 00:00	---
Compound	CAS Number	LOR	Unit	EM2015530-011	EM2015530-012	EM2015530-013	EM2015530-014	------
				Result	Result	Result	Result	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C10 - C16 Fraction	---	50	mg/kg	<50	<50	<50	<50	---
>C16 - C34 Fraction	---	100	mg/kg	120	<100	<100	160	---
>C34 - C40 Fraction	---	100	mg/kg	<100	<100	<100	<100	---
* >C10 - C40 Fraction (sum)	---	50	mg/kg	120	<50	<50	160	---
* >C10 - C16 Fraction minus Naphthalene (F2)	---	50	mg/kg	<50	<50	<50	<50	---
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	---
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
* Sum of BTEX	---	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	---
* Total Xylenes	---	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	---
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	84.1	96.2	79.8	96.7	---
2-Chlorophenol-D4	93951-73-6	0.5	%	88.4	92.3	73.6	90.0	---
2,4,6-Tribromophenol	118-79-6	0.5	%	75.8	81.1	71.2	84.6	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	103	107	87.2	108	---
Anthracene-d10	1719-06-8	0.5	%	110	114	86.6	113	---
4-Terphenyl-d14	1718-51-0	0.5	%	106	111	87.2	109	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	94.9	89.1	98.0	83.6	---
Toluene-D8	2037-26-5	0.2	%	87.6	82.2	92.3	80.6	---
4-Bromofluorobenzene	460-00-4	0.2	%	91.5	86.5	104	83.6	---

Page : 10 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinsate	---	---	---	---
			Client sampling date / time	02-Sep-2020 00:00	---	---	---	---
Compound	CAS Number	LOR	Unit	EM2015530-015	------	------	------	------
				Result	---	---	---	---
EG020F: Dissolved Metals by ICP-MS								
Lead	7439-92-1	0.001	mg/L	<0.001	---	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	---	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	---	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	---	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	---	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	---	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	---	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	---	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	---	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	---	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	---	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	---	---	---	---
* Sum of polycyclic aromatic hydrocarbons	---	0.5	µg/L	<0.5	---	---	---	---
* Benzo(a)pyrene TEQ (zero)	---	0.5	µg/L	<0.5	---	---	---	---
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	20	µg/L	<20	---	---	---	---
C10 - C14 Fraction	---	50	µg/L	<50	---	---	---	---
C15 - C28 Fraction	---	100	µg/L	<100	---	---	---	---
C29 - C36 Fraction	---	50	µg/L	<50	---	---	---	---
* C10 - C36 Fraction (sum)	---	50	µg/L	<50	---	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	---	---	---	---
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	---	---	---	---
>C10 - C16 Fraction	---	100	µg/L	<100	---	---	---	---
>C16 - C34 Fraction	---	100	µg/L	<100	---	---	---	---
>C34 - C40 Fraction	---	100	µg/L	<100	---	---	---	---
* >C10 - C40 Fraction (sum)	---	100	µg/L	<100	---	---	---	---

Environmental Site Assessment: 156 New Town Road, New Town

Page : 11 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate	—	—	—	—
				Client sampling date / time	02-Sep-2021 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit		EM2015530-015	—	—	—	—
					Result	—	—	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	—	100	µg/L		<100	—	—	—	—
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	—	—	—	—
Toluene	108-88-3	2	µg/L		<2	—	—	—	—
Ethylbenzene	100-41-4	2	µg/L		<2	—	—	—	—
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	—	—	—	—
ortho-Xylene	95-47-6	2	µg/L		<2	—	—	—	—
^ Total Xylenes	—	2	µg/L		<2	—	—	—	—
^ Sum of BTEX	—	1	µg/L		<1	—	—	—	—
Naphthalene	91-20-3	5	µg/L		<5	—	—	—	—
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		36.5	—	—	—	—
2-Chlorophenol-D4	93951-73-6	1.0	%		72.7	—	—	—	—
2,4,6-Tribromophenol	118-79-6	1.0	%		92.0	—	—	—	—
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		90.3	—	—	—	—
Anthracene-d10	1719-06-8	1.0	%		88.0	—	—	—	—
4-Terphenyl-d14	1718-51-0	1.0	%		88.1	—	—	—	—
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		92.7	—	—	—	—
Toluene-D8	2037-26-5	2	%		95.1	—	—	—	—
4-Bromofluorobenzene	460-00-4	2	%		103	—	—	—	—

Page : 12 of 12
Work Order : EM2015530
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : New Town

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2,4,6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	51	129
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	33	104
2,4,6-Tribromophenol	118-79-6	20	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

GEO-ENVIRONMENTAL SOLUTIONS

17/08/21

Sarah Lindsay
LXN Architecture & Consulting
Sarah@lxn.com.au

RE: Amended Development Plans 156 New Town Road – Environmental Site Assessment

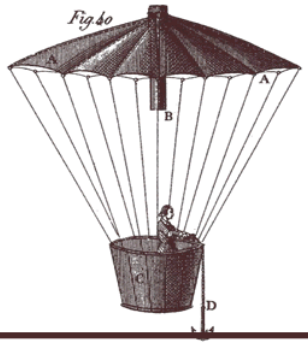
Sarah, this letter is to confirm I have reviewed the amened plans for the proposed development at 156 New Town Road as provided in your email dated the 16th of August 2021. As you are aware my company (Geo-Environmental Solutions Pty Ltd) provided an environmental site assessment for the property in November 2020. The environmental assessment report concluded that the site is suitable for the proposed development and there is no site contamination that would pose an undue risk to human health or the environment during or post the development provided the management recommendations were followed.

The revised plans include ground level apartments which differs from the earlier draft scheme for the project. The ESA report concluded that if there were to be ground level apartments or public open space with potential for human soil contact then a Contamination management Plan (CMP) would be required to manage the possible risk to health during and post construction. This conclusion in the ESA is therefore applicable and a CMP will be required as part of the development to manage the identified risk. I can confirm that the amended development plans do not change the rest of the conclusions and recommendations in the environmental assessment report that the development is compliant with clause E.5 P1 and clause E2.6.2 of the Hobart City Council Interim Planning Scheme.

Kind regards,

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD
Director

GANDY AND ROBERTS
159 DAVEY ST
HOBART TASMANIA
AUSTRALIA 7000
CONSULTING ENGINEERS



Concept Services Report

Planning Scheme Compliance & Existing Infrastructure Assessment

156 New Town Road

for Renewal Developments

03/03/2022

Version control

Revision	Description	Issue date	Issued by
A	Planning Approval	08/10/2021	Dale Hayers
B	Planning Approval	03/03/2022	Dale Hayers

PROJECT NUMBER **20.0457**
REPORT AUTHOR **Dale Hayers**
CHECKED BY **Simon Palmer**

Gandy and Roberts Consulting Engineers
STRUCTURAL CIVIL HYDRAULICS

ph (03) 6223 8877
fx (03) 6223 7183
mail@gandyandroberts.com.au
159 Davey Street Hobart, Tasmania 7000
www.gandyandroberts.com.au

Contents

1 Context 4

2 Development Locality 4
2.1 Development Site and Details 4
2.2 Adjacent Affected Properties 4

3 Existing Site Services 5
3.1 Site Sewer Connections 5
3.2 Site Water Connections 5
3.3 Site Stormwater Connections 5

4 Proposed Site Connections 7
4.1 Site Sewer Connections 7
4.2 Site Water Connections 7
4.3 Site Stormwater Connections 8

5 Planning Scheme Requirements 8

6 Water Sensitive Urban Design 9
6.1.1 Performance Criteria 9
6.1.2 Stormwater Treatment 10
6.1.3 MUSIC Modelling 10

7 Stormwater Detention 10

8 Appendix A: Concept Servicing Plans 11

1 Context

Gandy and Roberts Consulting Engineers have been engaged by LXN Architecture and Consulting to provide concept servicing documentation for the proposed Apartment Development at 156 New Town Road in New Town. This report has been prepared for the Development Application submission process and aims to discuss the methodology in which the sites sewer, water and stormwater infrastructure will be delivered to existing TasWater and Hobart City Council (HCC) owned infrastructure.

2 Development Locality

2.1 Development Site and Details

The proposed development is located at 156 New Town Road in New Town on a site currently used for coffee sales and a training centre.

2.2 Adjacent Affected Properties

To service development at this property, an upgrade to the existing sewer property connection is required. To undertake these works, access to the 18 Roope Street (CT7973/1) is required.

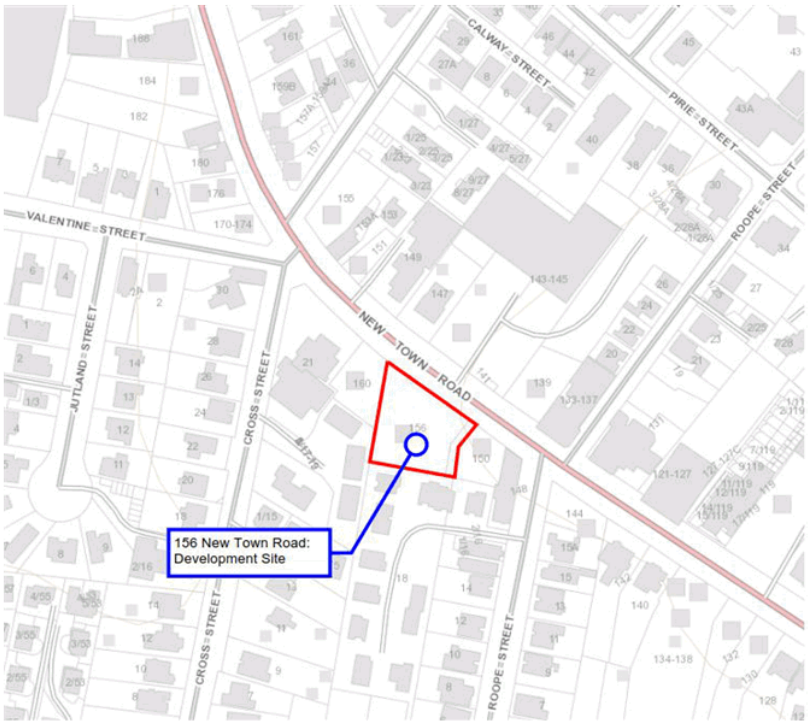


Figure 1: Development Locality

3 Existing Site Services

3.1 Site Sewer Connections

The site is currently serviced by an assumed DN100 sewer connection off a DN150 TasWater sewer main located on the adjacent title at the rear of the development site.

3.2 Site Water Connections

The site is currently serviced by a DN25 low hazard, in ground water connection off a DN100 CICL TasWater water main within New Town Road located on the same side of the road as the site.

3.3 Site Stormwater Connections

The site is currently serviced by a DN150 stormwater connection off a DN150 HCC main located on the adjacent title at the rear of the development site, whilst there is also an existing kerb adaptor delivering stormwater runoff to New Town Road.

Much of the carparking area is directed to the existing kerb outlet (approx. 830m²), along with all roof runoff from the existing building (approx. 280m²). The existing flow rate to the kerb is estimated at 24.4 L/s (5% AEP).

Flow to the rear connection is estimated at 5.9 L/s, this generated from part of the carparking area. Figure 2 provides an overview of the existing stormwater runoff from the site. It is evident that that rear lot connection was added as part of a historical carpark extension, whilst it is noted that the buildings roof drainage is connected to a concrete pipe in ground, suggesting that roof drainage has always been delivered to the kerb. Onsite review of this connection shows that it exits the sites via several DN150 bends and is shallow in nature. The HCC owned manhole at the rear of 18 Roope St was not visually located.

Figure 2: Existing Stormwater Run-Off Locality

4 Proposed Site Connections

4.1 Site Sewer Connections

Sewer flows have been calculated using both AS3500.2:2018 as well as the Taswater Supplement to the WSA 02-2014-3.1 the WSAA Gravity Sewerage Code of Australia.

Development Flows for the Buildings are shown in Table 1.

Table 1: Development Sewage Flows

Design Parameter	Unit
Fixture Units (AS3500.2:2018)	449
Equivalent Tenements	17.72
Average Dry Weather Flow (ADWF)	0.10 L/s
Peaking Factor 'd'	12.40
Peak Dry Weather Flow (PDWF)	1.19 L/s

Note: The listed sewage flows require the installation of DN150 private sewer drainage at a minimum grade of 1.00% in accordance with AS3500.2:2018

It is proposed that the existing connection to the site will be maintained but is required to be upgraded to DN150. These works are to be undertaken by TasWater at the developer's expense.

4.2 Site Water Connections

Domestic water pipework has been sized in accordance with AS3500.1:2018 for probable simultaneous demand, this on the basis that Equivalent Tenements for the development are < 100 in accordance with Taswater Supplement to the Water Supply Code of Australia WSA 3-2011.3.1 MRWA Editions V2.0.

Development Flows for the accommodation buildings are shown in Table 2.

The proposed development is likely Class 2 with Class 9b parts on the ground floor level in accordance with the National Construction Code (NCC). Fire compartments are likely to be under 500 m² and only 1 fire hydrant is required to operate and deliver 10 L/s @ 200 kPa in accordance with AS2419:2005.

Schematic design advice as provided by Pitt and Sherry Building Surveyors has suggested that it is unlikely that fire sprinklers are required to be installed the building.

Table 2: Development Water Flows

Design Flows	Unit
Domestic Water (AS3500.1:2018)	1.90 L/s @ 700 kPa
Fire Services	10.00 L/s @ 700 kPa

Note: The above listed domestic water flows require the installation of DN65 private water pipework in accordance with AS3500.1:201

TasWater confirmed via Service Inquiry TWSI 2021/00375-HCC on 27/5/2021 that the existing DN100 CICL main in New Town Road can deliver 49.9m (499kPa) under a 20 L/s fire demand and 27.8m (278kPa) under a 40 L/s demand.

It is proposed that a new DN100 fire and DN65 domestic water connection will be provided from the existing TasWater Main.

4.3 Site Stormwater Connections

Table 3: Development Stormwater Flows

Design Flows	Unit
Hardstand (Q_{20})	4.5 L/s
Landscape Zones (Q_{20})	2.1 L/s
Roof (Q_{20})	23.7 L/s

Where possible, all ground level landscape and hardstand zones will be directed to HCC infrastructure via gravity. A charged drainage system will be required to deliver roof drainage to the proposed treatment and site stormwater detention tank (see Section 5). A pump station will be sized during detailed building design in accordance with AS3500.3:2018 to service the basement area and zones where gravity and charged drainage systems are not practical.

The existing stormwater connection at the rear of the site is proposed to be abandoned as part of the development and all stormwater runoff delivered to an upgraded kerb connection in the same location as the existing kerb connection. Abandoning the existing rear lot connection is proposed due to the fact it will not be easily accessible under the proposed development and any stormwater treatment/detention infrastructure required at this location will not be easily maintained.

5 Planning Scheme Requirements

The current Hobart Interim Planning Scheme 2015 requires that this development manages stormwater in compliance with the Stormwater Management Code. Code requirements for this development are:

Acceptable Solution A1 of Clause E7.7.1 Stormwater Drainage and Disposal states:

Stormwater from new impervious surfaces must be disposed of by gravity to public stormwater infrastructure.

It is proposed that the existing site stormwater connection will be reused and therefore acceptable solution A1 is addressed.

Acceptable Solution A2 of Clause E7.7.1 Stormwater Drainage and Disposal states:

A stormwater system for a new development must incorporate water sensitive urban design principles[R1] for the treatment and disposal of stormwater if any of the following apply:

(a) the size of new impervious area is more than 600 m²;

(b) new car parking is provided for more than 6 cars;

[R1] *Water Sensitive Urban Design Engineering Procedures for Stormwater Management in Southern Tasmania or the Model for Urban Stormwater Improvement Conceptualisation (MUSIC), a nationally recognised stormwater modelling software package used to assess land development proposals based on local conditions including rainfall, land use and topography, is recognised as current best practice.*

(c) a subdivision is for more than 5 lots.

This development meets criteria (b) of the clause and therefore water sensitive urban design principles must be incorporated into the design of stormwater management for the site. Water sensitive urban design strategies have been detailed in Section 6 of this report.

Acceptable Solution A3 of Clause E7.7.1 Stormwater Drainage and Disposal states:

A minor stormwater drainage system must be designed to comply with all of the following:

(a) be able to accommodate a storm with an ARI of 20 years in the case of non-industrial zoned land and an ARI of 50 years in the case of industrial zoned land, when the land serviced by the system is fully developed;

(b) stormwater runoff will be no greater than pre-existing runoff or any increase can be accommodated within existing or upgraded public stormwater infrastructure.

This development meets criteria (b) of the clause and therefore stormwater is to be managed such that runoff from the site will be no greater than existing. The proposed stormwater detention design has been detailed in Section 7 of this report.

6 Water Sensitive Urban Design

6.1.1 Performance Criteria

Performance Criteria P2 of Clause E7.7.1 states:

A stormwater system for a new development must incorporate a stormwater drainage system of a size and design sufficient to achieve the stormwater quality and quantity targets in accordance with the State Stormwater Strategy 2010, as detailed in Table E7.1 unless it is not feasible to do so.

The acceptable stormwater quality and quantity targets are:

80% reduction in the average annual load of total suspended solids (TSS) based on typical urban stormwater TSS concentrations.
45% reduction in the average annual load of total phosphorus (TP) based on typical urban stormwater TP concentrations.
45% reduction in the average annual load of total nitrogen (TN) based on typical urban stormwater TN concentrations.
Stormwater quantity requirements must always comply with requirements of the local authority including catchment-specific standards. All stormwater flow management estimates should be prepared according to methodologies described in Australian Rainfall and Runoff (Engineering Australia 2004) or through catchment modelling completed by a suitably qualified person.

6.1.2 Stormwater Treatment

A final treatment system design shall be confirmed during detailed design. A concept treatment system for the proposed development has been proposed, incorporating the following design elements:

- Ocean Protect Storm Filters
- Ocean Protect Ocean Guards
- SPEL Hydro-Channel

6.1.3 MUSIC Modelling

MUSIC V6.2.1 was used to model the performance of the proposed stormwater system. The model predicted the following performance outcomes:

- Total Suspended Solids reduction of 81.1%
- Total Phosphorus reduction of 68.5%
- Total Nitrogen reduction of 46.8%
- Gross Pollutants reduction of 99.2%

These reduction percentages satisfy Performance Criteria P2 of Clause E7.7.1.

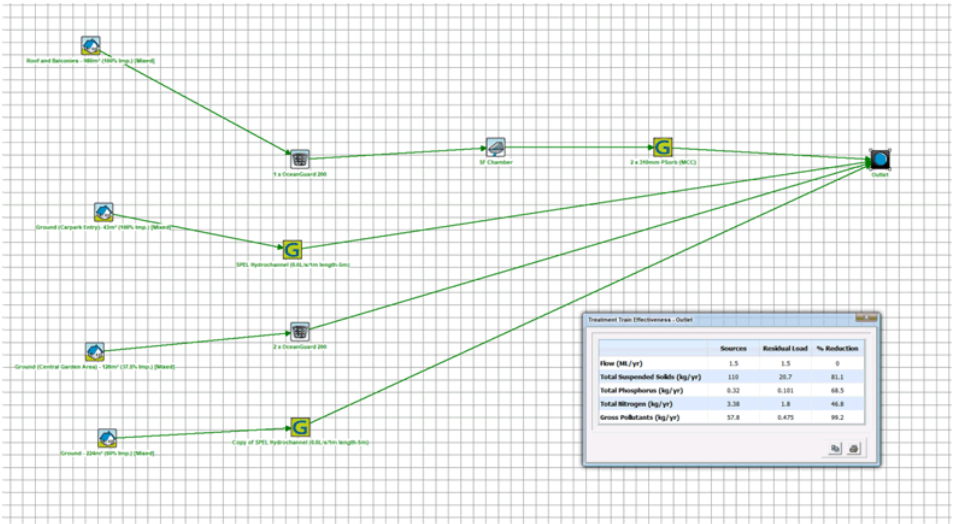


Figure 3: MUSIC Treatment Train

7 Stormwater Detention

The development title is 1475 m² in size and it is proposed that all stormwater runoff will be delivered to an upgraded kerb adaptor connection to New Town Road. Despite the existing runoff to the kerb adaptor having a higher runoff rate (see section 3.3), the maximum flow rate (5% AEP) is proposed to be limited to 13 L/s. Runoff from landscaped zones at the ground level through the central portion between the two building is proposed to discharge to the kerb un-detained, whilst runoff from upper-level roofs, balconies, driveway entry and rear landscaping zones are to be mitigated.

In order to determine the flow hydrograph for the site a hydrological analysis was undertaken in XP storm 2019 using the methods recommended by Australian Rainfall and Runoff (ARR) 2019. Rainfall data for the site was extracted from the Bureau of Meteorology (BOM) and temporal patterns were downloaded from the ARR Data Hub.

Storm durations from 10 minutes to 2 hours were considered in this analysis with the median storm for each rainfall duration identified. Analysis using XP storm indicates that a detention tank of 5600 L with an orifice-controlled outlet of size 75mm will sufficiently limit size discharge to under 13 L/s. Figure 3 shows the flow rate at the site discharge under the ensemble of median storms.

The 5600 L is proposed to be constructed as an above ground precast concrete tank of approx. size 5.9 x 1.2 x 0.85 m and to be formed within the central landscaping zone. The lid of this tank shall be formed to provide for landscaping with suitable access points to maintain filters and the orifice outlet.

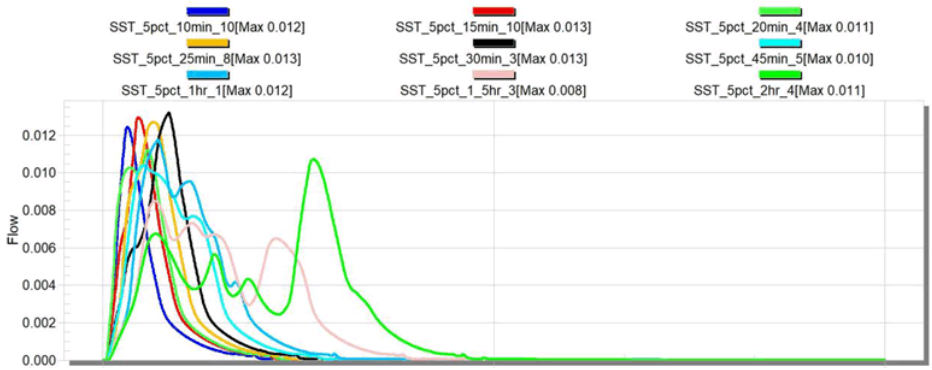
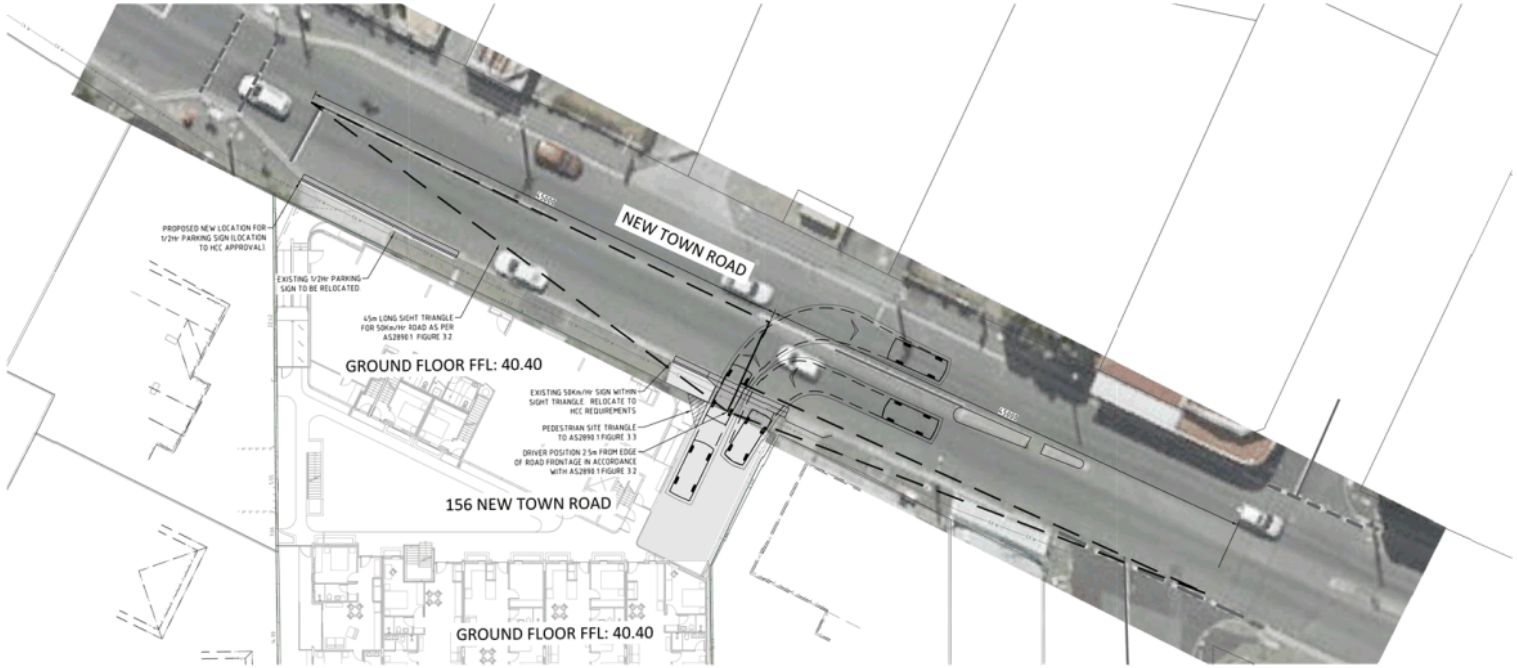


Figure 4: Flow rate to upgraded kerb connection

8 Appendix A: Concept Servicing Plans

The following drawings shall be read in conjunction with this report for a more detailed overview of the proposed development:

- C010 – Access Details
- C011 – Swept Paths 01
- C013 – Ramp Details
- C020 – Concept Serving Plan 01
- C021 – Concept Servicing Plan 02
- C022 – Concept Servicing Plan 03



SIGHT DISTANCE PLAN
SCALE 1:200

REV	DESCRIPTION	APP'D	DATE
C	PLANNING APPROVAL	SP	03.03.2022
A	PLANNING APPROVAL	SP	08.10.2021

REV	DESCRIPTION	APP'D	DATE

THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION

North

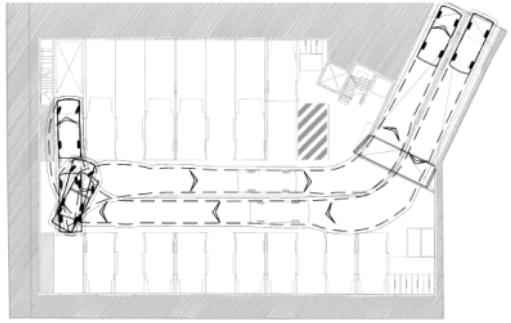
GANDY AND ROBERTS CONSULTING ENGINEERS

159 DAVEY ST, HOBART
TASMANIA, AUSTRALIA 7000
www.gandyandroberts.com.au
mail@gandyandroberts.com.au
ph 03 6223 8877 fx 03 6223 7183

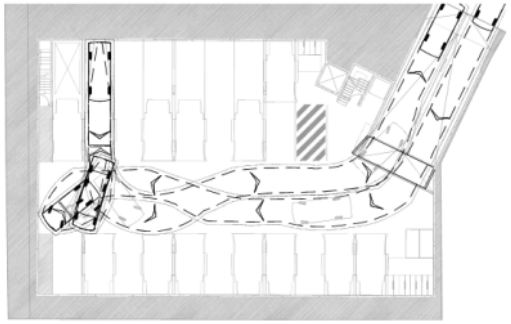
PROPOSED APARTMENT BUILDING
156 NEW TOWN ROAD
TASMANIA 7008
DRAWING TITLE
ACCESS DETAILS

0 50mm

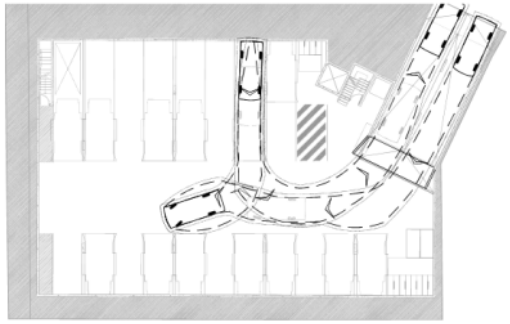
SCALE	DESIGNED	DRAWN	CHECKED
1:777@A1	RB	RB	SP
PROJECT	DRAWING	REVISION	
20.0457	C010	C	



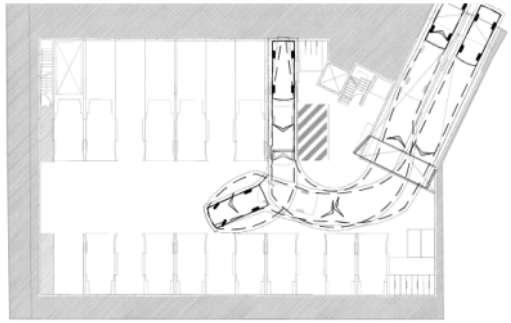
BASEMENT BAY 1 - REVERSE ENTRY



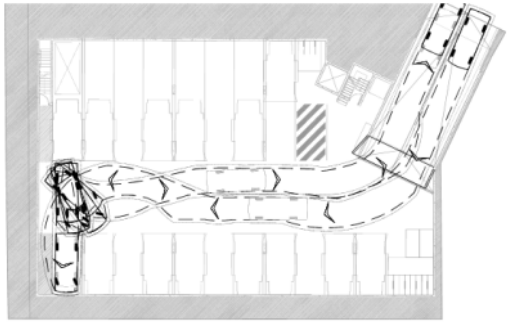
BASEMENT BAYS 2-11 (TYPICAL) - REVERSE ENTRY



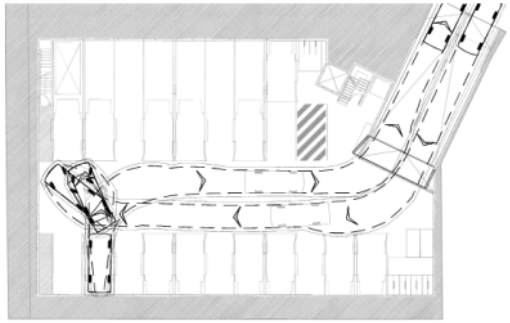
BASEMENT BAYS 12-13 (TYPICAL) - REVERSE ENTRY



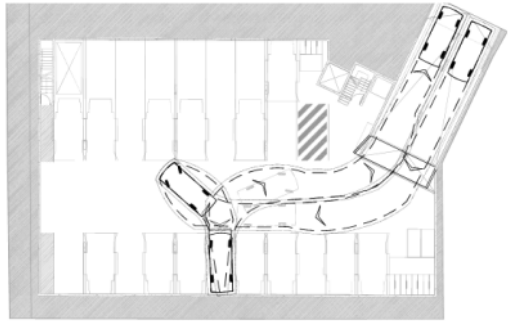
BASEMENT BAY 14-15 (TYPICAL) - REVERSE ENTRY



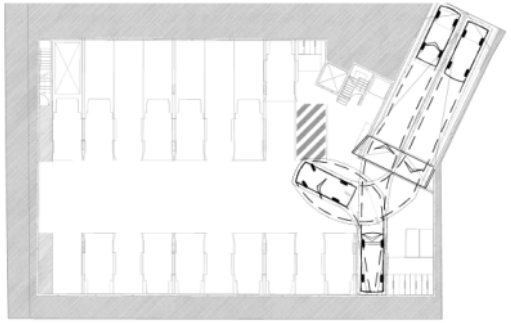
BASEMENT BAY 16 - FORWARD ENTRY



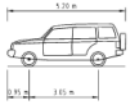
BASEMENT BAYS 17-19 (TYPICAL) - REVERSE ENTRY



BASEMENT BAY 20-23 (TYPICAL) - REVERSE ENTRY



BASEMENT BAYS 24-26 (TYPICAL) - REVERSE ENTRY



STANDARDS AUSTRALIA AS/NZS 2890.1:2004
B99 VEHICLE (REALISTIC MIN RADIUS)

OVERALL LENGTH	5.20 m
OVERALL WIDTH	1.94 m
OVERALL BODY HEIGHT	1.88 m
MIN BODY GROUND CLEARANCE	0.27 m
TRACK WIDTH	1.84 m
LOCK-TO-LOCK TIME	4.00 s
KERB TO KERB TURNING RADIUS	6.25 m

SWEPT PATHS GENERATED USING AUTODESK VEHICLE TRACKING 2018 SOFTWARE

DESIGN VEHICLE DETAILS
(STANDARD FOR ALL TEMPLATES)

REV	DESCRIPTION	APP'D	DATE
C	PLANNING APPROVAL	SP	03.03.2022
A	PLANNING APPROVAL	SP	08.10.2021

REV	DESCRIPTION	APP'D	DATE

THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION

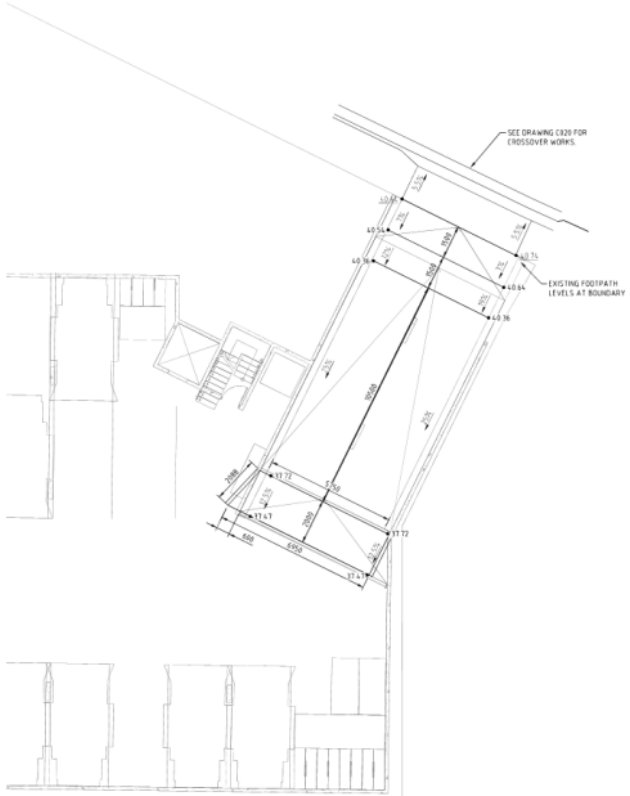
GANDY AND ROBERTS CONSULTING ENGINEERS
159 DAVEY ST, HOBART
TASMANIA, AUSTRALIA 7000
www.gandyandroberts.com.au
mail@gandyandroberts.com.au
ph 03 6223 8877 fx 03 6223 7183

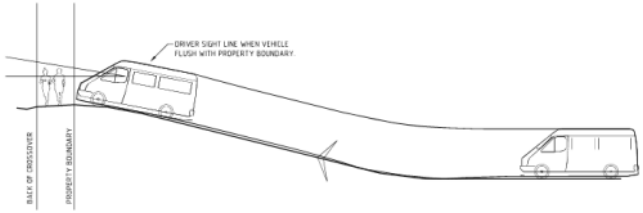
PROPOSED APARTMENT BUILDING
156 NEW TOWN ROAD
TASMANIA 7008

DRAWING TITLE
SWEPT PATHS 01

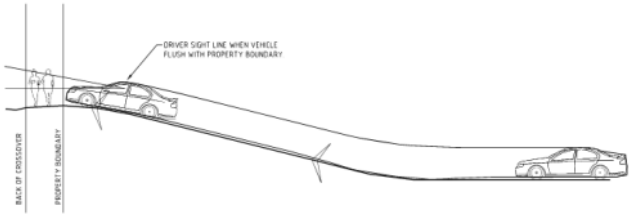
SCALE	DESIGNED	DRAWN	CHECKED
1:200@A1	RB	RB	SP

PROJECT	DRAWING	REVISION
20.0457	C011	C

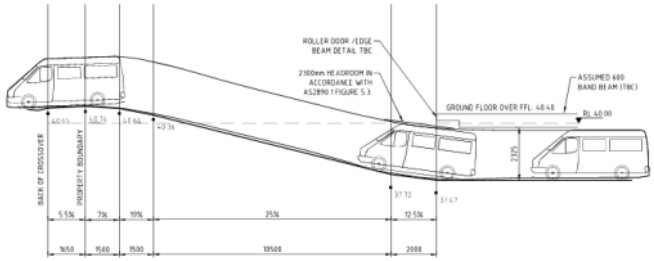




PEDESTRIAN SIGHT LINE (B99 VEHICLE)
SCALE 1:100



PEDESTRIAN SIGHT LINE (B85 VEHICLE)
SCALE 1:100



ENTRY RAMP DETAILS
SCALE 1:100

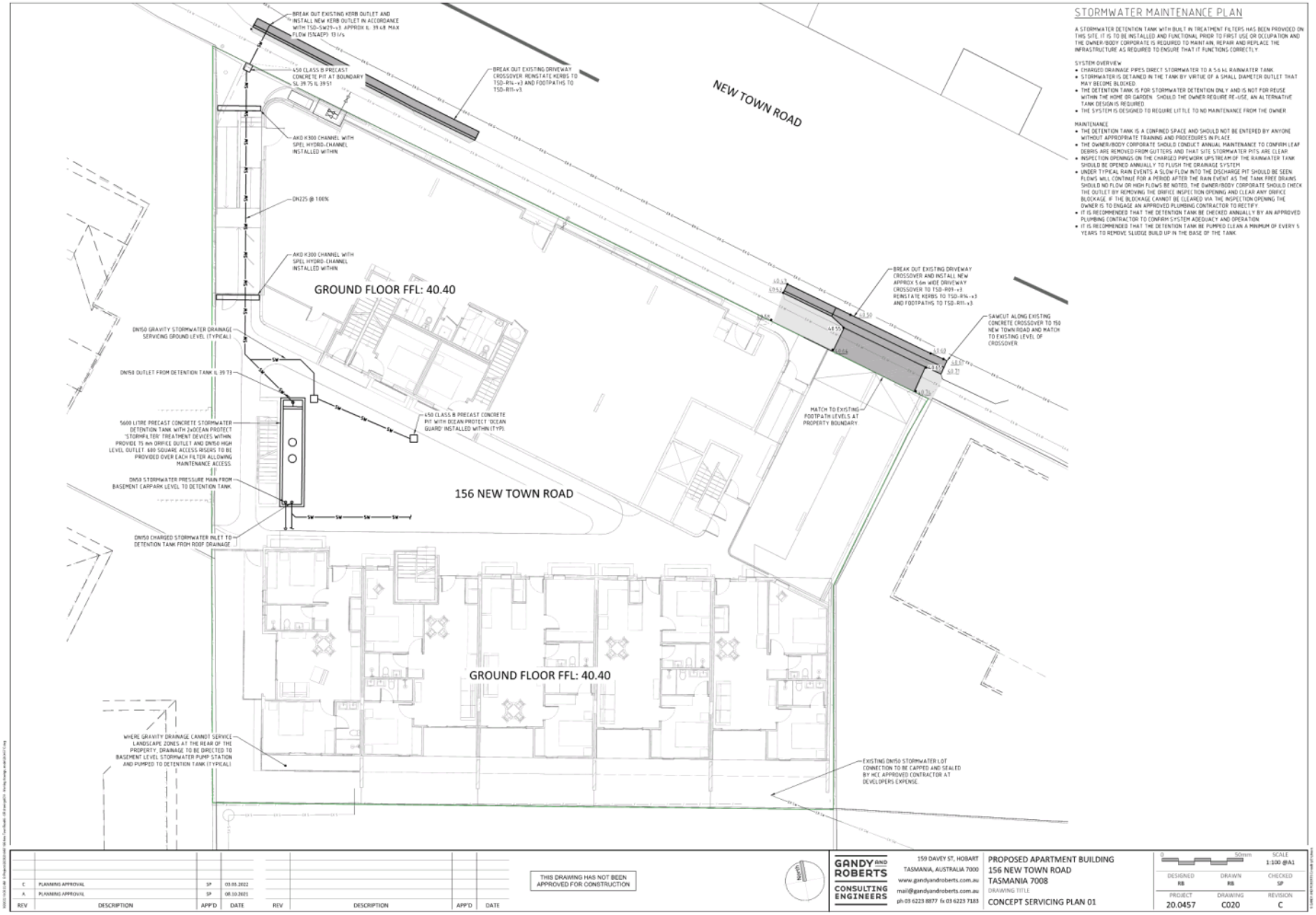
REV	DESCRIPTION	APP'D	DATE	REV	DESCRIPTION	APP'D	DATE
C	PLANNING APPROVAL	SP	03.03.2022				
A	PLANNING APPROVAL	SP	08.10.2021				

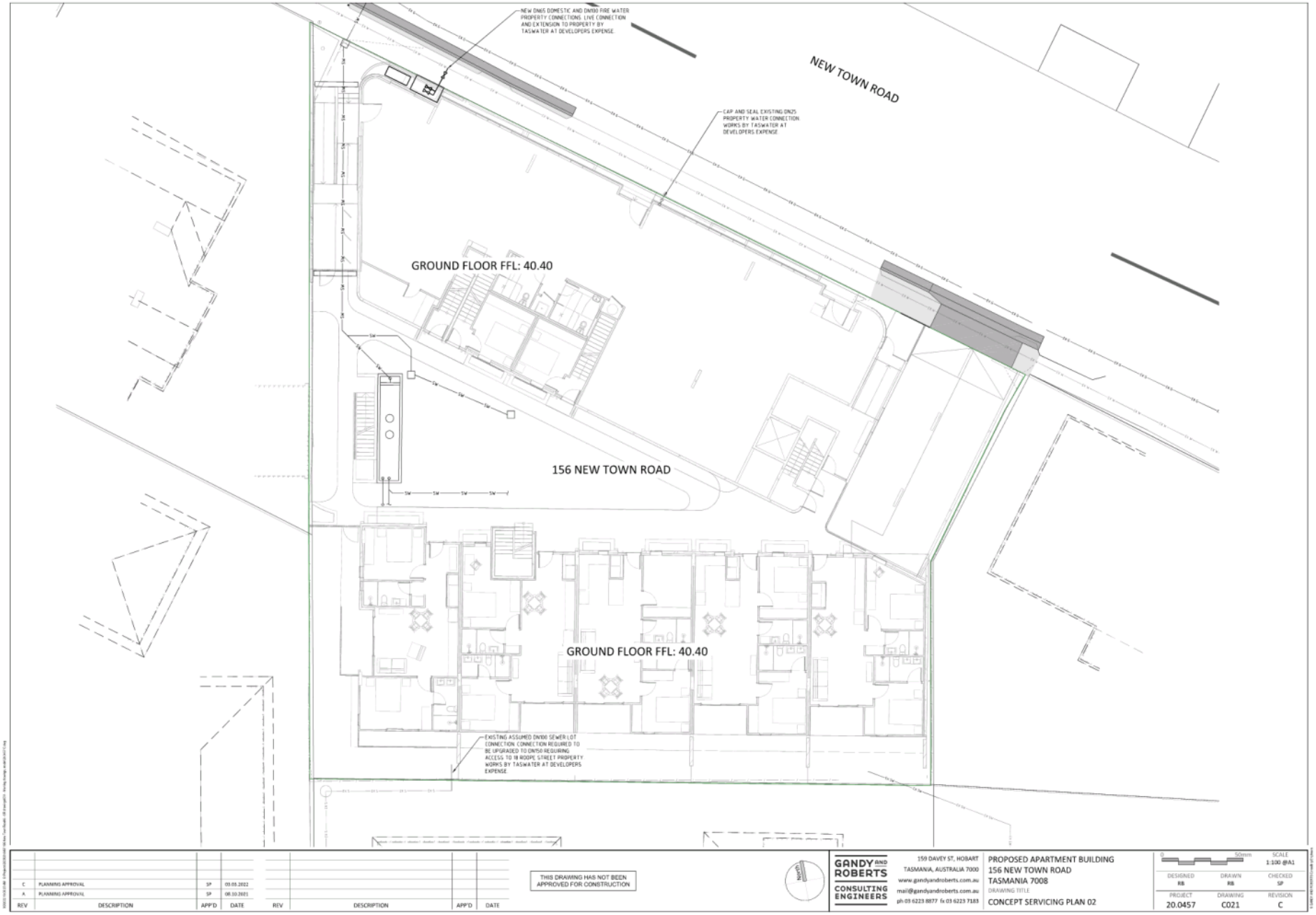
THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION

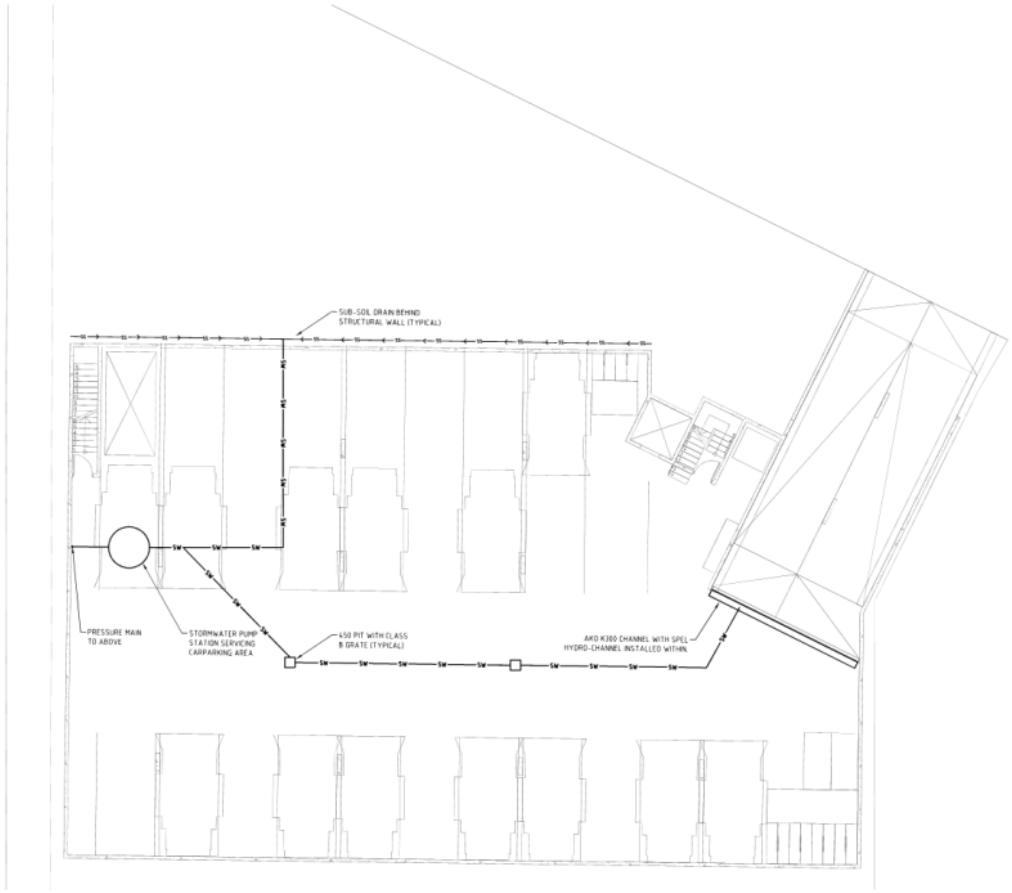
GANDY AND ROBERTS CONSULTING ENGINEERS
159 DAVEY ST, HOBART
TASMANIA, AUSTRALIA 7000
www.gandyandroberts.com.au
mail@gandyandroberts.com.au
ph 03 6223 8877 fx 03 6223 7183

PROPOSED APARTMENT BUILDING
156 NEW TOWN ROAD
TASMANIA 7008
DRAWING TITLE
RAMP DETAILS

SCALE	DESIGNED	DRAWN	CHECKED
1:100 @ A1	RB	RB	SP
PROJECT	DRAWING	REVISION	
20.0457	C013	C	


BREAK OUT EXISTING KERB OUTLET AND INSTALL NEW KERB OUTLET IN ACCORDANCE WITH TSD-SW29-v3 APPROX IL 39.68 MAX FLOW (5%AEP) 19 l/s
450 CLASS B PRECAST CONCRETE PIT AT BOUNDARY SL 39.75 IL 39.51
BREAK OUT EXISTING DRIVEWAY CROSSOVER REINSTATE KERBS TO TSD-R14-v3 AND FOOTPATHS TO TSD-R15-v3
NEW TOWN ROAD
AKD K300 CHANNEL WITH SPEL HYDRO-CHANNEL INSTALLED WITHIN
DN225 @ 1.00%
AKD K300 CHANNEL WITH SPEL HYDRO-CHANNEL INSTALLED WITHIN
GROUND FLOOR FFL: 40.40
BREAK OUT EXISTING DRIVEWAY CROSSOVER AND INSTALL NEW APPROX 5.6m WIDE DRIVEWAY CROSSOVER TO TSD-R09-v3 REINSTATE KERBS TO TSD-R14-v3 AND FOOTPATHS TO TSD-R15-v3
SAWCUT ALONG EXISTING CONCRETE CROSSOVER TO 150 NEW TOWN ROAD AND MATCH TO EXISTING LEVEL OF CROSSOVER
DN150 GRAVITY STORMWATER DRAINAGE SERVICING GROUND LEVEL (TYPICAL)
DN150 OUTLET FROM DETENTION TANK IL 39.73
5600 LITRE PRECAST CONCRETE STORMWATER DETENTION TANK WITH 2xOCEAN PROTECT 'STORMFILTER' TREATMENT DEVICES WITHIN PROVIDE 75 mm ORIFICE OUTLET AND DN150 HIGH LEVEL OUTLET. 600 SQUARE ACCESS HOLES TO BE PROVIDED OVER EACH FILTER ALLOWING MAINTENANCE ACCESS.
450 CLASS B PRECAST CONCRETE PIT WITH OCEAN PROTECT 'OCEAN GUARD' INSTALLED WITHIN (TYP).
MATCH TO EXISTING FOOTPATH LEVELS AT PROPERTY BOUNDARY
DN150 STORMWATER PRESSURE MAIN FROM BASEMENT CARPARK LEVEL TO DETENTION TANK
156 NEW TOWN ROAD
DN150 CHARGED STORMWATER INLET TO DETENTION TANK FROM ROOF DRAINAGE
GROUND FLOOR FFL: 40.40
WHERE GRAVITY DRAINAGE CANNOT SERVICE LANDSCAPE ZONES AT THE REAR OF THE PROPERTY, DRAINAGE TO BE DIRECTED TO BASEMENT LEVEL STORMWATER PUMP STATION AND PUMPED TO DETENTION TANK (TYPICAL)
EXISTING DN150 STORMWATER LOT CONNECTION TO BE CAPPED AND SEALED BY HCC APPROVED CONTRACTOR AT DEVELOPERS EXPENSE.
STORMWATER MAINTENANCE PLAN
A STORMWATER DETENTION TANK WITH BUILT IN TREATMENT FILTERS HAS BEEN PROVIDED ON THIS SITE. IT IS TO BE INSTALLED AND FUNCTIONAL PRIOR TO FIRST USE OR OCCUPATION AND THE OWNER/BODY CORPORATE IS REQUIRED TO MAINTAIN, REPAIR AND REPLACE THE INFRASTRUCTURE AS REQUIRED TO ENSURE THAT IT FUNCTIONS CORRECTLY.
SYSTEM OVERVIEW
• CHARGED DRAINAGE PIPES DIRECT STORMWATER TO A 5.6 kL RAINWATER TANK.
• STORMWATER IS DETAINED IN THE TANK BY VIRTUE OF A SMALL DIAMETER OUTLET THAT MAY BECOME BLOCKED.
• THE DETENTION TANK IS FOR STORMWATER DETENTION ONLY AND IS NOT FOR REUSE WITHIN THE HOME OR GARDEN. SHOULD THE OWNER REQUIRE RE-USE, AN ALTERNATIVE TANK DESIGN IS REQUIRED.
• THE SYSTEM IS DESIGNED TO REQUIRE LITTLE TO NO MAINTENANCE FROM THE OWNER.
MAINTENANCE
• THE DETENTION TANK IS A CONFINED SPACE AND SHOULD NOT BE ENTERED BY ANYONE WITHOUT APPROPRIATE TRAINING AND PROCEDURES IN PLACE.
• THE OWNER/BODY CORPORATE SHOULD CONDUCT ANNUAL MAINTENANCE TO CONFIRM LEAF DEBRIS ARE REMOVED FROM GUTTERS AND THAT SITE STORMWATER PITS ARE CLEAR.
• INSPECTION OPENINGS ON THE CHARGED PIPEWORK UPSTREAM OF THE RAINWATER TANK SHOULD BE OPENED ANNUALLY TO FLUSH THE DRAINAGE SYSTEM.
• UNDER TYPICAL RAIN EVENTS A SLOW FLOW INTO THE DISCHARGE PIT SHOULD BE SEEN. FLOWS WILL CONTINUE FOR A PERIOD AFTER THE RAIN EVENT AS THE TANK FREE DRAINS. SHOULD NO FLOW OR HIGH FLOWS BE NOTED, THE OWNER/BODY CORPORATE SHOULD CHECK THE OUTLET BY REMOVING THE ORIFICE INSPECTION OPENING AND CLEAR ANY ORIFICE BLOCKAGE. IF THE BLOCKAGE CANNOT BE CLEARED VIA THE INSPECTION OPENING THE OWNER IS TO ENGAGE AN APPROVED PLUMBING CONTRACTOR TO RECTIFY.
• IT IS RECOMMENDED THAT THE DETENTION TANK BE CHECKED ANNUALLY BY AN APPROVED PLUMBING CONTRACTOR TO CONFIRM SYSTEM ADEQUACY AND OPERATION.
• IT IS RECOMMENDED THAT THE DETENTION TANK BE PUMPED CLEAN A MINIMUM OF EVERY 5 YEARS TO REMOVE SLUDGE BUILD UP IN THE BASE OF THE TANK.
C PLANNING APPROVAL SP 03.03.2022
A PLANNING APPROVAL SP 08.10.2021
REV DESCRIPTION APP'D DATE
THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION
GANDY AND ROBERTS CONSULTING ENGINEERS
159 DAVEY ST, HOBART TASMANIA, AUSTRALIA 7000
www.gandyandroberts.com.au
mail@gandyandroberts.com.au
ph 03 6223 8877 fx 03 6223 7183
PROPOSED APARTMENT BUILDING
156 NEW TOWN ROAD
TASMANIA 7008
DRAWING TITLE
CONCEPT SERVICING PLAN 01
SCALE 1:100 @A1
DESIGNED RB
DRAWN RB
CHECKED SP
PROJECT 20.0457
DRAWING C020
REVISION C


NEW DN65 DOMESTIC AND DN100 FIRE WATER PROPERTY CONNECTIONS. LIVE CONNECTION AND EXTENSION TO PROPERTY BY TASWATER AT DEVELOPERS EXPENSE.
NEW TOWN ROAD
CAP AND SEAL EXISTING DN25 PROPERTY WATER CONNECTION. WORKS BY TASWATER AT DEVELOPERS EXPENSE.
GROUND FLOOR FFL: 40.40
156 NEW TOWN ROAD
GROUND FLOOR FFL: 40.40
EXISTING ASSUMED DN100 SEWER LOT CONNECTION. CONNECTION REQUIRED TO BE UPGRADED TO DN150 REQUIRING ACCESS TO 18 ROOPE STREET PROPERTY. WORKS BY TASWATER AT DEVELOPERS EXPENSE.
THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION
GANDY AND ROBERTS CONSULTING ENGINEERS
159 DAVEY ST, HOBART
TASMANIA, AUSTRALIA 7000
www.gandyandroberts.com.au
mail@gandyandroberts.com.au
ph 03 6223 8877 fx 03 6223 7183
PROPOSED APARTMENT BUILDING
156 NEW TOWN ROAD
TASMANIA 7008
DRAWING TITLE
CONCEPT SERVICING PLAN 02
SCALE 1:100 @A1
DESIGNED RB
DRAWN RB
CHECKED SP
PROJECT 20.0457
DRAWING C021
REVISION C
C PLANNING APPROVAL SP 03.03.2022
A PLANNING APPROVAL SP 08.10.2021
REV DESCRIPTION APP'D DATE



REV	DESCRIPTION	APP'D	DATE	REV	DESCRIPTION	APP'D	DATE
C	PLANNING APPROVAL	SP	03.03.2022				

THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION

North

GANDY AND ROBERTS CONSULTING ENGINEERS

159 DAVEY ST, HOBART
TASMANIA, AUSTRALIA 7000
www.gandyandroberts.com.au
mail@gandyandroberts.com.au
ph 03 6223 8877 fx 03 6223 7183

PROPOSED APARTMENT BUILDING
156 NEW TOWN ROAD
TASMANIA 7008

DRAWING TITLE
CONCEPT SERVICING PLAN 03

0 50mm

SCALE	DESIGNED	DRAWN	CHECKED
1:100 @A1	RB	RB	SP

PROJECT	DRAWING	REVISION
20.0457	C022	C

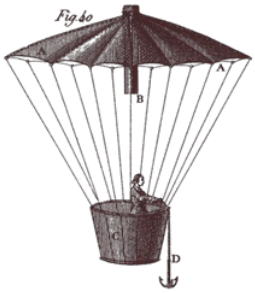


Fig 40
A
A
B
C
D

156 NTR
156 New Town Road, Hobart 7000

WASTE MANAGEMENT PLAN

Project Name: 156 NTR, 156 New Town Road, Hobart 7000.
Client: Renewal Developments
Project/Report Reference: A20121_WMP_156 NTR
File Path: smb://192.168.15.69/01_LXN Architecture/00_Projects/A20101_156 NTR/06_REPORTS/06_01_CURRENT/A20121_WMP_156 NTR

© Lindsay Crossin Group Pty Ltd All Rights Reserved. Copyright in the whole and every part of this document belongs to Lindsay Crossin Group Pty Ltd and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person without the prior written consent of Lindsay Crossin Group Pty Ltd.

This document is produced by LXN Architecture and Consulting for the use by the client in accordance with the terms of engagement. LXN Architecture and Consulting does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

Version: 01
Prepared By: Joshua Crossin Date:20/10/2021
Reviewed By: Sarah Lindsay Date:20/10/2021

TABLE OF CONTENTS
WASTE MANAGEMENT PLAN

1.0 INTRODUCTION		3
2.0 INCLUDED IN THIS REPORT		3
3.0 LAND USE		3
4.0 WASTE MANAGEMENT PLAN		3
4.1	WASTE GENERATION	3
	RESIDENTIAL WASTE SYSTEMS	4
	4.1.1 GARBAGE (GENERAL WASTE)	4
	4.1.2 COMINGLED RECYCLYING	4
	4.1.3 ORGANIC WASTE	5
	4.1.4 BULKY WASTE	5
4.2	COMMERCIAL WASTE SYSTEMS	
	4.2.1 GARBAGE (GENERAL WASTE)	
	4.2.2 COMINGLED RECYCLYING	
	4.2.3 ORGANIC WASTE	
	4.2.4 BULKY WASTE	
4.3	BIN QUANTITY, SIZE AND COLLECTION FREQUENCY	5
4.4	BIN COLOUR AND SUPPLIER	5
4.5	WASTE STORAGE AREA	6
4.6	SIGNAGE	6
4.7	WASTE COLLECTION	7
DESIGN DRAWINGS		7
LIST OF FIGURES		
	FIGURE 1 SUSTAINABILITY VICTORIA SIGNAGE	6
	FIGURE 2 CITY OF HOBART FOGO	6
LIST OF TABLES		
	TABLE 1 WASTE GENERATION RATES	3
	TABLE 2 WASTE GENERATION ASSESSMENT	4
	TABLE 3 WASTE BIN SIZE AND COLLECTION FREQUENCY	5
	TABLE 4 TYPICAL WASTE BIN DIMENSIONS	5
	TABLE 5 WASTE AREA SPACE REQUIREMENTS	6

1.0 INTRODUCTION

LXN Architecture and Consulting has been engaged by Renewal Developments Pty Ltd to prepare a Waste Management Plan for a proposed 156 NTR Apartments located at 156 New Town Road, New Town 7008. This Waste Management Plan (WMP) has been prepared based on industry best practice. Waste generation rates enclosed herein are based on the South Australia Better Practice Guide Waste Management for Residential and Mixed-Use Developments, https://www.unmakingwaste.org/zero-waste-sa/ .

2.0 INCLUDED IN THIS REPORT

Enclosed is the Waste Management Plan for the proposed development at 156 New Town Road, New Town 7008.
Included are details regarding:

- Land use;
- Waste generation;
- Waste systems;
- Bin quantity, size and colour;
- Collection frequency;
- Bin storage area;
- Signage;
- Waste collection;
- Scaled waste management drawings.

3.0 LAND USE

Planning application number: CoH TBC
Planning Scheme: Hobart Interim Planning Scheme 2015
Land Zone: 15.0 Urban Mixed Use Zone
Number of levels: 3
Number of Apartments: 19 total;

- 1 studio apartment,
- 13 off two-bedroom apartments, and
- 5 off three-bedroom apartments

Commercial Tenancy:

- 360m2 Commercial gymnasium

4.0 WASTE MANAGEMENT PLAN

4.1 Residential Waste Generation

Residential waste generation rates are shown in Table 1.
Calculations are based on 7 days per week occupancy.

* Waste generation calculator is based on the South Australia Better Practice Guide Waste Management in Residential or Mixed use developments as established by the *Zero Waste SA ACT 2004.*

Table 1 Waste Generation Rates

Use	Garbage (L/bedroom/week)	Recycling (L/bedroom/week)	Organics (L/bedroom/week)
High Density Residential Dwelling	30*	25*	10*

** The City of Hobart Waste Management Strategy 2015-2030 states, the current kerbside service provision to residents is a weekly collection of a 120L waste bin, and fortnightly collections of a 240L recycling bin per rateable property. The applied Waste Generation Rates for this project are less than the current CoH provision.

A residential waste generation assessment is provided in Table 2.

Table 2 Waste Generation Assessment

Use	Bedrooms	Waste Per Week		
		Garbage	Recycling	Organics
High Density Residential Dwelling	42	1,260L	1,050L	420L
Total Waste Generated per Week		**1,260L**	**1,050L**	**420L**

4.1.1 Residential Waste Systems

Waste would be sorted on-site (in apartments) by residents as appropriate into the following streams:

- Garbage (General Waste),
- Comingled Recycling,
- Organics (CoH FOGO), and
- Bulky Waste

4.1.1 Garbage (General Waste)

Each apartment will include a dual integrated under bench bin to accommodate Garbage and Comingled Recyclables with a minimum capacity of 15 litres for the temporary holding of General Waste. Residents will be required to apply a plastic liner to their general waste bin.

To dispose of the waste from apartments, residents will need to take their waste to refuse themselves.

Garbage is to be disposed of bagged.

4.1.2 Comingled Recycling

Each apartment will include a dual integrated under bench bin to accommodate Garbage and Comingled Recyclables with a minimum holding capacity of 12 litres for the temporary holding of comingled recycling.

To dispose of the waste from apartments, residents will need to take their waste to refuse themselves.

Comingled Recyclables are to be disposed of loosely.

4.1.3 Organic Waste

Each apartment would be supplied an Organics Waste Bin (similar to the City of Hobart FOGO bin) to for the temporary holding of organic waste. These bins have a maximum capacity of 5 litres. Residents of all apartments would dispose of organics from these bins directly into the appropriate organics bin provided with in the ground floor refuse area.

Organic Waste bin will be collected by private contactor.

4.1.4 Bulky Goods

A minimum annual storage capacity of 14.63m^3 is required for the storage of Bulky Goods Waste. This has been calculated on a rate of 0.77m^3 of Bulky Waste generated per household per annum. A volume of 4.9m^3 with the minimum dimensions of 1500mmW x 1500mmD x 2300mmH has been allocated in the basement adjacent to the lift lobby and carpark access point. This space is a temporary storage space with the expectation that the building manager would arrange (3) collections occurring per year or residents. Residents can also utilise the City of Hobarts McRobbies transfer station that provides up to five free entry weekends for residents of the City and located 9.1km south west to the site.

The storage area would be clearly marked and accessed via the carpark. Refer appendix 1 for the location.

4.2 Commercial Waste Generation

Commercial waste generation rates are shown in Table 3.
Calculations are based on 7 days per week occupancy.

* Waste generation calculator is based on the South Australia Better Practice Guide Waste Management in Residential or Mixed use developments as established by the *Zero Waste SA ACT 2004*.

Table 3 Waste Generation Rates

Use	Garbage (L/10m2/week)	Recycling (L/10m2/week)	Organics (L/10m2/week)
Commercial – Retail greater than 100m2	6*	6*	0.3*

A commercial waste generation assessment is provided in Table 4.

Table 4 Waste Generation Assessment

Use	Waste Per Week		
	Garbage	Recycling	Organics
Commercial 360m2	216L	216L	10.8L
Total Waste Generated per Week	**216L**	**216L**	**10.8L**

4.2.1 Commercial Waste Systems

Waste would be sorted on-site (in gymnasium) by staff and clients as appropriate into the following streams:

- Garbage (General Waste),
- Comingled Recycling,
- Organics (CoH FOGO), and
- Bulky Waste

4.2.2 Garbage (General Waste)

The gymnasium will be furnished with plastic lined bins for the temporary holding of garbage waste, to have a minimum cumulative capacity of 30.9L. This capacity is based on the transfer of waste to the refuse occurring once per day.

Staff and cleaners will dispose of waste from these bins directly into the appropriate 1,100L bin provided in the refuse.

To dispose of the waste from gymnasium, staff will need to take their waste to refuse themselves.

Garbage is to be disposed of bagged.

4.2.3 Comingled Recycling

The gymnasium will be furnished with plastic lined bins for the temporary holding of comingled recycling, to have a minimum cumulative capacity of 30.9L. This capacity is based on the transfer of waste to the refuse occurring once per day.

Staff and cleaners will dispose of waste from these bins directly into the appropriate 1,100L bin provided in the refuse.

To dispose of the waste from gymnasium, staff will need to take their waste to refuse themselves.

Comingled Recyclables are to be disposed of loosely.

4.2.4 Organic Waste

The kitchenette will be furnished with bins lined with compostable bags for the temporary holding of organics. These bins will have the minimum cumulative capacity of 1.6L, based on the transfer of waste to the refuse once per day.

Organic Waste bin will be collected by private contactor.

4.2.5 Bulky Goods

There is a space allocated in the refuse for any bulky goods, should they be generated.

4.3 Bin Quantity, Size and Collection Frequency

The bin quantity, size and the frequency of collection are shown below in Table 5 and Table 6. Two garbage waste collections per week is recommended given the volume and nature of the waste generated in the proposed development.

Table 5 Waste Bin Size and Collection Frequency

Waste Stream	Collection per Week	Bin Size	No. Bins	Total weekly volume	Weekly capacity per bedroom	Weekly capacity Commercial (L/10m2)	Total weekly capacity
Garbage	2	1,100	1	1,476L	30L	6L	2,200L
Comingled Recycling	2	1,100	1	1,266L	25L	6L	2,200L
Organics	1	660	1	430.8L	10L	0.3L	500L

Table 6 Typical Waste Bin Dimensions

Capacity	Width (mm)	Depth (mm)	Height (mm)	Area (m^2)
1100	1240	1070	1330	1.33
660	1260	780	1200	0.98
360	680	848	1100	0.58

* Bin dimensions based on typical SULO Pty Ltd refer

4.4 Bin Colour and Supplier

All bins will be provided by private supplier. The below bin colours are specified by Australian Standard AS 4123.7-2006, however due the private nature of the collection, these are only recommendations and are not mandatory:

- Garbage (general waste) shall have red lids with dark green or black body; and
- Recycle shall have yellow lids with dark green or black body.
- Green Waste / Organics shall have lime green lids with dark green or black body.

4.5 Waste Storage Area

Table 7 demonstrates the cumulative space requirements and provision of waste areas in the proposed development.

Please refer to scaled drawing shown in Appendix 1.

Table 7 Waste Area Space Requirements

Waste Type	Space Required (excl. circulation)	Space Provided
Garbage	1.33m^2	6.15m^2
Comingled Recycle	1.33m^2	
Organics	0.98m^2	
Bulky Goods	2.25m^2	
Total	**5.89m^2**	**6.15m^2**

Waste management would be overseen by building management.

4.6 Signage

Waste storage areas and bins would be clearly marked and signed with the industry standard signage approved, or equivalent, as illustrated in Figure 1.

Figure 1: Sustainability Victoria Signage

Figure 2: City of Hobart FOGO Signage

4.7 Waste Collection

Waste would be collected by private contractor, as follows:

- One 1,100L garbage bin collected twice per week,
- One 1,100L comingled recycling bins collected twice per week, and
- One, 660L organic bin collected once per week

1. All waste bins would be stored on-site in the bin refuse area provided with in the site.
2. General waste collections would occur via nominally an 8.8m medium rigid vehicle.
3. Waste collection vehicles would draw parallel to the kerb of Argyle Street and prop for collection (similar to CoH contractors)
4. Vehicle operators would ferry waste bins from the bin refuse area and return upon emptying.
5. Waste collections would be performed at off peak hours (i.e. prior or post peak traffic flows) to ensure safe access and pedestrian safety.

Design Drawings

ARCHITECTURAL STATEMENT

—

NEW TOWN ROAD APARTMENTS

156 Newtown Rd, Hobart

–

LXN Architecture & Consulting

October 2021

LXN

PROJECT DESCRIPTION

The proposed development is located at 156 New Town Road (the site), on the Western side between Cross Street and Roope Street. The site neighbours the Former Methodist Church Parsonage to the North and the New Town Cat Clinic to the South.

The proposed development includes the demolition of existing structures and construction of a new three story mixed use building, accommodating; a basement carpark, communal courtyard, commercial tenancy and 19 residential apartments.

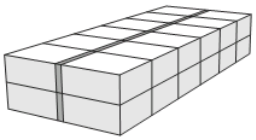
The inner urban suburb of New Town provides a high level of residential amenity and is conducive to infill projects of an increased residential density.

The design response to the site and client brief is summarised in the following moves:

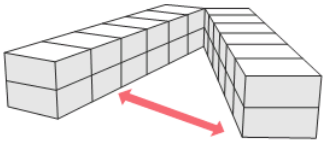
- Reinstate a built edge to the street,
- Pull back from the Former Methodist Parsonage and Church,
- Maximise the opportunity for natural light and ventilation to each apartment,
- Develop a material palette that is consistent with the New Town streetscape narrative; materials and colours.

LXN

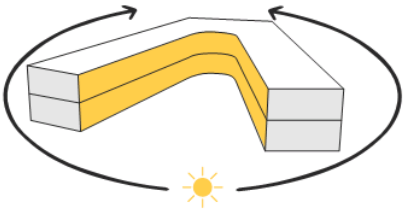
DESIGN APPROACH - SITE RESPONSE



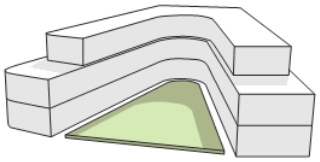
Traditional double stacked apartment plan.



The plan is opened in response to the wedge shaped site.



The floor plate is only one apartment deep, maximising opportunities for solar access and natural ventilation.



The negative space creates an opportunity for communal activities and landscaping and reduces the built edge against the neighbouring Heritage Buildings.

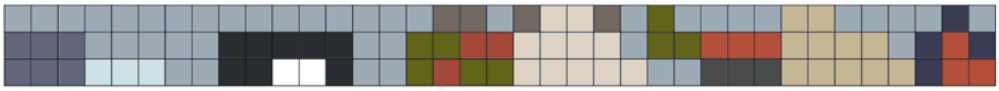
LXN

DESIGN APPROACH - STREET SCAPE ANALYSIS

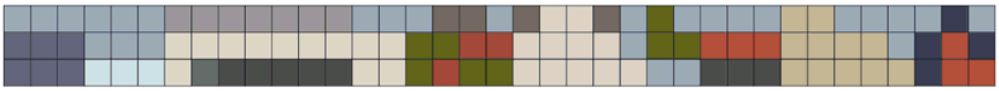
An study of the existing streetscape was undertaken, to analyse the predominant colours and building materials. This analysis informed the selection of the proposed materials and their composition.

Streetscape analysis of materials and colours

Application of grid to facilitate colour study



Colour Study of Existing Condition



Proposed colour palette

LXN

UDAP NOTES

(Aerial Image) Proposal
- Mixed use development
- Commercial tenancy with gym use
- 19 residential dwellings
- The existing building (circa 1970s will be removed), formerly a service station more recently laundromat and cafe
- Neighbouring buildings: are a combination of unit type housing, commercial shop fronts and State Heritage Listed Parsonage and Former Methodist Church

Site Approach & Brief
- The project brief was for a mixed use development
- residential and commercial
- Many options for the site were considered; terrace style townhouses, clusters of apartments
- Through this process of testing the site opportunities and constraints became apparent and the brief was also refined
- Single depth building
- Re-instating the street edge
- Taking advantage of the wedge shaped site allowed building to be opened up to the north to take advantage of solar access from two elevations and allow for natural ventilation within the dwellings
- The communal north-facing courtyard provides amenity to the residents and reinforces a sense of community

Landscape Plan
- Landscape plan reflects the conceptual response and will be developed in consultation with a specialist
- Essentially the focus has been on extending the street edge landscape that is provided by the church grounds
- Providing substantial screening plants to the residential neighbours
- Create a green space in the centre of the site that can be enjoyed by the community
- Hard landscaping is shown in a light coloured brick and a red brick and serves to provide legibility and identification for the residential vs the commercial access
- Ground floor dwellings have planter boxes at each apartment entry, signifying the front door and providing opportunity for personalised landscaping

Survey
- Circa 1m fall along New Town Road
- Site was previously built up to accommodate the building, resulted in substantial fill and level change in the North West corner

Site Plan
- Urban Mixed Use Zone
- Neighbouring residential zone to the north and west

Basement
- Secure basement carpark residents only
- 2-way access via ramp from New Town Road
- 12 bicycle parking spaces
- 26 Carparks
- 2x motor cycle/ scooter parking spaces
- Secure access to all floors via the lift
- Access to the central courtyard via the stairs.

Ground Floor
- Mixed use building
- Commercial and residential access is clearly delineated
- A mix of housing options were desired; on-grade level access to townhouses, as well as apartment style
- non-negotiables were;
  - no walking past another person's window,
  - enclosed (weather protected) lobbies
  - light and ventilation and access to sunlight to all apartments where possible
- The mix of dwelling types provides options for a wide cross section of the community
- dwellings 1-5 are more of a townhouse style with level, on grade access via the courtyard and

LXN

landscaped outdoor space to the north.
- Dwellings 6, 7 and 8 are accessed via the courtyard and they function more like a 2-story 'walk-up',
- Dwellings 7 & 8 include a GF bedroom which could function as a study (work from home) or 3rd bedroom.

Level 1
- There are 10 dwellings on Level 1,
- Majority are 2-bed room apartments
- There is 1x1 bed apartment and 3x 3 bedroom apartments
- The lobby is weather protected and connects to the basement carpark via the lift

Level 2
- There 4 dwellings on Level 2
- 3x 3bed room and 1 x 2 bedroom
- The lobby is weather protected and connects to the basement carpark via the lift
- The building setbacks at apartment 16 pull back from the parsonage to preserve views to the Church site
- The setbacks to the north and west for apartments 18 and 19 comply with the required setback to the residential zone

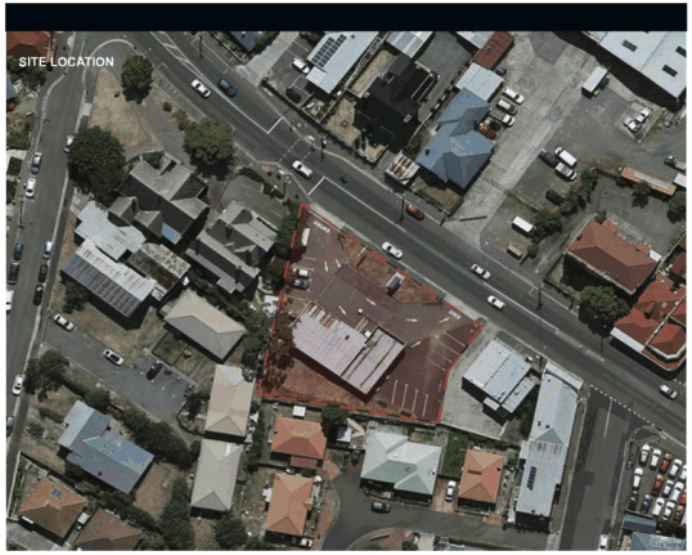
Elevations/ 3Ds
- The new town road frontage is a very only elevation
- The commercial frontage provides multiple access points, allowing alternate tenancy configurations and breaking up the frontage to a scale that is more compatible with the streetscape context
- On level 1 the brick facade is a homogenous material, articulated through a stepping of the facade which provides shadows and articulation.
- This subtle approach was preferred and is more consistent with the techniques employed in the brick, stone and rendered buildings within the context.
- The stepping roof form is intended to break down the linear form and provides a datum that aligns with church roof.

Material Palette
- The material palette has been developed in conjunction with heritage consultant Lucy Bourke-Smith
- The process of developing the palette involved a site and context walk and analysis of the building materials and colours in the surrounding commercial streetscape,
- this analysis was primarily to the south of the site in the existing civic/ commercial centre of New Town

Building Envelope
- The building sits within the required building envelope regarding building height and setbacks.
- There is a technical issue regarding the setback of the basement, triggering the performance criteria, however the building above basement level is compliant with the building setbacks and height and fits within the permitted building envelope

156 NTR

DEVELOPMENT APPLICATION



DRAWING SCHEDULE

DA-01	COVER PAGE
DA-02	SITE SURVEY
DA-03	EXST. / DEMO PLAN
DA-04	PROPOSED SITE PLAN
DA-05	BASEMENT PLAN
DA-06	GROUND FLOOR PLAN
DA-07	LEVEL 1 FLOOR PLAN
DA-08	LEVEL 2 FLOOR PLAN
DA-09	ROOF PLAN
DA-10	LANDSCAPE PLAN
DA-11	ELEVATIONS
DA-12	ELEVATIONS
DA-13	SECTIONS
DA-14	SECTIONS
DA-15	BUILDING HEIGHT ENVELOPE - 15.4.1
DA-16	BUILDING SETBACK ENVELOPE - 15.4.2
DA-17	STREET ELEVATION
DA-18	MATERIAL PALETTE / STREETSCAPE ANALYSIS
DA-19	PHOTOMONTAGE SHEET 1
DA-20	PHOTOMONTAGE SHEET 2
DA-21	ROOPE ST - STREETSCAPE ELEVATION

PROJECT INFORMATION

ADDRESS
156 New Town Road,
New Town, Tasmania

LAND TITLE REFERENCE
CT: 171514/1

MUNICIPALITY
City of Hobart

AREA SUMMARY

Site:	1474m²
Proposed Works (Total GFA):	2938m²
Basement:	*764m² GFA*
Ground Floor:	*837m² GFA*
Level 1:	*850m² GFA*
Level 2:	*487m² GFA*

WIND CLASSIFICATION:	TBC
SOIL CLASSIFICATION:	*Refer GES Report*
BUILDING CLASS:	2, 6, 7a
BAL RATING:	N/A
CLIMATE ZONE:	7
ALPINE AREA:	N/A
CORROSION ENVIRONMENT:	N/A
OTHER HAZARDS:	*Refer GES Report*

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:1 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
COVER PAGE

DRAWING
DA-01

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

NOTE:

Site Survey completed by Rogerson and Birch Surveyors.

This plan and associated digital model is prepared from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by plan dimensions only and not by field survey. No measurements or offsets are to be derived between the features on this plan and the boundary layer. The relationship between the features in this model and the boundary layers cannot be used for any set out purposes or to confirm the position of the title boundaries on site.

Due to the nature of the title boundary information, if any structures are designed on or near a boundary we would recommend a re-mark survey be completed and lodged with the Land Titles Office to support the boundary definition.

Services shown have been located where visible by field survey. Services denoted as being 'Per DBYD only' are approximate and for illustrative purposes only. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for confirmation of further underground services based on the requirements of the DBYD Act.

This note forms an integral part of the Plan/Data. Any reproduction of this plan/model without this note attached will render the information shown invalid.

T APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

N

PROJECT NUMBER
A20101

SCALE
1:250 @ A3

STATUS
DEVELOPMENT APPLICATION

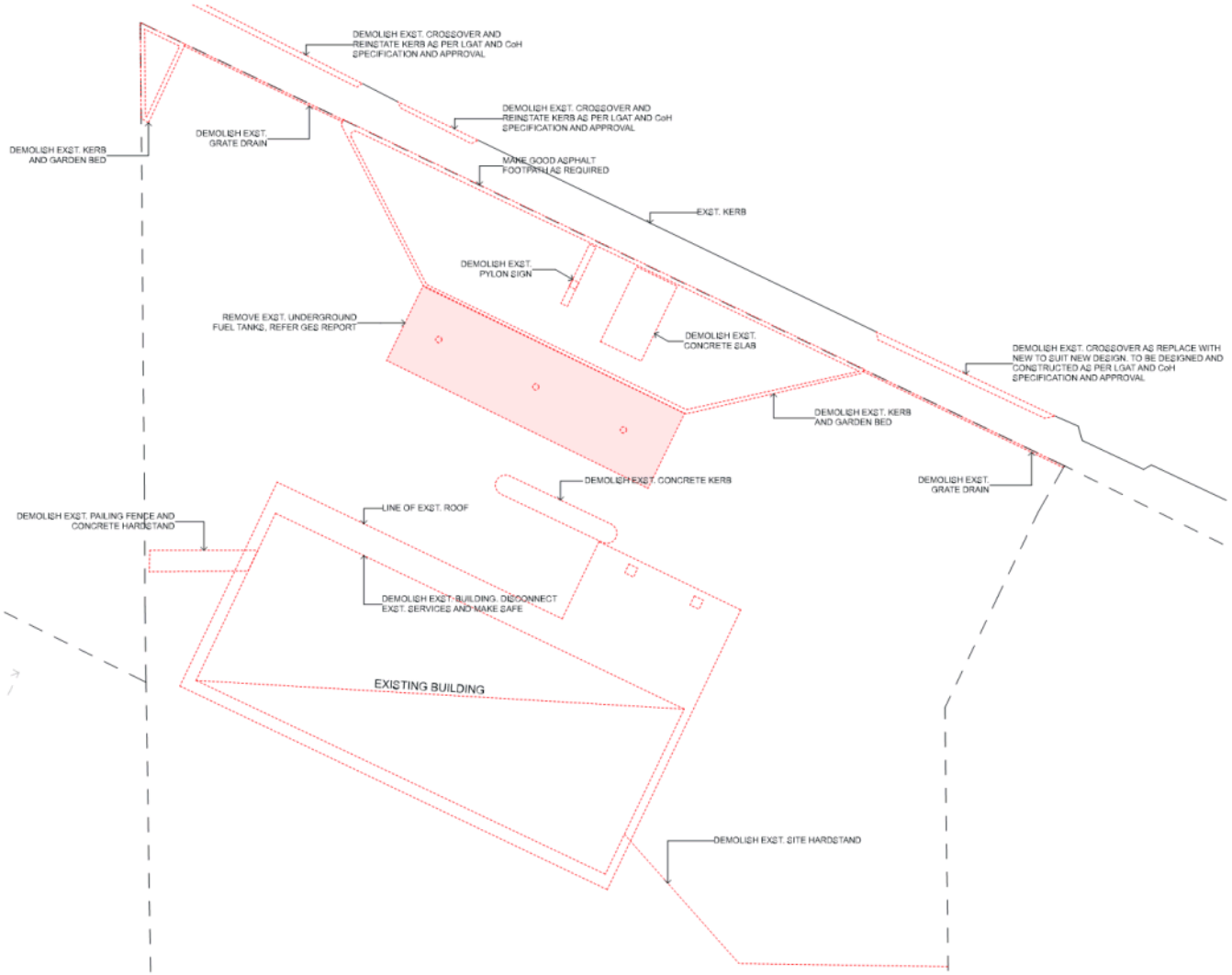
DRAWING TITLE
SITE SURVEY

DRAWING
DA-02

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 Demolition Plan
1:200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

N

PROJECT NUMBER
A20101

SCALE
@ A3

STATUS
DEVELOPMENT APPLICATION

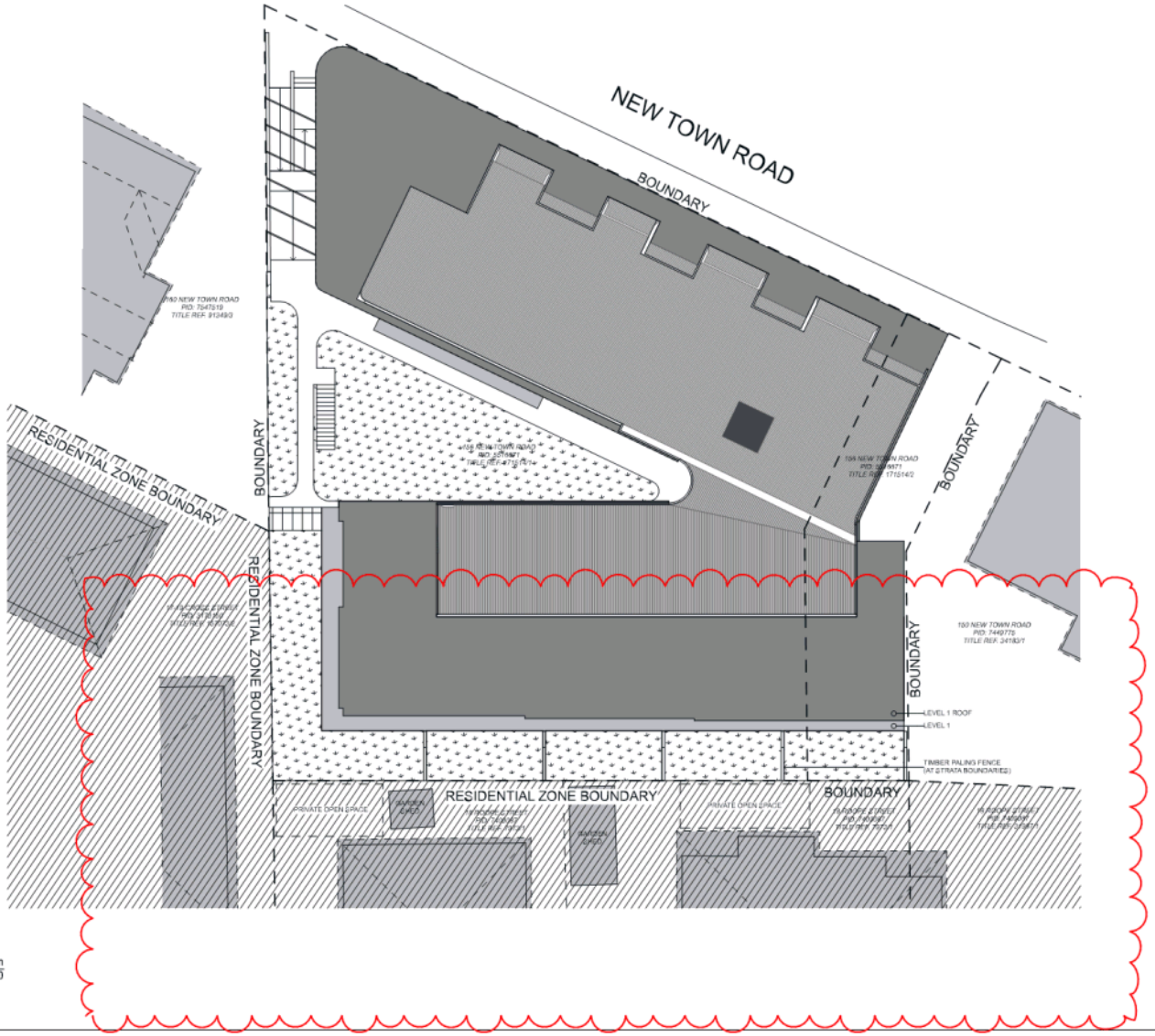
DRAWING TITLE
EXST. / DEMO PLAN

DRAWING
DA-03

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 Site Plan
1:250

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

N

PROJECT NUMBER
A20101

SCALE
1:250 @ A3

STATUS
DEVELOPMENT APPLICATION

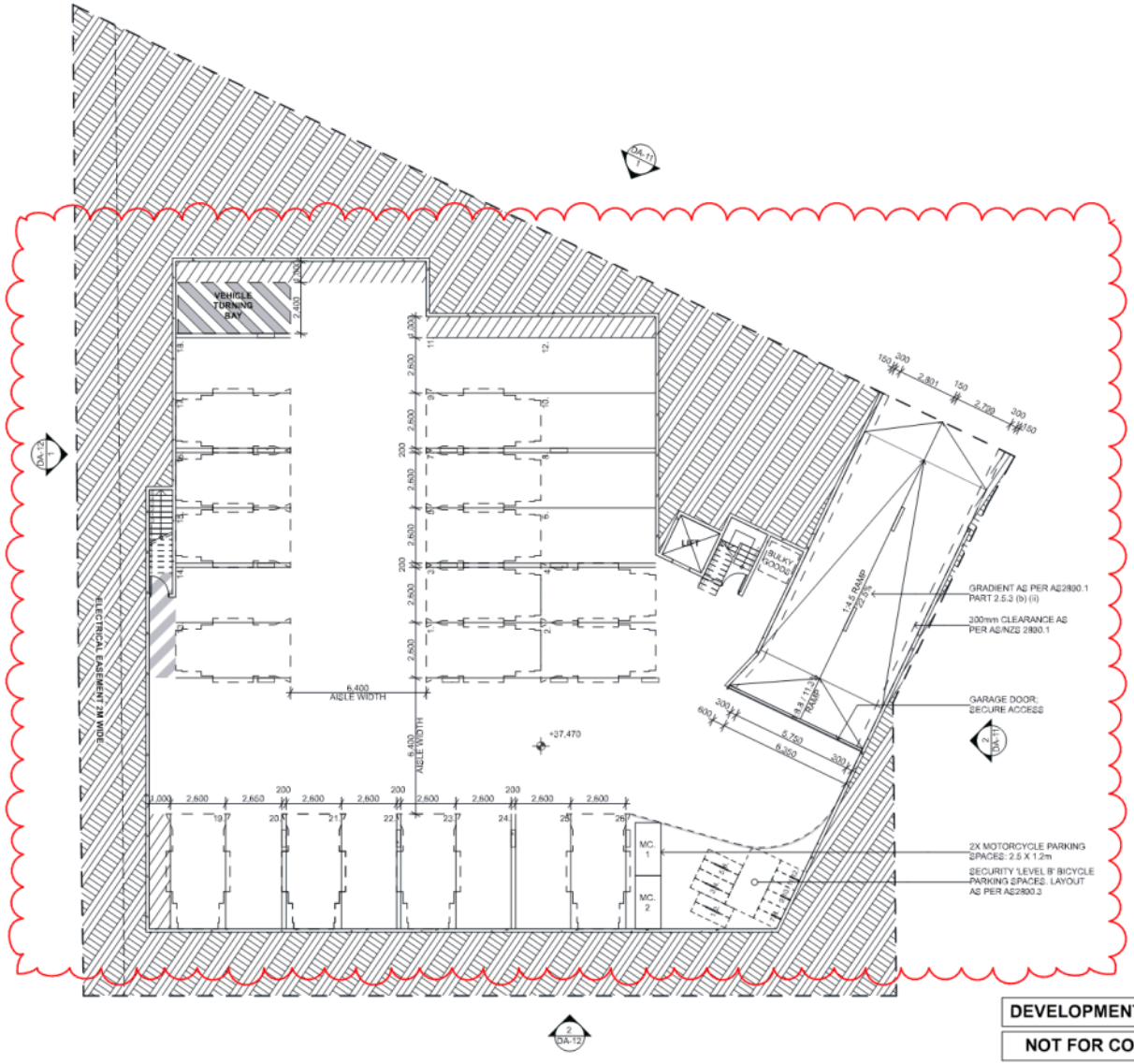
DRAWING TITLE
PROPOSED SITE PLAN

DRAWING
DA-04

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 Basement Plan
1:200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

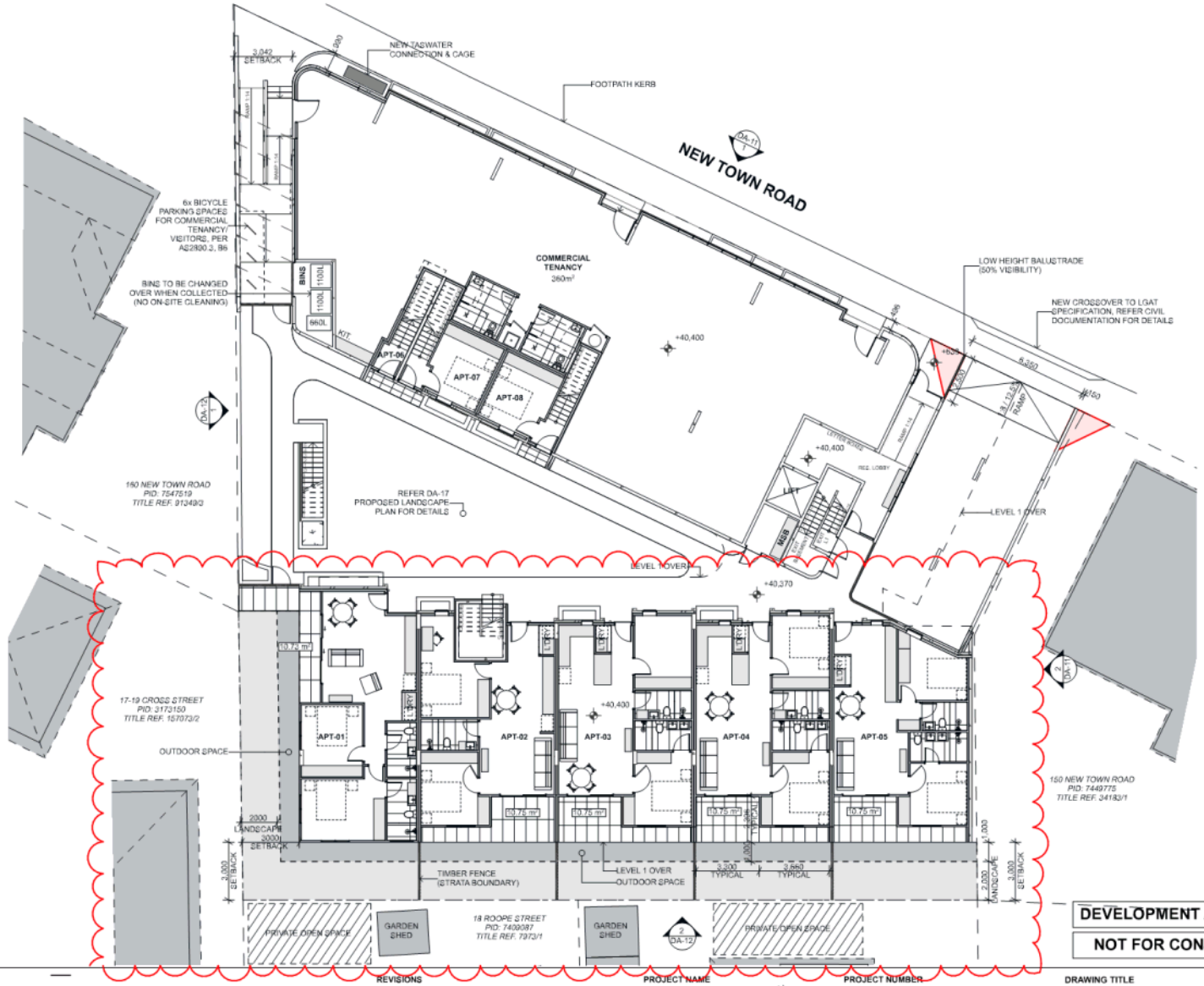
DRAWING TITLE
BASEMENT PLAN

DRAWING
DA-05

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 Ground Floor Plan
1:200

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
GROUND FLOOR PLAN

DRAWING
DA-06

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

1 Level 1 Floor Plan
1:200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
LEVEL 1 FLOOR PLAN

DRAWING
DA-07

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

1 Level 2 Floor Plan
1:200

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

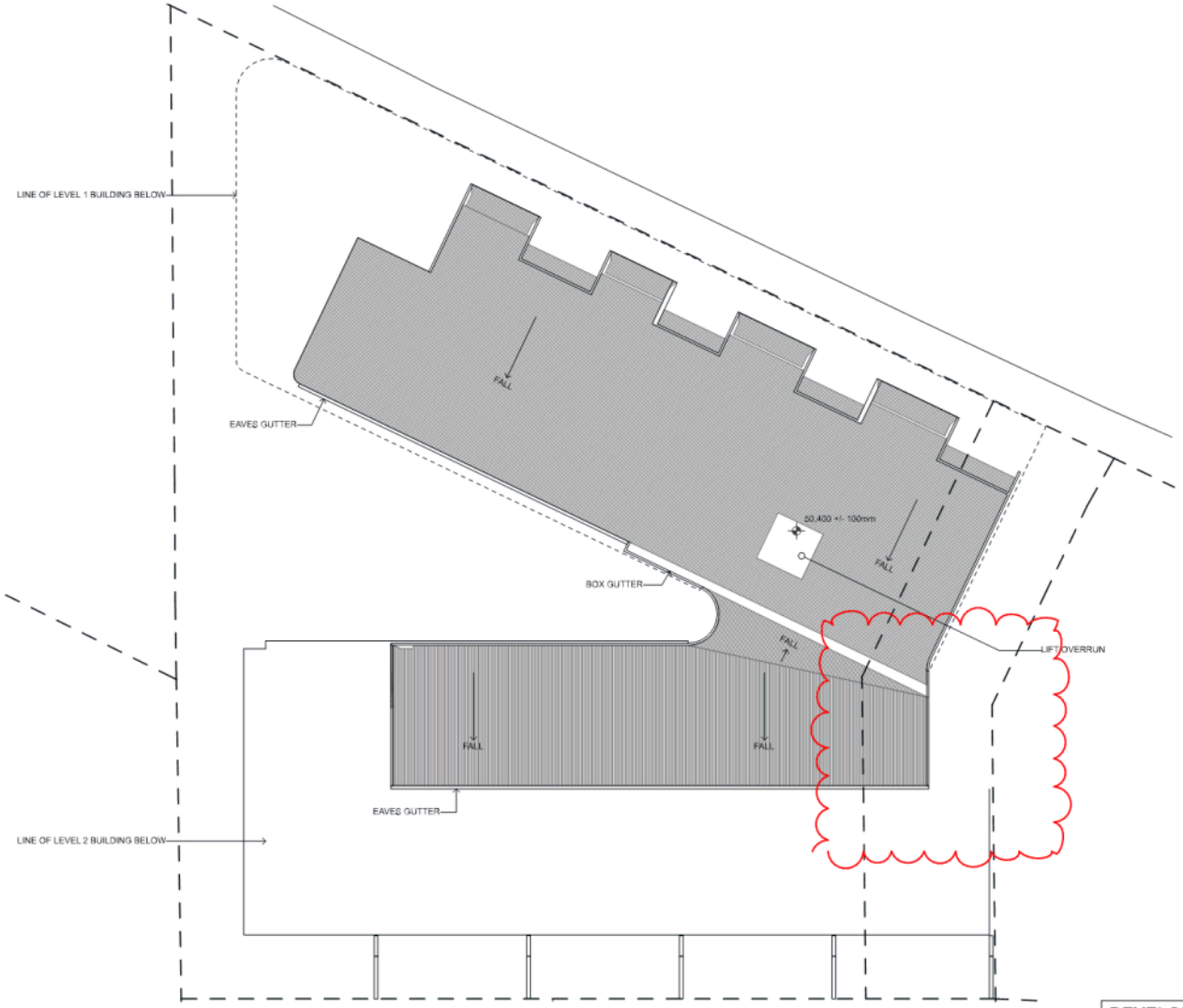
DRAWING TITLE
LEVEL 2 FLOOR PLAN

DRAWING
DA-08

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 Roof Plan
1:200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

N

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

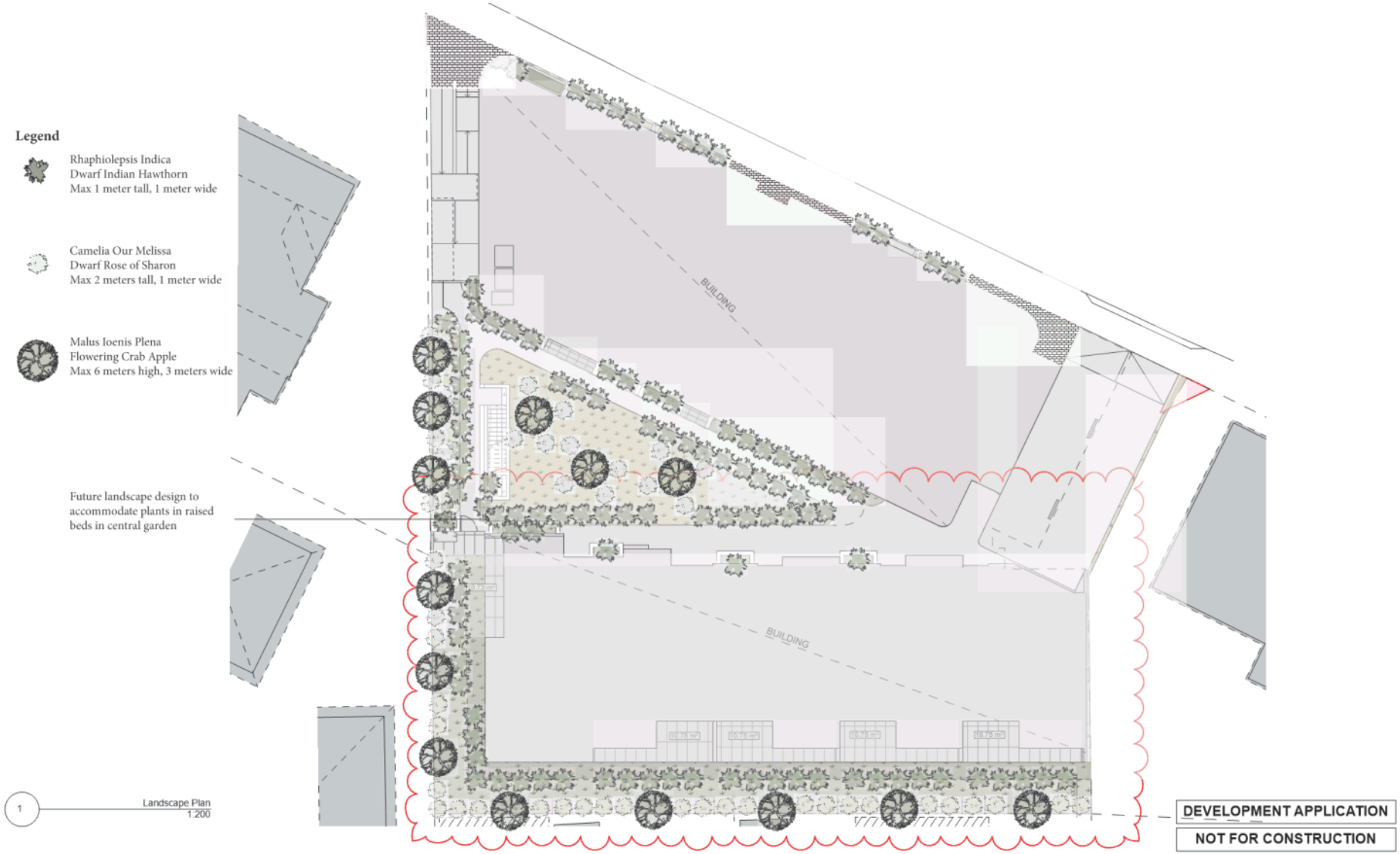
DRAWING TITLE
ROOF PLAN

DRAWING
DA-09

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	2/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
@ A3

STATUS
DEVELOPMENT APPLICATION

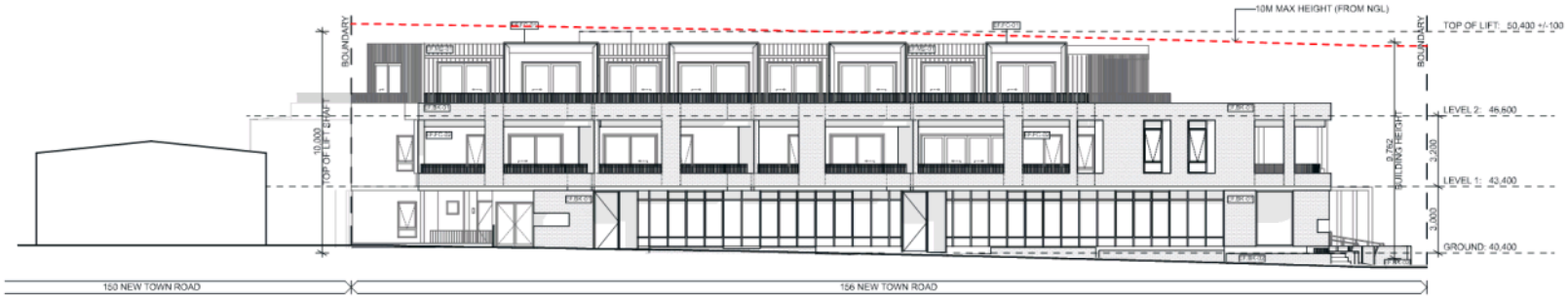
DRAWING TITLE
LANDSCAPE PLAN

DRAWING
DA-10

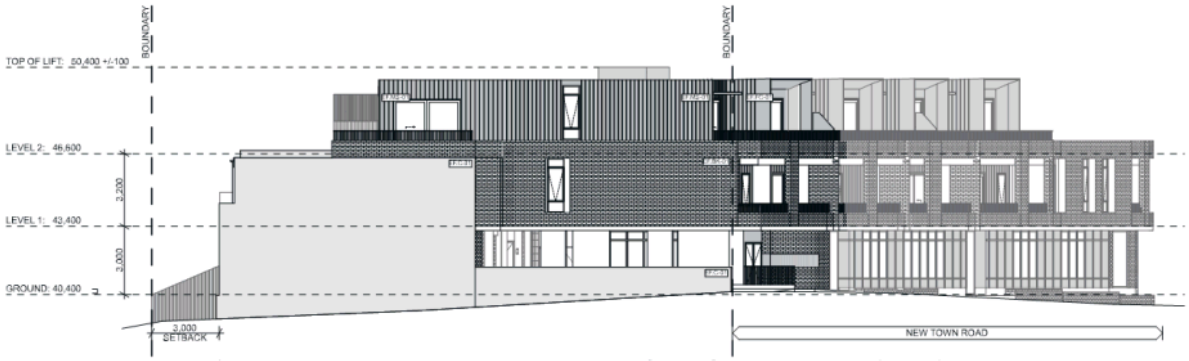
REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 North Elevation
1:200



2 East Elevation
1:200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
ELEVATIONS

DRAWING
DA-11

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
ELEVATIONS

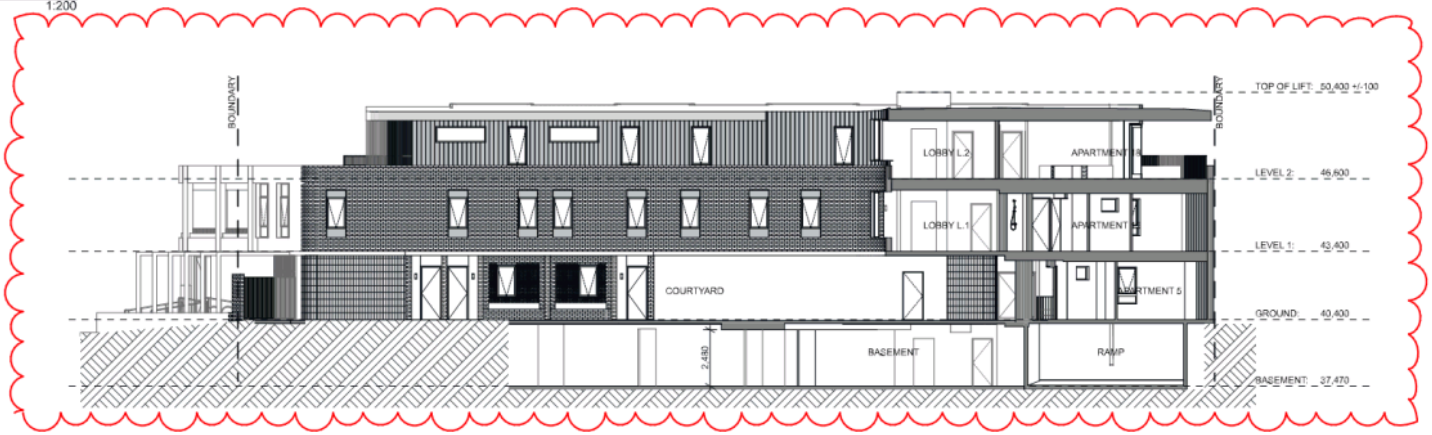
DRAWING
DA-12

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

1 Section - Long
1:200



2 Section - Courtyard
1:200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200 @ A3

STATUS
DEVELOPMENT APPLICATION

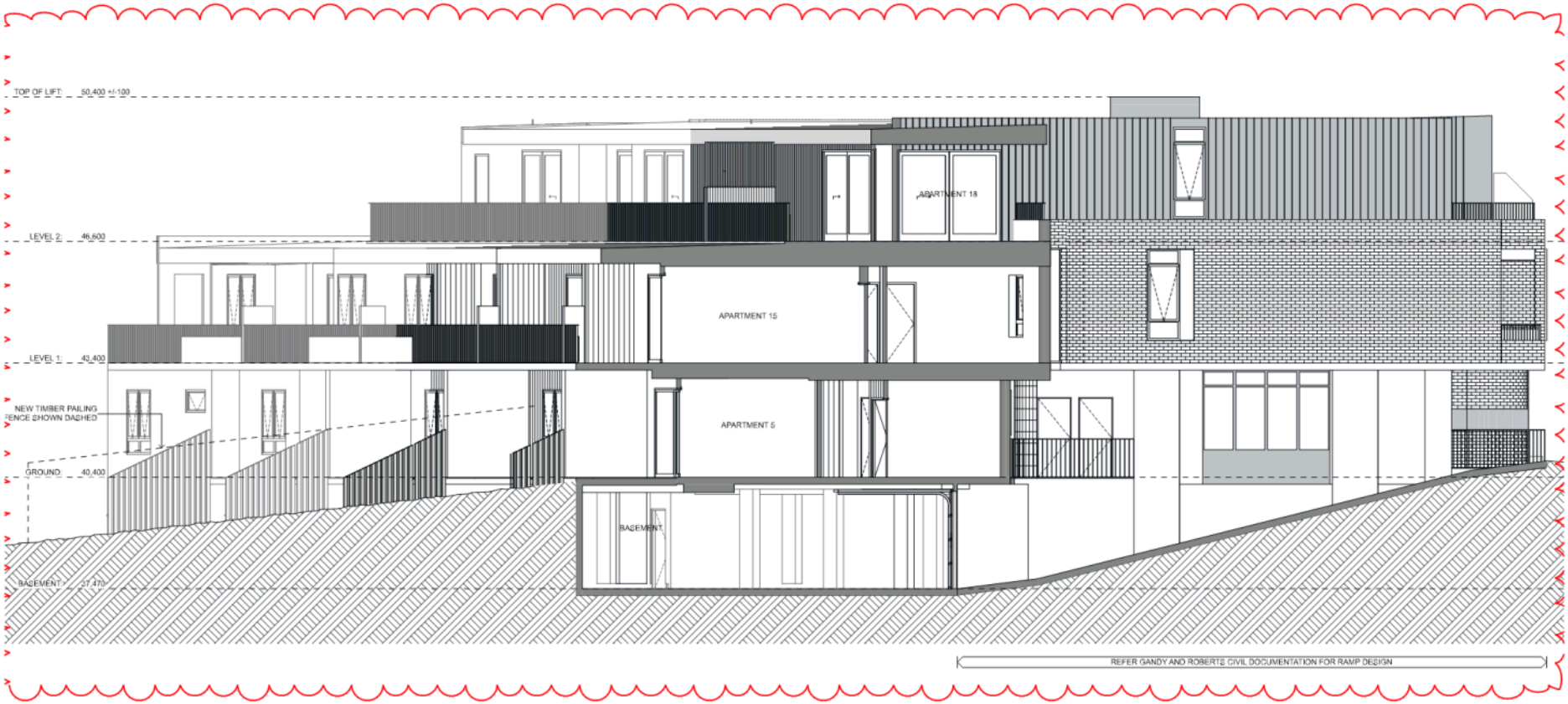
DRAWING TITLE
SECTIONS

DRAWING
DA-13

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22



1 Section - Ramp
1:100

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:100 @ A3

STATUS
DEVELOPMENT APPLICATION

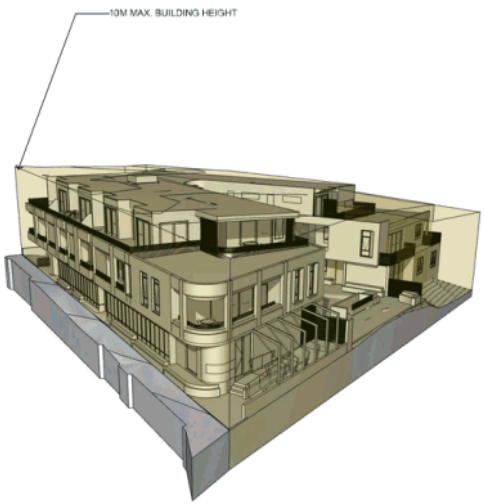
DRAWING TITLE
SECTIONS

DRAWING
DA-14

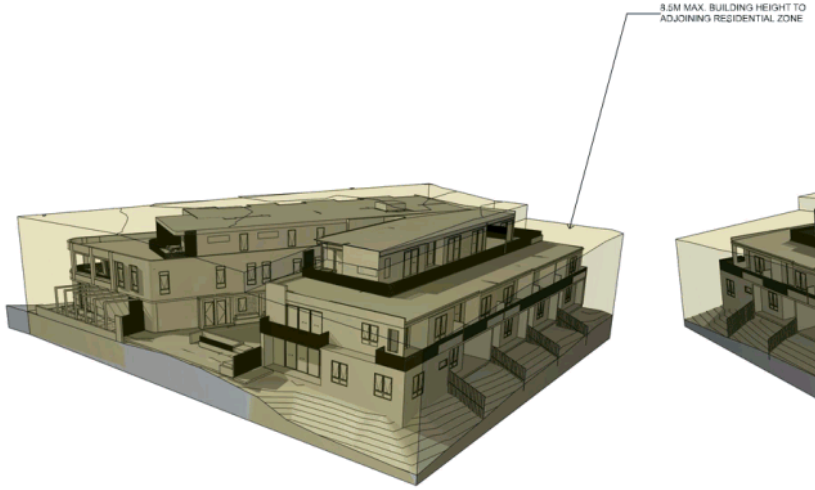
REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

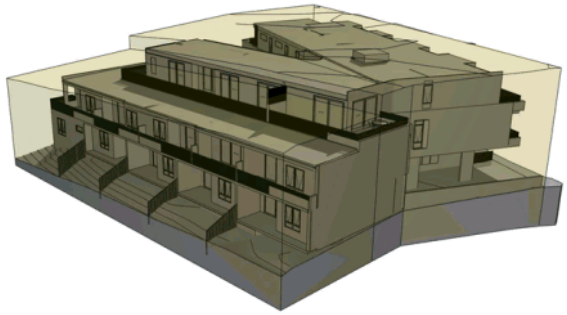
DATE 4/5/22



1 Building Height Envelope - Assumed NGL - North East View



2 Building Height Envelope - Assumed NGL - North West



3 Building Height Envelope - Assumed NGL - South West

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
@ A3

STATUS
DEVELOPMENT APPLICATION

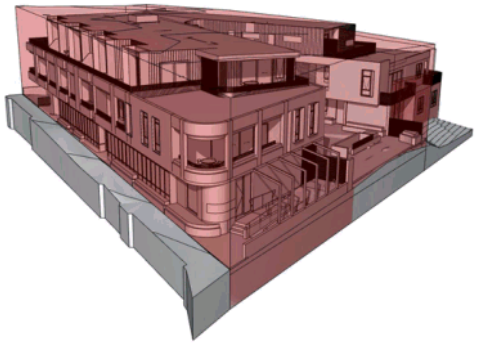
DRAWING TITLE
BUILDING HEIGHT ENVELOPE - 15.4.1

DRAWING
DA-15

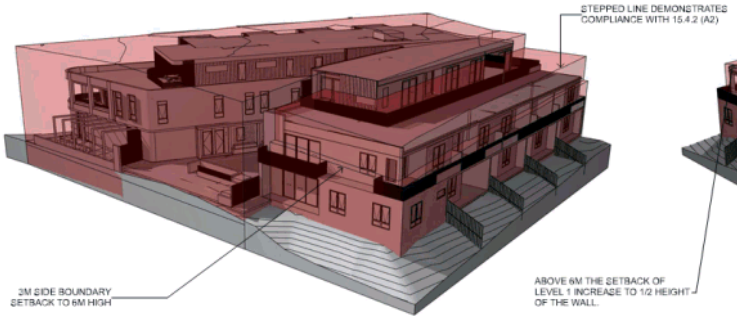
REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

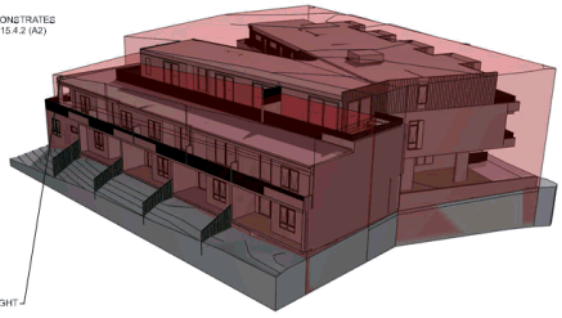
DATE 4/5/22



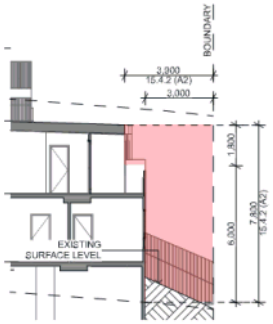
1 Setbacks - North East



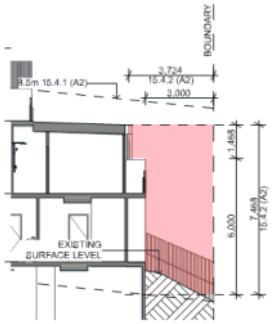
2 Setback - North West



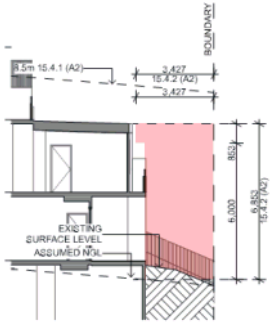
3 Setback - South West



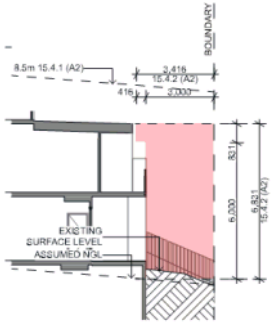
4 APT 11 - Western Boundary Section
1:200



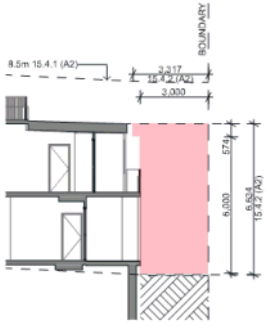
5 APT-12 - Western Boundary Section
1:200



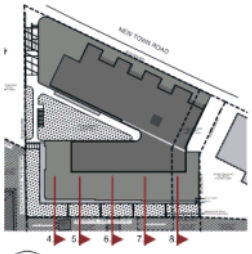
6 APT-13 - Western Boundary Section
1:200



7 APT-14 - Western Boundary Section
1:200



8 APT-15 - Western Boundary Section
1:200



Location Plan
1:1000

THE AREA SHOWN 'RED' ILLUSTRATES THE EXTENT OF REQUIRED BUILDING SETBACK AND DEMONSTRATES COMPLIANCE WITH 15.4.2 (A2). SECTIONS ARE TAKEN AT VARIOUS LOCATIONS ALONG THE WESTERN BOUNDARY.

*3m SETBACK APPLIED UPTO 6m HIGH, SETBACK OF "HALF THE HEIGHT OF THE WALL" APPLIED ABOVE 6m

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:200, 1:1000 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
BUILDING SETBACK ENVELOPE - 15.4.2

DRAWING
DA-16

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

1 New Town Road Street Elevation
1:500

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
1:500 @ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
STREET ELEVATION

DRAWING
DA-17

REVISION
B

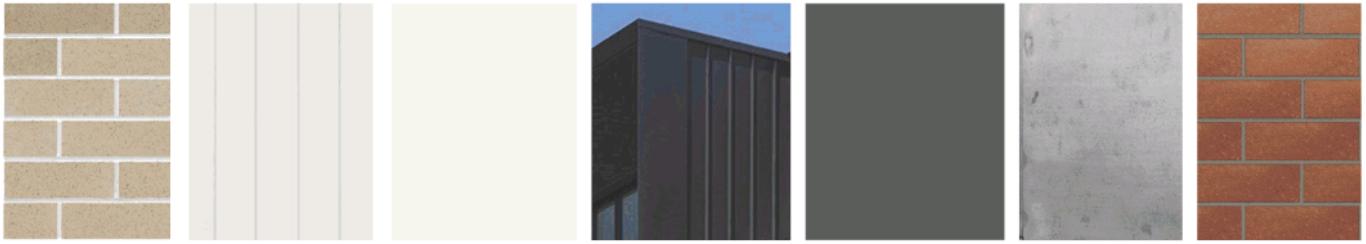
FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

Streetscape Analysis

An analysis of the existing streetscape condition has informed the proposed material palette. The prominant buildings in the surrounding streetscape largely consist of red brick, rendered brick, or sandstone. Where render has been used the colouring is predominantly white, cream or beige, which compliments the sandstone of the (fmr.) Methodist Church. The use of 'Sand' coloured brick (featured at L1 of the proposal) references this colouring, by contrast the red brick planterbox which forms a plinth to the street edge and the red-brick paving makes reference to the use of 'Hobart Red' bricks.

Proposed Material Palette



EF.BK-01
Face Brickwork
Mineral Contours,
Colour: 'Sand'

EF.FC-02
Painted Cement Sheet:
Axon 133, Smooth. Paint
Colour: Dulux 'Snowy
Mountains Half'

EF.AL-01
Powdercoated Aluminium
Dulux Duralloy, Colour:
'White' Satin Finish

EF.MS-01
Prefinished metal sheet
with ribbed profile, Colour:
'Woodland Grey'

EF.FC-01
Painted Cement Sheet:
Axon 133, Smooth. Paint
Colour: Dulux
'Woodland Grey'

EF.C-01
Precast Concrete
Panel, natural, clear
seal only

EF.BK-02
Face Brickwork
Bowral Satin,
Colour: 'Capitol Red'

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
@ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
MATERIAL PALETTE / STREETSCAPE ANALYSIS

DRAWING
DA-18

REVISION
C

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

1 New Town Road - Cross St. Intersection Looking South

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
@ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
PHOTOMONTAGE SHEET 1

DRAWING
DA-19

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

1 New Town Road - Looking North

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P. (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application	11/10/21
B	Development Application - RFI	3/3/22
C	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

PROJECT NUMBER
A20101

SCALE
@ A3

STATUS
DEVELOPMENT APPLICATION

DRAWING TITLE
PHOTOMONTAGE SHEET 2

DRAWING
DA-20

REVISION
C

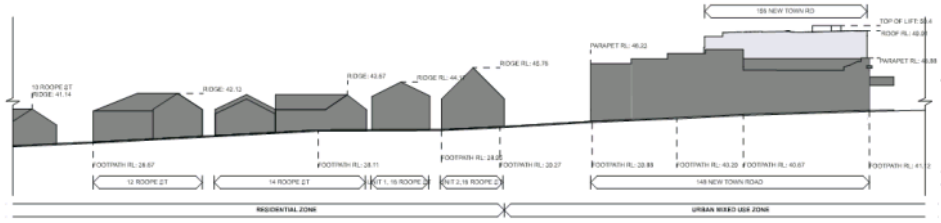
FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

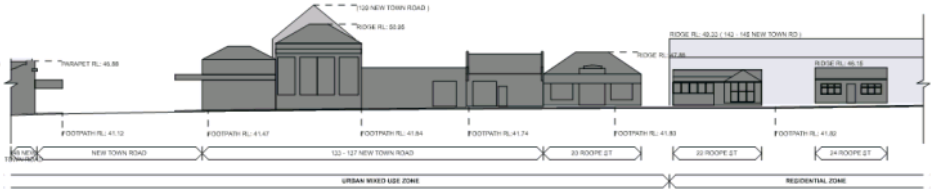
1A ELEVATION MARKER KEY (PDA Survey Plan)
1:1000

Streetscape Elevation prepared using height data provided by PDA Surveyors: Survey Drawing 48747MD-1 & 'Elevation Markup' Dated 17/12/2021. Relative Levels (RL) where shown on the elevations are taken from the PDA survey data, this data was combined with streetscape photos to assist with the preparation of the street elevations.

2A ELEVATION MARKER KEY (PDA Survey Plan)
1:1000



1B ROOPE ST EAST - STREETSCAPE ELEVATION
1:500



2B ROOPE ST EAST - STREETSCAPE ELEVATION
1:500

LXN

Architecture & Consulting

21a Cross St. New Town, 7008
PO Box 136 North Hobart, 7002

P (03) 6228 0113
hello@lxn.com.au

REVISIONS

RevID	Issue Name	Date
A	Development Application - RFI	3/3/22
B	New Development Application	4/5/22

PROJECT NAME
156 NTR

SITE
156 New Town Road

CLIENT
#Client Full Name

SCALE
@ A3

PROJECT NUMBER
A20101

DRAWING TITLE
ROOPE ST - STREETSCAPE ELEVATION

DRAWING
DA-21

REVISION
B

FILE A20101_156 NTR_DA_CoH.pln

DATE 4/5/22

Application Referral Cultural Heritage - Response

From:	Megan Baynes
Recommendation:	Proposal is acceptable subject to conditions.
Date Completed:	
Address:	156 NEW TOWN ROAD, NEW TOWN
Proposal:	Demolition, Subdivision (Lot Consolidation), and New Building for 19 Multiple Dwellings and Fitness Centre (Sports and Recreation)
Application No:	PLN-22-272
Assessment Officer:	Adam Smee,

Referral Officer comments:

Background/Description:
156 New Town Road is located in New Town 4 Heritage Precinct which is noted as significant for the reasons including:

1. It contains examples of Georgian, Victorian and Federation commercial and residential buildings that illustrate the growth of the area as a local service centre along a historically early main arterial road and transport route.
2. It contains individual high quality examples of architectural styles in a streetscape that is eclectic in form and scale.
3. The residences in close proximity to the main road contribute to an understanding of the historical pattern of its development and the tendency to reside in close proximity to commercial and community facilities.

As the name suggests, New Town was where wealthy people built a 'new town' away from Hobart Town at Sullivan's Cove which, with its convict activities and early industrial activity associated with the Hobart Rivulet, was considered to be a less than desirable address in the late 19th century.

The former Church (1866), Parsonage, Post Office (1891) and the old Town Hall (1897) are all now adapted for other uses. These buildings and many of the houses in the precinct provide a sense of the late 19th century/early 20th century public, domestic and commercial character and activity along this high street.

The property at 156 New Town Road was once the location of Rose Cottage, demolished in 1962 for a service station. The service station was decommissioned in about 1980. The subject site is currently 'a missing tooth' in the streetscape, as a mid 20th century building with hard stand to the front without soft landscaping. As is often the case, the demolition of a period house has weakened the spatial structure of the streetscape but presents an opportunity for development without the constraint of existing significant heritage assists on site.

The precinct extends across New Town Road and through adjacent streets, including Roope Street.

The subject site sits on rising land on a curving road and this means that development would be seen obliquely, particularly from the north and south.

The discretions are demolition and works and subdivision (lot consolidation) in a heritage precinct.

Assessment Provisions:
The following provisions apply:

E13.8.1 Demolition
Objective: To ensure that demolition in whole or in part of buildings or works within a heritage precinct does not result in the loss of historic cultural heritage values unless there are exceptional circumstances.

Clause E13.8.1 P1 states:
Demolition must not result in the loss of any of the following:
(a) buildings or works that contribute to the historic cultural heritage significance of the precinct;
(b) fabric or landscape elements, including plants, trees, fences, paths, outbuildings and other items, that contribute to the historic cultural heritage significance of the precinct;
unless all of the following apply;
(i) there are, environmental, social, economic or safety reasons of greater value to the community than the historic cultural heritage values of the place;
(ii) there are no prudent or feasible alternatives;
(iii) opportunity is created for a replacement building that will be more complementary to the heritage values of the precinct.

E13.8.2 Buildings and Works other than Demolition
Objective: To ensure that development undertaken within a heritage precinct is sympathetic to the character of the precinct.

Clause E13.8.2 P1 states:
Design and siting of buildings and works must not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.

E13.8.3 Subdivision
Objective: To ensure that subdivision within a Heritage Precinct is consistent with historic patterns of development and does not create potential for future incompatible development.

Clause E13.8.3 P1 states:
Subdivision must not result in any of the following:
(a) detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2;
(b) a pattern of subdivision unsympathetic to the historic cultural heritage significance of the precinct;
(c) potential for a confused understanding of the development of the precinct;
(d) an increased likelihood of future development that is incompatible with the historic cultural heritage significance of the precinct.

Representations:
Council has received four representations in opposition to the development. One representation raises heritage as a concern. The issue of blocking and dominating views of significant historic buildings in a heritage streetscape is an articulated concern:

"The heritage assessment prepared by Purcell submitted as part of documentation for this proposal does not identify the significant impact of the proposal on the heritage streetscape created by the Old Parsonage and Cross Street Church at this location"
"The significance of this key heritage streetscape has been missed by the Purcell Heritage Assessment"

"To reduce these impact we propose that the application be conditioned to require the reduction and redesign of the north-western corner of the building to reduce the impact on the visibility of the Old Parsonage and Cross Street Church"

The representor has nominated a potential condition to assuage concerns, but the proposed condition (to redesign the northern end of the proposed development) is beyond the scope of what can legally be imposed.

Representations also raise the issue of the potential for damage to an adjacent garden in a heritage precinct. The removal of vegetation is not being proposed, but the impact of the proposed construction project on trees in the front garden of the adjacent former Parsonage is the concern. It may be possible to place advice for tree protection to safeguard trees both during and after construction.

Assessment:
The 1960s service station building and associated hard landscaping at 156 New Town Road is proposed to be demolished. The site does not contain any buildings or works that possess historic cultural heritage value as defined in the statements of significance in Table E 13.2. The loss of historic heritage values is not anticipated as a function of the proposed demolition. Clause E13.8.1 P1 is satisfied.

The applicant has commissioned an architect to prepare a design in response to the various regulated stipulations. The design appears to be a low risk strategy where planning discretions have been minimised.

The applicant is proposing a 2-3 storey building to be sited close to the street edge. The height of the proposed development would likely sit comfortably within the range of heights of existing buildings when viewed from New Town Road.

The setback of the proposed development would be minimal, approximately 0.5m and this appears to less generous than the historic setbacks on this side of New Town Road.

The adjacent former Parsonage and Church are set back 7.5m and 10m respectively and have gardens around them. They have archetypal Victorian era ecclesiastical details such as steeply pitched roofs and details including finials.

The heritage consultant has linked significant cultural heritage values with adjacent commercial and residential development, although this is questioned. A non-heritage building at 152 New Town has a 1.3m setback. The shop on the corner at 148 New Town Road has a 0m setback. The siting of proposed development is purported to acceptable because it abides by commercial setbacks such as the buildings at 148 and 152 New Town Road and beyond.

Significant heritage listed buildings are in the vicinity, including the former Church (c1866) and associated former Parsonage (Victorian era). The consultant's submission contains an aerial photograph from 1957 (Page 55 Appendix 4) which demonstrates how historically this part of New Town Road has been characterised by setbacks manifested as gardens.

As was previously noted, the garden at 156 New Town Road was demolished in 1962 and there is no requirement in the Historic Heritage Code to reinstate lost landscaping or garden.

The cultural heritage significance of Heritage Precinct New Town 4 is linked to the area being a late 19th century and early 20th century town centre along a main road. Various period buildings contribute to this this, but it is above all an urban ensemble, along a high street, a key transport route, surrounded by residential development. As such, buildings are the physical fabric which demonstrate what was of use and value to the local community.

For example, the former Church and Parsonage demonstrated the value placed by a Georgian and Victorian era community upon religion. The former Post Office was critical communications infrastructure in its day. The former Town Hall was the municipal seat of power and administration. Pubs and shops provided groceries and food & drink for locals and visitors. The things that the community needed or desired where available in this part of New Town Road. There has been a degree of visual change, the demolition of period buildings, the introduction of telegraphs and power poles and the introduction and removal of trams for example. The streetscape is robust and has evolved, rather than being completely static. Key period buildings have endured.

The Historic Heritage Code states that the design and siting of buildings within a heritage precinct 'must not result in detriment'. The primary visual experience of the precinct is from New Town Road. When doing so views are available of historic facades.

Streetscape views will no doubt change as a function of the proposed development.

Detriment means 'loss, damage, or injury'. Assuming that historic buildings endure in place, it is difficult to assert that significant cultural heritage values as described in the above statements of significance will be lost, damaged or injured.

The former Parsonage will appear 'hemmed in' by the proposed development, but because the actual removal of period buildings or landscapes is not being proposed, significant historic values are unlikely to be forgone.

The proposed development would be approximately the 'right' height to match the scale of existing buildings (at least those that can be considered in this statutory context – which means those visible from public spaces in the context of assessment at a heritage precinct). The former Town Hall at 139 New Town Road would exceed the height of proposed development.

The siting of the proposed development may fail to provide a dignified or respectful contextual setting for its historic neighbour, the former Parsonage, but there is no statutory requirement to do so. There are no adjacency clauses in relation to heritage listed places in this area in the *Hobart Interim Planning Scheme 2015*. Rather development 'must not result in detriment'. The placement of new things next to old things does not, in itself, equate to detriment. In fact, arguably, difference heightens appreciation of historic character by virtue of providing contrast.

Critically, the statement of significance use the word '*eclectic'*. This means a broad or wide. Diversity and variety are implied (as opposed to consistency, for example).

The heritage consultant report states that the architect's response to the adjacent Parsonage was to create a wedge shaped landscaped courtyard internal to the block. However, this courtyard will only be marginally visible from public space in the precinct and so would not have impacts, negative or positive, in the heritage streetscape.

It must be acknowledged that the former service station and associated hard landscaping fails to provide a dignified setting for the former Parsonage.

This returns us to the notion of detriment. Will the streetscape be diminished as a function of proposed development? Landscapes and planting can potentially contribute to cultural heritage significance. The gardens of the former Parsonage and Church are not listed specifically in Table E 13.1 and are not identified as Significant Trees in Table E 24.1. Front gardens are not identified in the statements of significance for NT 4. The Historic Heritage Code does not identify these gardens as being of historic heritage value.

The proposed 2-3 level development would be further from the former Parsonage, than the

space between the former Parsonage and the former Church. These distances have been measured as being approximately 8m and 2-3m respectively.

The bulk of proposed development would mean that the former Church and Parsonage would be less visible from certain footpaths and roadways in the precinct (from the south) however the former Parsonage and Church would remain visually available from New Town Road, albeit more acutely than is currently the case.

The siting and design of the proposed development, close to the street edge, is likely to be seen in the context of views of the historic streetscape (when viewed from the north).

The subdued tones of materials proposed would likely result in the proposed building appearing bland (visually recessive) relative to the visual complexity of historic facades which include the warm and rich tones of unpainted brickwork/stonework with intricate period details (which would remain visually prominent).

The advertised information contains some ambiguity in relation to primary façade design. The ground floor elevation is shown in some montages as a sandy coloured brick veneer and in other as glossy dark green tiles. The extent of glazing to solid ground floor façade is unclear. It is possible to place a condition should a permit be issued for colours and finishes to be resolved and clarified.

The decision to site a building forward of adjacent historic setbacks, and its sheer size, means that the proposed development would inevitably be clearly visible. In a heritage precinct described as eclectic, a 2-3 storey building sited approximately 0.5m from the street edge is likely to have an acceptable visual impact and the proposed building would be demonstrative of this period (2022).

That the architects have chosen to express the façade as a single horizontal entity ensures that the proposed development will not be confused with period buildings in the historic streetscape.

Siting and design choices are logical and sensible rather than inspired, but are unlikely to result in detriment to the historic cultural heritage significance of the precinct. Extant period buildings would endure and continue to be able to be viewed from public spaces in New Town Road providing high quality examples of their respective architectural periods.

E13.8.2 P1 is satisfied.

The consultant heritage report does not make reference to the subdivision (lot consolidation) provisions in relation to a Heritage Precinct. The proposed development triggers a land adhesion order to re-adhere a small area of land (now used as a carpark) which was created in the 1960s. The original lot of the now demolished Rose Cottage is thus being reformed. Therefore, the proposed subdivision (lot consolidation) would be consistent with historic patterns of development.

Clause E13.8.3 P1 (a)-(d) is satisfied.

Summary:
The proposal is for a 2-3 storey mixed use infill development on the site of a former service station in a historic local centre which is located within a heritage precinct.

The consultant's report asserts that the cultural heritage significance of the precinct is linked to period commercial and residential buildings and that the setback of proposed development would be consistent with nearby commercial and residential setbacks and therefore the visual impact of development would be acceptable in the precinct.

A representor asserts that the cultural heritage significance of the precinct is linked to views of a particular cluster of period buildings including a Georgian era Church, a Victorian era Parsonage and a Federation era Post Office. The median setback of nearby heritage listed buildings is greater than that which is being proposed. It is asserted that the visual impact would be unacceptable. The representor contends that views and settings of historic buildings would be compromised.

The cultural heritage significance for this Heritage Precinct includes references to period commercial and residential buildings and high quality examples of a range of architectural styles (which would include former public and ecclesiastical buildings). Gardens are not mentioned in the statements of significance for the precinct. The collection of period buildings strung along a local service centre on an early arterial route are the key heritage assets.

The demolition of Georgian, Victorian or Federation era buildings is not being proposed. The height of proposed development would not that exceed that of nearby historic buildings.

The Historic Heritage Code requires that development does not result in detriment to the stated significant cultural heritage values.

The use of the term 'eclectic' implies a wide range or diversity, rather than an expectation of conformity in relation to siting and design.

The proposed development will appear to be a new element in the streetscape. The proposed siting and design is unlikely to result in detriment to the historic cultural heritage significance of the precinct as defined in Table E 13.2 of the Historic Heritage Code of the *Hobart Interim Planning Scheme 2015*.

The proposed development satisfies E13.8.1 P1, (Demolition) E13.8.2 P1 (Buildings and Works) and E13.8.3 (a-d) (Subdivision) of the Historic Heritage Code of the Scheme. Advice and a condition in relation to tree protection and colours & finishes respectively is required.

MB
CHO
11
04
2022

Reviewed
SW
SCHO
12 April 2022

URBAN DESIGN ADVISORY PANEL

REPORT FROM THE MEETING OF THE URBAN DESIGN ADVISORY PANEL HELD AT 1:00 PM ON TUESDAY 29 MARCH 2022 IN THE LADY OSBORNE ROOM

---

156 NEW TOWN ROAD – PLN-21-718

Attending: Josh Crossin – LXN Architecture
Sarah Lindsay – LXN Architecture
Megan Gale – Renewal Developments Pty Ltd

The Panel met to discuss the proposal in detail and the below report is a summary of the Panel's views and is provided for the consideration of the proponents and officers.

Description:
The proposal is to demolish the existing building on the site and to construct a new building that would potentially contain a fitness centre and 19 multiple dwellings. The new building would have three storeys and a basement. Car parking and storage is proposed in the basement. The fitness centre would be on the part of the ground floor of the building fronting onto New Town Road. The proposed apartment style dwellings would occupy the remaining parts of the development. The proposed building would have a maximum height of 10m and a total floor area of 2938m². Proposed external materials include face brickwork (sand and red), painted cement sheet (grey and light grey), powder-coated aluminium (white), prefinished metal sheet (grey), and precast concrete (natural finish).

Panel Report:
The Panel noted that 156 New Town Road – PLN-21-718 is a lodged planning application currently on public advertising. The following comments will be included in the Development Appraisal Planner's report.

The Panel support the development's intent to provide a variety of dwelling types but were concerned regarding the impact of the proposed development on residents of the neighbouring properties to the south. The proposal will present an overbearing presence, and overlook and overshadow these properties. The Panel felt the development was trying to put too much yield on the site, compounded by the approach to open up the space between apartments facing to New Town Road and to the south. Where the application has tried to meet development standards, and at times has not achieved compliance, it does so by failing to address the impact on the amenity of the neighbouring properties to the south. The Panel would also have

preferred to see a long section from the New Town Road side that included the neighbouring properties to the south, and feel that the application suffers from the lack of that information.

The Panel noted that the existing fence on the southern side will be retained, up to which there will be a steep bank and then private open space for units. The Panel had concerns with the resident's amenity of the south-facing recessed private open spaces, though noted the proponent's comment these would have views to kunanyi/Mount Wellington. The steep bank area, nominated by the proponents as a planted services corridor (to be managed by the body corporate?) should be a nuanced pleasant vegetated outlook that is well maintained and a positive contribution for residents' of the new development and all neighbours – balancing visual privacy, views to the mountain and summer western sun.

The proposal has created a courtyard space between New Town Road and south facing apartments, to achieve sunlight in to living spaces. The Panel questioned this interpretation and do not believe many apartments achieve this. The Panel noted that in winter, the courtyard will be in shade the whole day. The quality of the courtyard space is also questionable with bedrooms overlooking and close to passing residents. The applicant advised that the landscape design is at a conceptual stage, but the courtyard has an area that can achieve deep planting and a design will be chosen that can work for the whole year.

The Panel were concerned about the impact of the building on the streetscape. The design presents a uniform long building to the street edge that in the opinion of the Panel is not sympathetic with the character of this area. The Panel questioned if further modulation in the streetscape to creating stepping within the design, had been explored. They felt that modulation to the street frontage and street-edge detail were critical. In terms of the issues of the street modulation, the decision to make a linear building doesn't help. The Panel were also concerned with the design-approach to pixelate the streetscape to inform the composition and colour of the street façade, noting the streetscape context should also have regard to material, detail, form that is not considered in such a stylized approach to the façade.

The Panel was also concerned with the public edge to the street including the window finish to the commercial tenancy. It was noted there was no awning to the commercial frontage, typical to the precinct. To reinforce the commercial character of ground floor activities in the precinct, the panel would like to see a condition on any potential permit

that the glazing remained clear and not opaque or treated with vinyl, to maintain visibility between outside and inside.

The use of planters along New Town Road would require vegetation that is more substantial than the anticipated low plants suggested in the application. The Panel would be looking for an approach to planting that is compatible to the adjacent church building precinct.

The Panel also felt that the new cross-over and steep driveway would change the character of the footpath and public edge, though recognise there is limited scope for its placement.

Overall the Panel recognised that whilst the application is a DA review, they would like to have seen it as a pre-application. The Panel felt that whilst the proponents had sought to make design decisions to address the 'deemed to satisfy' provisions, development does fail to achieve some provisions in the view of the Panel, and the proposal presented shortcomings in terms of overlooking and overshadowing to adjacent dwellings. Though it is noted that had the proposal achieved the minimum required setback to the south boundary, the overshadowing impact would not be mitigated. The Panel also questioned the amenity to the south-facing apartments and were concerned about the impact of the building's long facade on the streetscape in relation to the streetscape and adjoining properties (such as the church grounds) and the street-level relationship between public and proposed commercial use(s).

7.1.3 136 WENTWORTH STREET AND 112 CASCADE ROAD AND 106 CASCADE ROAD, SOUTH HOBART - TEMPORARY HOUSING PLN-22-133 - FILE REF: F22/52386

Address:	136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart
Proposal:	Temporary Housing
Expiry Date:	22 June 2022
Extension of Time:	Not applicable
Author:	Deanne Lang

RECOMMENDATION

That pursuant to the *Hobart Interim Planning Scheme 2015,* the Council approve the application for temporary housing at 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart 7004 for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-22-133 - 136 WENTWORTH STREET & 112 CASCADE ROAD & 16 CASCADE ROAD, SOUTH HOBART TAS 7004 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

PLN s1

This permit is valid for a maximum period for three years from 25 June 2020, on which date the occupancy permit was issued in accordance with Part 17 of the *Building Act 2016*. At the completion of this period and not more than 6 month after the date on which the permit lapses, all development associated with this permit must be removed and the site made good to the satisfaction of the Director City Life.

Reason for condition

To clarify the scope of the permit in accordance with the application documentation and Planning Directive 7.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

COUNCIL RESERVES

There is an existing lease agreement for occupation of a portion of Wellesley Park for this development. The lease expires on 31st December 2022. Therefore, it will need to be extended to cover the extended planning permit period. The terms will be negotiated separately to this planning permit.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

Attachment A:	PLN-22-133 - 136 WENTWORTH STREET SOUTH HOBART TAS 7004 - Planning Committee or Delegated Report ⇩
Attachment B:	PLN-22-133 - 136 WENTWORTH STREET SOUTH HOBART TAS 7004 - CPC Agenda Documents ⇩

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Committee
Council:	6 June 2022
Expiry Date:	22 June 2022
Application No:	PLN-22-133
Address:	136 WENTWORTH STREET , SOUTH HOBART 112 CASCADE ROAD , SOUTH HOBART 106 CASCADE ROAD , SOUTH HOBART
Applicant:	Ashley Brook (6ty Pty Ltd) PO Box 63
Proposal:	Temporary Housing
Representations:	Two (2)
Performance criteria:	Planning Directive 7 - 4.1(d) Use, E2.0 Potentially Contaminated Land Code

1. Executive Summary

1.1 Planning approval is sought for Temporary Housing at 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart.

1.2 More specifically the proposal includes:

- Allowing the existing ten (10) temporary housing units to remain on the site until 25 June 2023, in accordance with Planning Directive 7 - Permits for Temporary Housing.
- No further buildings, temporary housing units or works are proposed on the site as part of this proposal.

1.3 The proposal relies on performance criteria to satisfy the following standards and codes:

1.3.1 Planning Directive 7 - Use
1.3.2 E2.0 Potentially Contaminated Land Code

1.4 Two (2) representations, one in support and 1 objecting to the proposal were received within the statutory advertising period between 2-16 May 2022.

1.5 The proposal is recommended for approval subject to conditions.

1.6 The final decision is delegated to the Council, because the subject site is Council owned land.

2. Site Detail

2.1 The subject site is located on Council land, specifically the northern extremity of Council's Wellesley Park. The sole access to the temporary housing is via 112 Cascade Road. With the exception of Wellesley Park and South Hobart Badminton Centre, the immediate area is characterised by residential development.

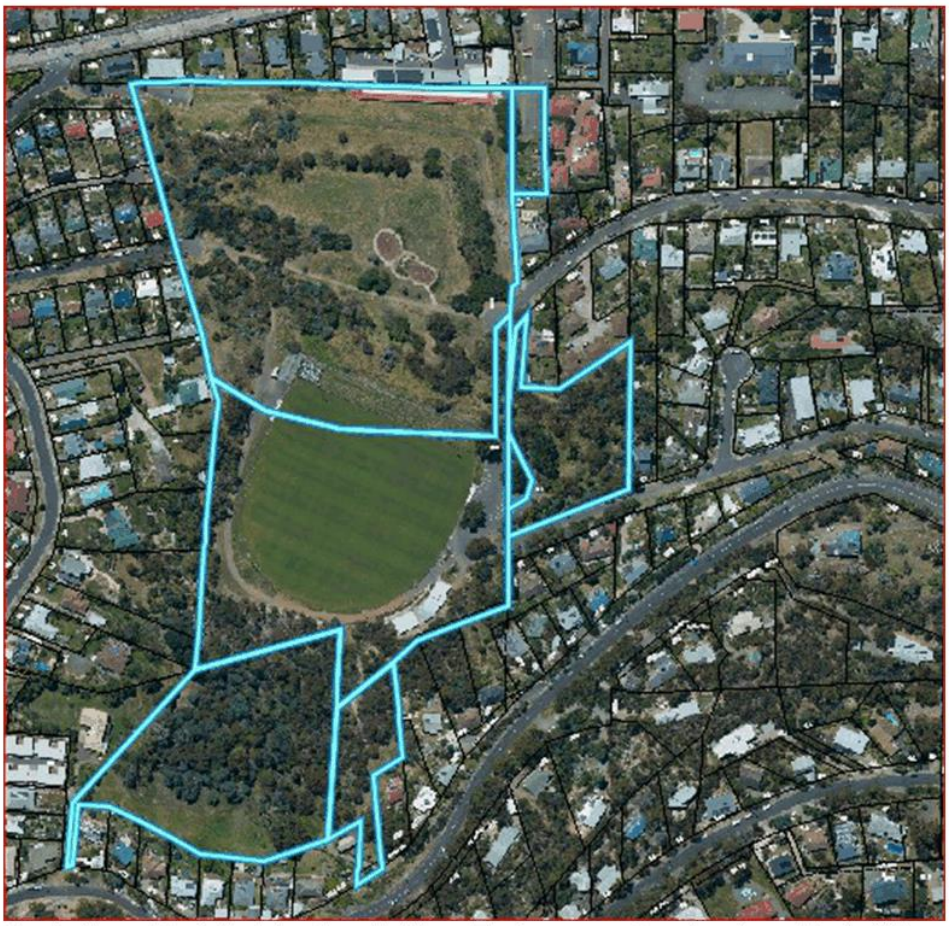


Fig. 1 - the subject site is bordered in blue. The temporary housing, the subject of this report, is bordered in red.

3. Proposal

3.1 Planning approval is sought for Temporary Housing at 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart.

3.2 More specifically the proposal is for:

- Allowing the existing ten (10) temporary housing units to remain on the site until 25 June 2023, in accordance with Planning Directive 7 - Permits for Temporary Housing.
- No further buildings, temporary housing units or works are proposed on the site as part of this proposal.

Fig. 2 - the existing temporary housing development - as taken from 112 Cascade Road. No works are proposed as part of this application

Fig. 3 - the existing temporary housing development - as taken from Wellesley Park (accessed from Hillborough Road) approximately behind 120 Cascade Road. No works are proposed as part of this application

4. Background

4.1 The previous application (PLN-19-564) was assessed against Interim Planning Directive 3 - Permits for Temporary Housing and was granted approval on 4 November 2019. The occupancy permit was issued under BLD-19-357 on the 25 June 2020. Interim Planning Directive 3 only allowed for the temporary housing to remain for a period of not more than 12 months, commencing from the date on which an occupancy permit or temporary occupancy permit was issued in accordance with Part 17 of the Building Act 2016. As such, that permit expired on 25 June 2021.

4.2 The approved works under PLN-19-564 were:

- construction of 10 dwellings within Council owned Wellesley Park;
- each dwelling will have a floor area of 28sqm and consist of converted shipping containers;
- the dwellings will be staggered and configured so that each building will be 2 storeys and consist of two dwellings;
- each building will be separated by 2.5m from the next building;
- the dwellings will have a maximum height of 7.8m and be elevated in order that the structure does not impact on the existing stormwater main and concrete drain below the structures;
- the dwellings will be constructed behind and gain (sole) access from an existing property operated by Housing Tasmania, which has frontage to Cascade Road;
- a 2.1m high fence at the rear and within 2.5m to the side of the proposed dwellings will be constructed.

4.3 Because the existing planning permit has lapsed, this application must in effect consider the proposal afresh, as if it were not in situ, notwithstanding that it is in fact there in practical terms.

4.4 Interim Planning Directive 3 was superseded by Planning Directive 7 - Permits for Temporary Housing, which came into effect on 16 September 2020.

Planning Directive 7 included several changes including clause 4.4 which states:

Additional permits for temporary housing issued under this planning directive must not cause the approval of temporary housing for a period longer than 3 years commencing from the date on which the initial occupancy permit, or temporary occupancy permit, is issued in accordance with Part 17 of the Building Act 2016

Consequently, if approved under Planning Directive 7, the approval for the temporary housing on the site will cease on 25 June 2023.

5. Concerns raised by representors

5.1 Two (2) representations, one (1) in support and one (1) objecting to the proposal were received within the statutory advertising period between 2-16 May 2022.

5.2 The following table outlines the concerns raised in the representations received. Those concerns which relate to a discretion invoked by the proposal are addressed in Section 6 of this report.

Issues raised in respect to the current use of the site

- The nuisance light from the site - *Environmental Management and Pollution Control Act 1994*
- Noise after reasonable hours.

Compatibility With The Surrounding Area

- The current building and high density purpose of it does not fit in with the current area of south Hobart.
- The facility does not support the potential 50 + residents who may inhabit the area.

Process following in determining the previous (PLN-19-564) and current (PLN-22-133) development applications

- Lack of due process on the original plan PLN-19-564.
- Change in the purpose of the site from PLN-19-564 to PLN-22-133

Other

We congratulate the initiative to provide more much needed accommodation... and we have no objection to the extension of the temporary accommodation.

However, as a result of the construction of these units, we no longer have the use of the walkway which ran directly behind the accommodation on the southern side. As the community housing has blocked this previous access path which connected the Badminton Car Park and Lower Hillborough Road, many residents have been seriously inconvenienced and must use a current dangerous sloping path.

For many years we have been asking that this dangerous sloping path be made safer as it provides access to the "mezzanine floor" in Wellesley Park, from the dead end of Hillborough Road (which is the frontage for Nos. 2, 4 and 6 Hillborough Road). It is a short, steep climb on a well trodden track. In the summer it is dry and slippery and in the winter it is wet and slippery: it is always somewhat hazardous and quite frequently used. It is approximately 15 metres long and the rise is approximately 5 metres.

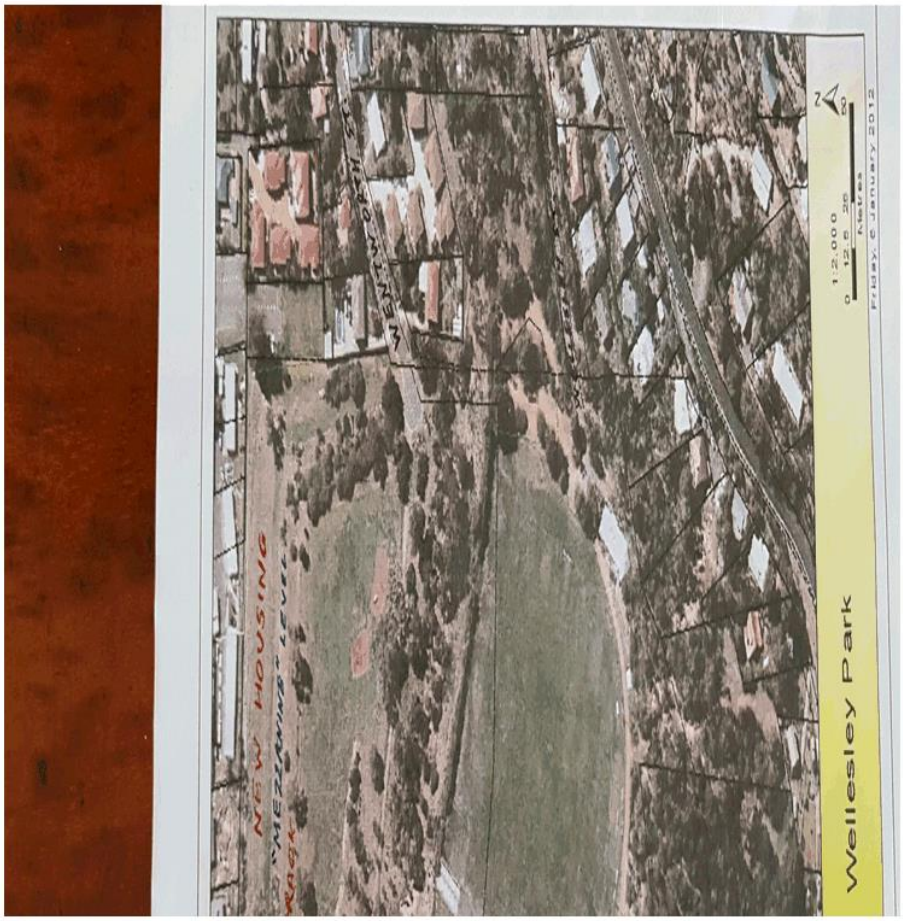
There is also a problem with the gravel path which runs down beside the last house on the lower northern side of Wentworth Street (No. 109): the incline is such that the gravel is slippery when it's dry and also when it's wet. It is a much used gravel path, which is dangerous for bikes, scooters and pedestrians. After major or semi major rain events, a large amount of the gravel washes down to the Badminton Car Park, Cascade Road and even occasionally to the houses on the northern side of Cascade Road. After these events, the path becomes even more dangerous and full of ruts. The HCC has occasionally put more gravel down after rain or storms but the lack of drainage has never been ad dressed. So it happens again and again. We are suggesting, at the very least, a railing embedded in the concrete wall supporting the fence of 109 Wentworth Street.

These two paths are not only used by the local community but also by occupants of the housing when they wish to access Wellesley Park with their children. We feel it is the responsibility of the housing proponents/developers to make them safe.

See photos provided by the representor to support their concerns below.

Fig 4 - existing track within Wellesley Park behind the existing temporary housing

Fig. 5 existing track within Wellesley Park behind the existing temporary housing



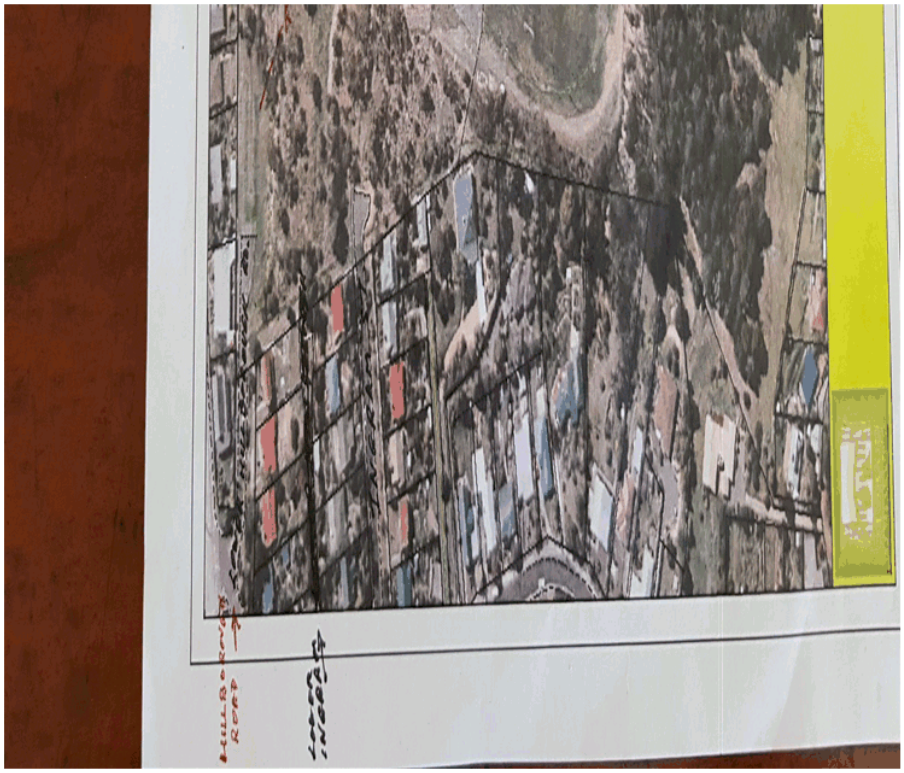


Fig. 6 - Wellesley Park map showing the location of the track in relation to Hillborough Road, Ingram Street and temporary housing

6. Assessment

6.1 The *Hobart Interim Planning Scheme 2015* is a performance based planning scheme. To meet an applicable standard, a proposal must demonstrate compliance with either an acceptable solution or a performance criterion. Where a proposal complies with a standard by relying on one or more performance criteria, the Council may approve or refuse the proposal on that basis. The ability to approve or refuse the proposal relates only to the performance criteria relied on.

6.2 The site is located within the Recreation Zone of the *Hobart Interim Planning Scheme 2015*.

6.3 The existing use is temporary housing (within temporary buildings). The proposed use is the continuation of temporary housing (within temporary buildings). The existing use is a discretionary use in the zone. The proposed use is a discretionary use in the zone.

6.4 The proposal has been assessed against:

6.4.1 Planning Directive 7 - Permits for Temporary Housing

6.4.2 E2.0 Potentially Contaminated Land Code

6.5 The proposal relies on the following performance criteria to comply with the applicable standards:

6.5.1 Planning Directive 7 -Permits for Temporary Housing

Planning Directive 7 - Use 4.1(d)

6.5.2 E2.0 Potentially Contaminated Land Code

Use Standards – Part E 2.5P1

6.6 Each performance criterion is assessed below.

6.7 Use - Planning Directive 7 - Temporary Housing

6.7.1 The acceptable solution at clause PD 7 -4.1(b) allows the use and development for temporary housing within demountable dwellings within the Recreation Zone providing that a code relating to potentially contaminated land does not apply.

6.7.2 The proposal is to extend the time in which the temporary housing will be in situ, on land which has been identified as potentially contaminated land and therefore subject to E2.0 Potentially Contaminated Land Code of the Hobart Interim Planning Scheme 2015..

6.7.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.7.4 The performance criterion at clause PD 7 - 4.1(d) provides as follows:

(d) In determining an application under subclause 4.1(c), a planning authority must have regard to:

(i) the proximity of the temporary housing to existing residential facilities and social support services that are funded or operated by, or on behalf

of, the Director of Housing or a housing support provider;
(ii) the availability of public transport and capacity of road infrastructure and utility services to the site;
(iii) the purpose and provisions of the applicable zone and any applicable codes; and
(iv) the potential for land use conflict with other use or development on adjoining properties and any measures available to manage or mitigate such conflict.

6.7.5 The subject site adjoins a property which contains residential facilities which are operated by and on behalf of the Director of Housing. The site is located within walking distance to the CBD and South Hobart Shopping Precinct. Furthermore, the site is accessed via a regular bus route along Cascade Road, with bus stops directly at the entrance to the site and diagonally opposite the site. The housing is located on the extremity of the Recreation Zone, and adjoins the General Residential Zone.

The sole applicable code in this instance is the E2.0 Potentially Contaminated Land Code under the *Hobart Interim Planning Scheme 2015*. Council's Environmental Health Officer has assessed the submitted Environmental Site Assessment and supports the proposal.

The proposal is residential in nature and therefore is consistent and does not conflict on any residential use within adjoining properties. As stated above, a representation raised the issues of noise, litter and lighting at unreasonable hours experienced due to the use of the site for temporary housing. Notwithstanding, these issues may be relevant to any residential use and/or property. However, the issues raised have been communicated to the applicant, who has in turn notified the manager of the site, who will seek tp address and manage these issues on an ongoing basis.

6.7.6 The proposal complies with the performance criterion.

6.8 Potentially Contaminated Land Code Part E2.5P1

6.8.1 The acceptable solution at clause E2.5A1 requires a Director, or person approved by the Director (for the purposes of the Potentially Contaminated Land Code) to certify that the land is suitable for the intended use or approves a plans to management contamination and associated risk to human health or the environment that will ensure that the land is suitable for the intended use.

6.8.2 The proposal includes an extension of time to a sensitive use on the site and a Director/person approved by the Director has not certified that the land is suitable for the intended use nor has approved a plan to manage contamination and associated risk to human health or the environment that will ensure the land is suitable for the intended use.

6.8.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.8.4 The performance criterion at clause E2.5.P1 provides as follows:

Land is suitable for the intended use, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or

(c) a plan to manage contamination and associated risk to human health or the environment that includes:
(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before any use commences; and
(iii) a statement that the land is suitable for the intended use.

6.8.5 The objective of the provisions relating to use standards for development/works on potentially contaminated land is to ensure that it is suitable for the intended use.

The applicant submitted a Environmental Site Assessment Report dated October 2019 which was prepared after the planning permit PLN-19-564 was issued. This report was accompanied by supporting documentation dated 4 March 2022, prepared by the author of the above report. The supporting document confirmed that the content of the original report and the conclusions within the original report remain valid for the current application. Specifically, that the site is free from the impacts of potential contamination.

The proposal and associated documentation was referred to Council's Environmental Health Officer, who confirmed that the applicant had submitted a Environmental Site Assessment in accordance with the

National Environment Protection Measures which states that there are no dangers to workers or the environment and the site is suitable for its intended use.

6.8.6 The proposal complies with the performance criterion.

7. Discussion

7.1 Planning approval is sought for Temporary Housing at 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart.

7.2 The application was advertised and received two representations, one objecting and one in support of the proposal. The objection raised concerns including issues with the current use and management of the site, namely nuisance from lights to neighbouring dwellings, noise after reasonable hours and litter from the site.

Other issues which were raised was due to the misapprehension that the proposal was to construct additional temporary housing on the site. Based on this assumption, the representor was concerned about the height and density of the proposal and that it was out of character with the South Hobart area and that the facility could not support fifty (50) plus people on the site.

A further issue raised was the lack of due process from the original approval for the temporary housing under PLN-19-564 and the change in purpose of the site from that approved under PLN-19-564 to the subject proposal.

There was support for the proposal, however another issue raised related to the existing sloping path behind the temporary housing, the standard of which is dangerous in all seasons, for all users including cyclists, scooter riders and pedestrians, some of whom reside within the temporary housing.

The relevant issues were raised with the applicant who advised that a complaint had been made in relation to the lighting in July 2020 and it was resolved so that the lights now operate after 9pm on sensors for security purposes only. In respect to noise emanating from the site, the operator of the facility has been advised and will take steps to monitor and manage noise during the night time. Further, the manager has been advised as to the problem of littering and will take steps to monitor and manage this.

Again, the applicant has confirmed that the current application seeks approval for the continuation of the temporary housing and notes that the Planning Directive 7 - Temporary Housing requires a limitation (3 years) to be placed on the life of the permits that are issued. The applicant reiterated that the current application does not seek approval for additional temporary housing.

7.3 The proposal has been assessed against the relevant provisions of the planning scheme and is considered to perform well.

7.4 The proposal has been assessed by other Council officers, including the Council's Development Engineer, Stormwater Services Engineer, Environmental Development Planner, Environmental Health Officer and Parks Planner. The officers have raised no objection to the proposal, subject to conditions.

7.5 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Temporary Housing at 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart satisfies the relevant provisions of the *Hobart Interim Planning Scheme 2015*, and as such is recommended for approval.

9. Recommendations

That: Pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for Temporary Housing at 136 Wentworth Street and 112 Cascade Road and 106 Cascade Road, South Hobart for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-22-133 - 136 WENTWORTH STREET & 112 CASCADE ROAD & 16 CASCADE ROAD, SOUTH HOBART TAS 7004 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

PLN s1

This permit is valid for a maximum period for three years from 25 June 2020, on which date the occupancy permit was issued in accordance with Part 17 of the Building Act 2016. At the completion of this period and not more than 6 month after the date on which the permit lapses, all development associated with this permit must be removed and the site made good to the satisfaction of the Director City Life.

Reason for condition

To clarify the scope of the permit in accordance with the application documentation and Planning Directive 7.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

COUNCIL RESERVES

There is an existing lease agreement for occupation of a portion of Wellesley Park for this development. The lease expires on 31st December 2022. Therefore, it will need to be extended to cover the extended planning permit period. The terms will be negotiated separately to this planning permit.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

(Deanne Lang)
Development Appraisal Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

(Ben Ikin)
Senior Statutory Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Date of Report: 30 May 2022

Attachment(s):

Attachment B - CPC Agenda Documents

Our Ref: 19.215

Measured form and function

6ty Pty Ltd
ABN 27 914 609 680

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

15 March 2022

General Manager
City of Hobart
GPO Box 503
Hobart TAS 7001

Attention: City Planning

Dear Sir/Madam,

PERMIT FOR TEMPORARY HOUSING – 106 & 112 CASCADE ROAD AND 136 WENTWORTH STREET, SOUTH HOBART – PLANNING SUBMISION

Communities Tasmania has contracted 6ty° Pty Ltd to provide services related to the delivery of temporary housing as an interim measure whilst the need for longer-term provision is addressed in accordance with the Tasmanian Affordable Housing Strategy and Action Plans.

1. Background

Planning Permit PLN-19-564 authorised the provision of temporary housing on land adjoining the lot at 112 Cascade Road, South Hobart. The lot contains an existing residential facility operated

The temporary housing was subsequently developed on the land. This included 10 units on the adjoining lot to the rear (south) of the existing facility. The adjoining lot is 'Wellesley Park', 136 Wentworth Street, South Hobart. Infrastructure services for the temporary housing was also provided through another adjoining lot at 106 Cascade Road.

A further permit for the temporary housing is sought in accordance with the Planning Directive No. 7 – Permits for Temporary Housing ("Planning Directive"), which came into effect on 16 September 2020. A Permitted pathway is available to the proposal under the Planning Directive given that it involves non-permanent buildings on a lot which adjoins an existing residential facility operated by a housing support provider.

In addition to this planning submission, the permit application comprises the following information:

1. Information included in the on-line lodgement system.
2. Development plans (final prior to construction).
3. Advice in relation to the Potentially Contaminated Land Code.
4. Certificates of title for the site.
5. Crown landowner permission in accordance with Section 52(1) of the *Land Use Planning and Approvals Act 1993* (the "Act").

Council landowner permission in accordance with Section 52(1) of the Act is sought in conjunction with the lodgement of the application.

The temporary housing will continue to utilise the non-permanent buildings and infrastructure services that were authorised and subsequently developed under the terms of Planning Permit PLN-19-564. Therefore, the current permit application does not propose to undertake any further development or works.

2. Planning Overview

Location	112 Cascade Road, South Hobart 136 Wentworth Street, South Hobart 106 Cascade Road, South Hobart
Title Information	Volume 174389 Folio 1 Volume 94118 Folio 1 and Volume 66346 Folio 1 Volume 40488 Folio 1
Landowner	The Director of Housing (112 Cascade Road) Hobart City Council (136 Wentworth Street and 106 Cascade Road)
Planning Instrument	Planning Directive No. 7 – Permits for Temporary Housing
Use Class	Residential – temporary housing
Proposed Development	Nil
Zone	12.0 – General Residential Zone (112 Cascade Road) 18.0 – Recreation Zone (136 Wentworth Street and 106 Cascade Road)
Overlays	Biodiversity Protection Area
Status of Application	Permitted

3. Subject Site

The land involved in the application is identified in Figure 1.

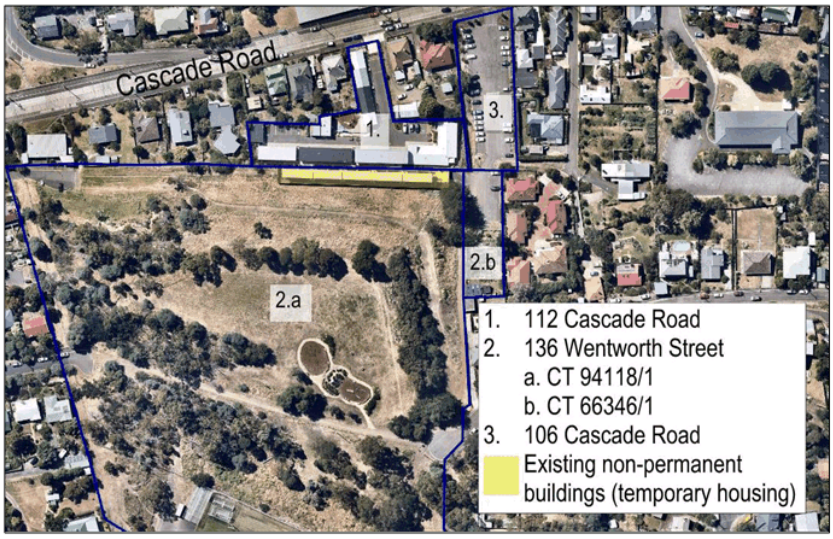


Figure 1 – Subject Site

The existing residential facility at 112 Cascade Road has been redeveloped in the last 5 years. It contains 15 accommodation units and is operated

The site also contains ancillary facilities including a laundry, recreation space and administration offices. The operator also provides support services to residents.

The temporary housing extends the accommodation that is available in conjunction with the operation of the facility. It is located on land in the north-east corner of Wellesley Park', 136 Wentworth Street, South Hobart. The land is owned by Council and is subject of a lease relating to the temporary housing.

4. Proposed Use

The permit application seeks approval to continue to use the non-permanent buildings and infrastructure services, that were authorised and developed under the terms of Planning Permit PLN-19-564, for the purposes of temporary housing (10 units) in a manner that is consistent with the Planning Directive. The application does not propose to undertake any further development or works.

5. Planning Assessment

The relevant part of the Planning Directive is Clause 4.1 (b), which is addressed below.

(b) Use and development for temporary housing of eligible persons within demountable, relocatable, or other forms of non-permanent buildings is Permitted, and a permit must be granted, if:

(i) on land within:

a. a General Residential Zone, Inner Residential Zone, Urban Mixed Use Zone, Central Business Zone, General Business Zone, Local Business Zone, Community Purpose Zone, Recreation Zone, or Open Space Zone under an interim planning scheme, or

b. the Commercial Zone under the Hobart Interim Planning Scheme 2015;

The temporary housing will continue to be located on land within the Recreation Zone and will involve land within the General Residential Zone.

(ii) funded or operated by, or on behalf of, the Director of Housing or a housing support provider;

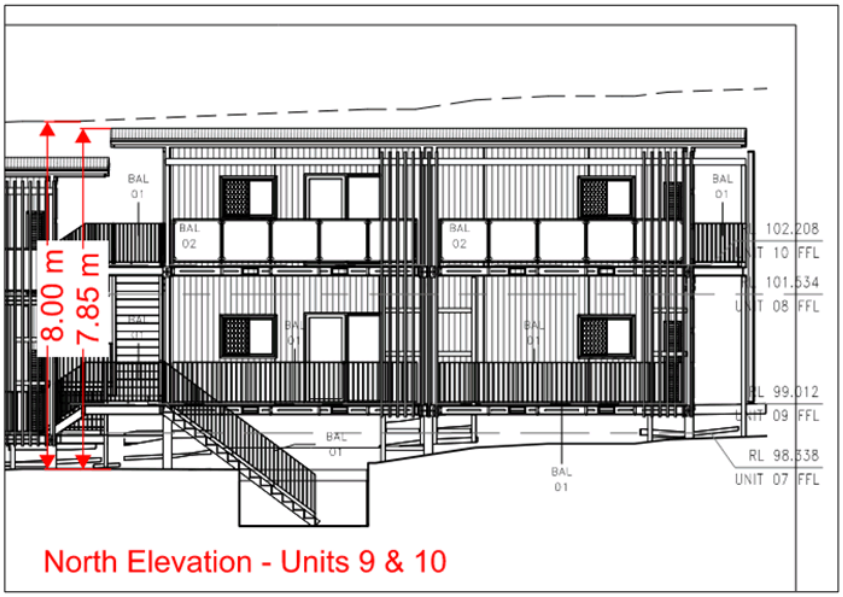
The temporary housing will continue to be funded by the Director of Housing and operated by a housing support provider

(iii) located on the same site, or a site adjoining, an existing residential facility that is funded or operated by, or on behalf of, the Director of Housing or a housing support provider

The temporary housing will continue to be located on a lot which adjoins an existing residential facility operated by the housing support provider at 112 Cascade Road, South Hobart.

(iv) the building height is not more than 8m above existing ground level; and

A dashed line in the north and south elevations represents the 8m allowable building height measured above the pre-existing ground level. The development is shown entirely contained below these lines. The maximum height for the development is 7.85m, which relates to the north-east corner of Units 9 and 10. This is shown in the image below which is extracted from Drawing A40, issued for construction of the temporary accommodation units authorised by Planning Permit PLN-19-564 (and accompanying the current permit application).



(v) the buildings have a setback from an adjoining property of not less than half the wall height of the building if the adjoining property is within a General Residential Zone, Low Density Residential Zone, or Inner Residential Zone, excluding:

a. an adjoining property to which subclause 4.1(b)(iii) applies; and

b. the portion of the wall that is not more than 3m above existing ground level;

The temporary housing is on land adjoining the existing residential facility at 112 Cascade Road, South Hobart and the proposal therefore satisfies Clause 4.1 (b)(v)(a). The setback from other properties within the General Residential Zone adjoining 136 Wentworth Street is also compliant.

(vi) a code relating to heritage does not apply, or if the code does apply, the use or development does not involve:

a. any external alteration or modification to a building that forms part of a heritage place, unless required for compliance with fire regulation under the Building Code of Australia and is not visible from any road or public open space adjoining the site; or

b. *excavation of land to a depth of more than 0.3m and more than 20m^2 in area on a site within a listed area of archaeological significance; and*

The land within site is not associated with a listing in the Historic Heritage Code of the *Hobart Interim Planning Scheme 2015* ("Interim Planning Scheme").

(vii) the following codes do not apply:

a. *Bushfire-Prone Areas Code;*

b. *a code relating to flooding, inundation, or landslip hazards;*

c. *a code relating to potentially contaminated land;*

d. *a code relating to significant trees;*

e. *buildings are located on land within an inner protection area, or registered electricity easement, as defined in an Electricity Transmission Infrastructure Protection Code.*

The site is not identified within the boundary of a Bushfire-Prone Area, or a Coastal or Riverine Inundation Hazard Area on the Interim Planning Scheme overlay maps. There are areas within 136 Wentworth Street that are within the boundary of a Landslide Hazard Area however the temporary housing is clear of these areas.

The provisions of the Bushfire-Prone Areas Code, Inundation Prone Areas Code and Landslide Code therefore do not apply.

An Environmental Site Assessment ("ESA") was prepared by Geo-Environmental Solutions ("GES")(Dated October 2019) in relation to the establishment of the temporary housing. This accompanies the application together with further advice from GES dated 4 March 2022.

The ESA included a site history assessment and concluded that the potentially contaminating activities upslope (i.e. former waste disposal) did not impact the land involved. The Potentially Contaminated Land Code therefore is not applicable to the permit application in accordance with Clause E2.4.3. This clause provides an exemption from the Code where a site history prepared by a suitably qualified person confirms potentially contaminating activities did not impact the site.

The site does not contain any trees listed in the Significant Trees List in the Interim Planning Scheme, and the Significant Trees Code therefore does not apply. It is not subject of an Electricity Transmission Infrastructure Protection overlay or a registered electricity easement, and the Electricity Transmission Infrastructure Protection Code therefore does not apply.

In accordance with Clause 5.3 of the Planning Directive, no other code in the Interim Planning Scheme is applicable to the proposal.

It is noted that the land forming part of 'Wellesley Park', 136 Wentworth Street (CT 94118/1) is identified within the boundary of a Biodiversity Protection Area. The temporary housing involved an existing cleared area within the park and the Biodiversity Code therefore would not have application in any event under the terms of Clause E10.2.1.

6. Conclusion

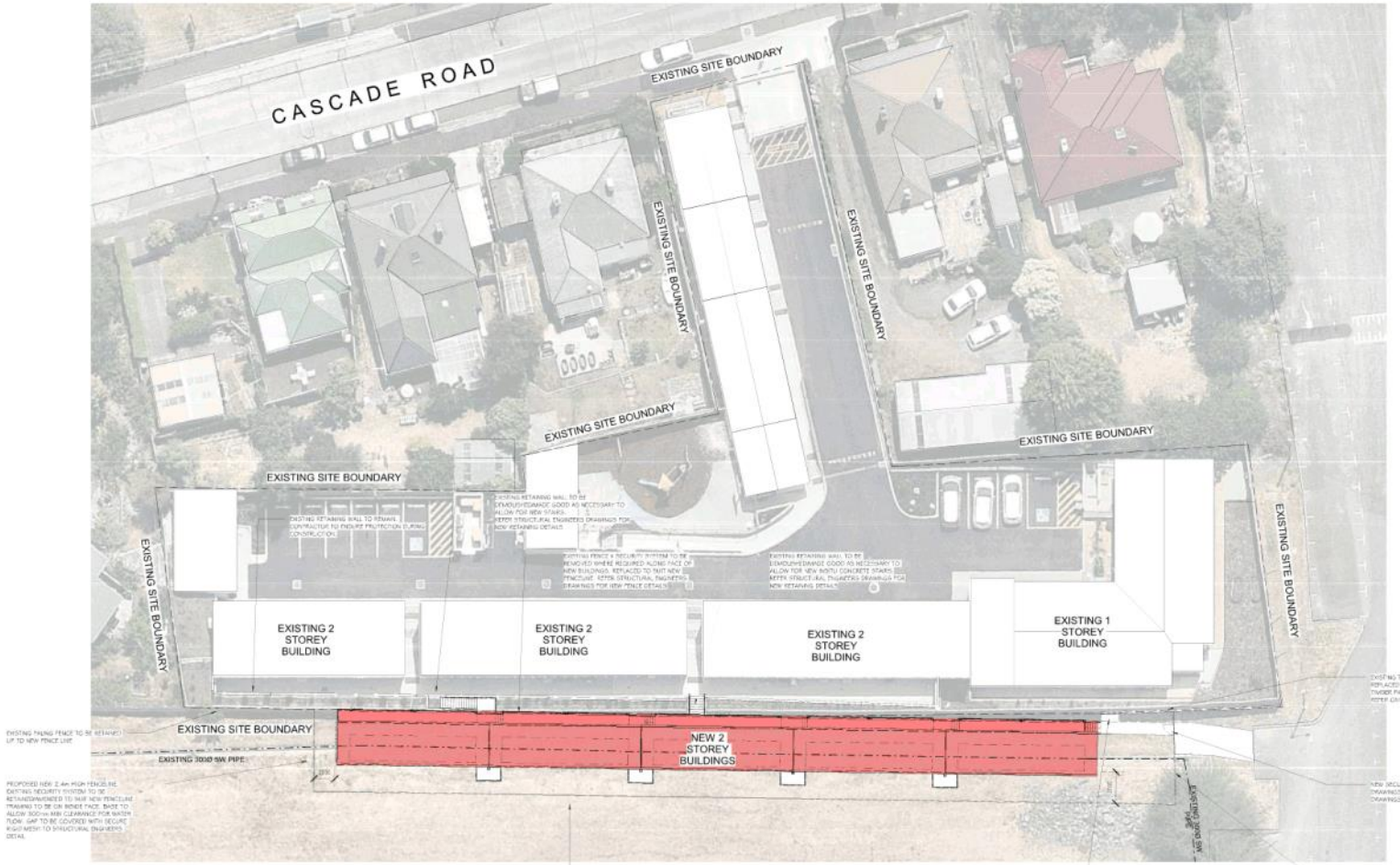
The proposal involves the continuation of temporary housing on land associated with 106 and 112 Cascade Road and 136 Wentworth Street, South Hobart. It is subject to the provisions of the Planning Directive No. 7 – Permits for Temporary Housing, and satisfies the requirements of Clause 4.1 (b) therein. It is therefore submitted that a Permitted permit can be issued for the use and proposed development in accordance with Section 58 of the Act.

Please do not hesitate to contact me should you have any queries on this application.

Yours faithfully
6ty° Pty Ltd

Ashley Brook

Ashley Brook
Planning Consultant



A_SITE PLAN
SCALE 1 : 200

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
387 Charles Street
Launceston Tasmania
P (03) 6332 3300

57 Best Street
Devonport Tasmania
P (03) 6424 7161

6ty Pty Ltd
ABN 27 014 609 906

Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1633

APPROVED COMPANY
ISO 9001
Quality Management Systems
QMS

CONTROLLED DOCUMENT

REVISION	DATE	ISSUED FOR	REV.
1	08/11/19	ISSUE FOR INFORMATION	1
2	15/11/19	REVISED ISSUE FOR INFORMATION	A
3	26/11/19	ISSUE FOR TENDER & BUILDING APPROVAL	B
5	19/12/19	ISSUE FOR CONSTRUCTION	C
6	13/02/20	ISSUE FOR BALUSTRADE AMENDMENT	D

Tasmanian Government

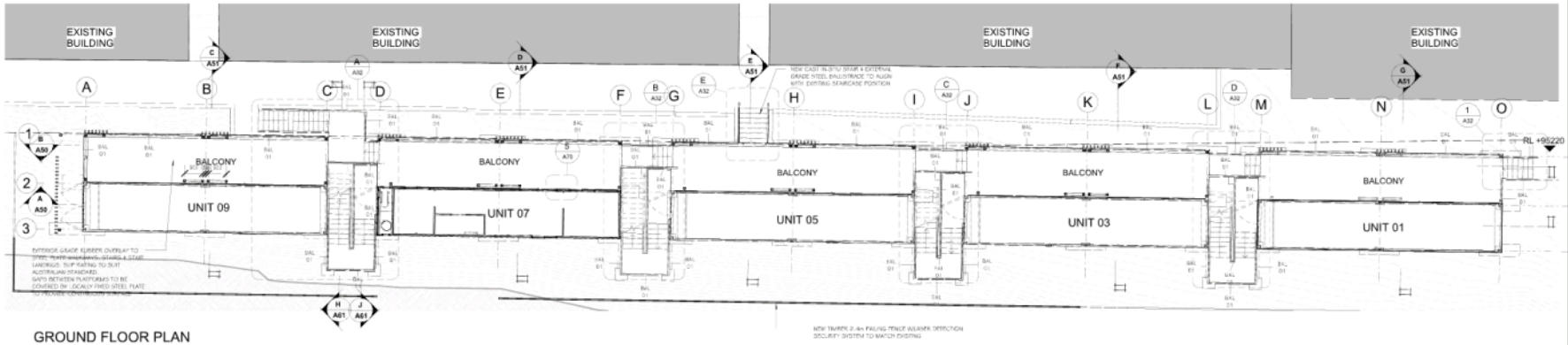
N
TRUE NORTH

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

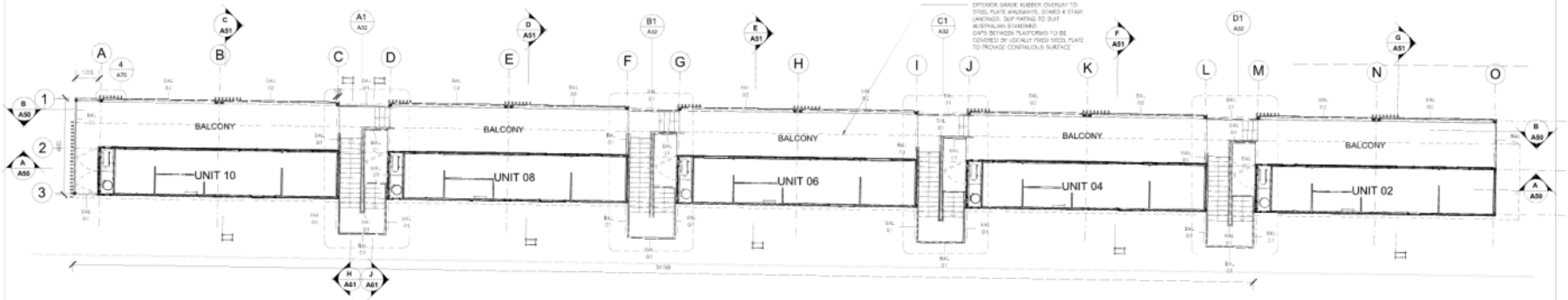
PROJECT: TEMPORARY SOCIAL HOUSING
AT: CASCADE RD, HOBART
FOR: COMMUNITIES TASMANIA

DRAWING: SITE PLAN

DESIGNED: DVG DRAWN: CCH CHECKED: DVG
SCALE: 1 : 200 AT A1 SIZE DRAWING SHEET
PROJECT No. 19.285 DRAWING No. A10 REV. C



GROUND FLOOR PLAN
SCALE 1 : 100



FIRST FLOOR PLAN
SCALE 1 : 100

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300

57 Best Street
Devonport Tasmania
P (03) 6424 7161

6ty Pty Ltd
ABN 27 014 609 900

Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1633I

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS Certification Services

CONTROLLED DOCUMENT

ISSUE	DATE	ISSUED FOR	REV.
1	08/11/19	ISSUE FOR INFORMATION	
2	15/11/19	REVISED ISSUE FOR INFORMATION	1
3	26/11/19	ISSUE FOR TENDER & BUILDING APPROVAL	A
5	19/12/19	ISSUE FOR CONSTRUCTION	B
6	13/02/20	ISSUE FOR BALUSTRADE AMENDMENT	C

Tasmanian Government

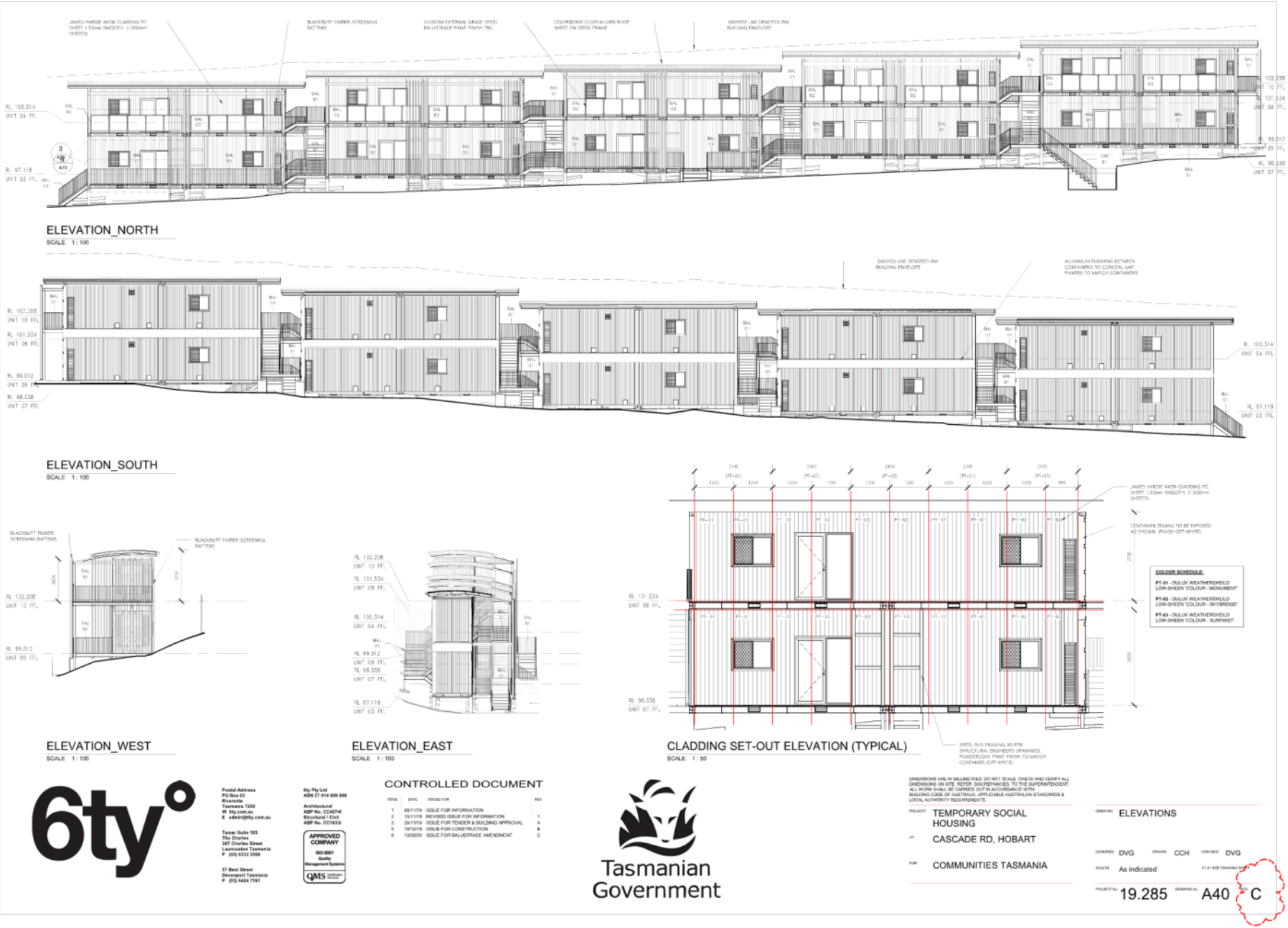
N
TRUE NORTH

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: TEMPORARY SOCIAL HOUSING
AT: CASCADE RD, HOBART
FOR: COMMUNITIES TASMANIA

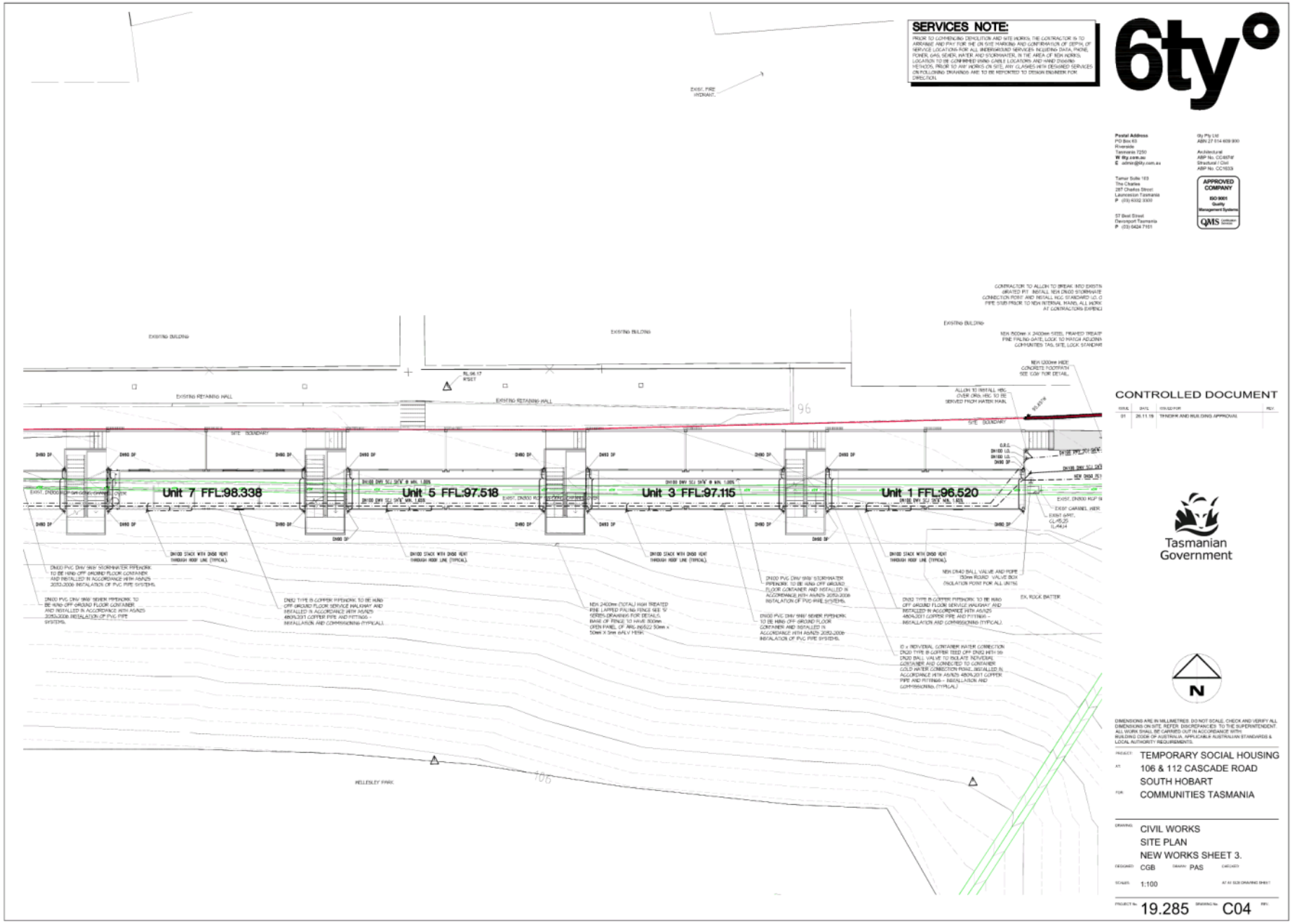
DRAWING: GROUND & LEVEL 1 FLOOR PLAN

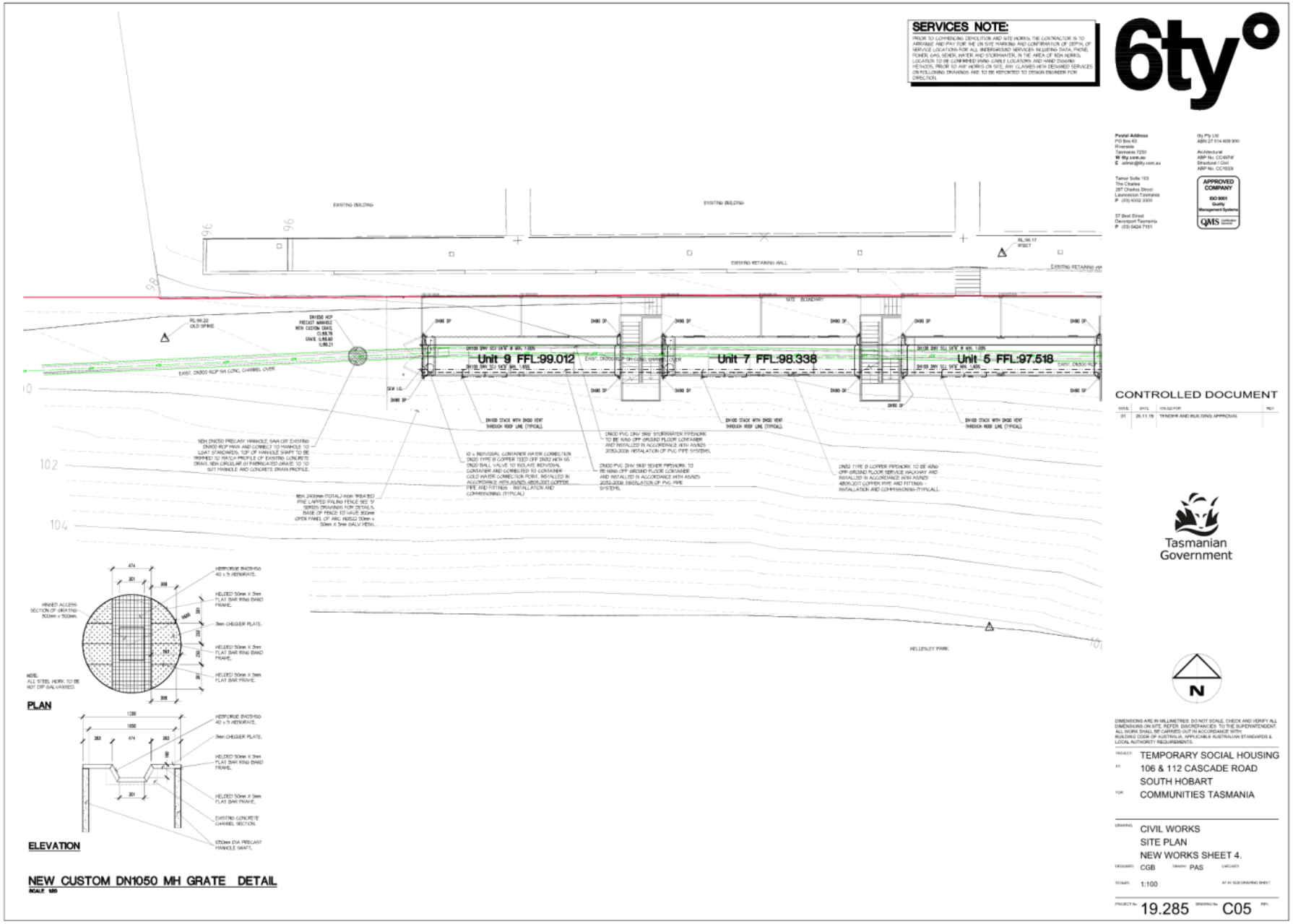
DESIGNED: DVG DRAWN: CCH CHECKED: DVG
SCALE: 1 : 100 AT A1 SIZE DRAWING SHEET
PROJECT No. 19.285 DRAWING No. A30 REV. C


ELEVATION_NORTH
SCALE 1 : 100
ELEVATION_SOUTH
SCALE 1 : 100
ELEVATION_WEST
SCALE 1 : 100
ELEVATION_EAST
SCALE 1 : 100
CLADDING SET-OUT ELEVATION (TYPICAL)
SCALE 1 : 50
COLOUR SCHEDULE:
PT-01 - DULUX WEATHERSHIELD LOW-SHEEN 'COLOUR - MONUMENT'
PT-02 - DULUX WEATHERSHIELD LOW-SHEEN 'COLOUR - SKYBRIDGE'
PT-03 - DULUX WEATHERSHIELD LOW-SHEEN 'COLOUR - SURFMIST'
6ty°
CONTROLLED DOCUMENT
Tasmanian Government
TEMPORARY SOCIAL HOUSING
CASCADE RD, HOBART
COMMUNITIES TASMANIA
ELEVATIONS
DVG
CCH
DVG
As indicated
19.285
A40
C

6ty°
CONTROLLED DOCUMENT
Tasmanian Government
WENTWORTH STREET
N
SERVICES NOTE:
TEMPORARY SOCIAL HOUSING
106 & 112 CASCADE ROAD
SOUTH HOBART
COMMUNITIES TASMANIA
CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 1.
CGB
PAS
1:200
19.285
C02
A

SERVICES NOTE:
6ty°
Unit 3 FFL:97.115
Unit 1 FFL:96.520
EXISTING CARPARK
CONTROLLED DOCUMENT
Tasmanian Government
N
TEMPORARY SOCIAL HOUSING
106 & 112 CASCADE ROAD
SOUTH HOBART
COMMUNITIES TASMANIA
CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 2.
CGB
PAS
1:100
19.285
C03
A


SERVICES NOTE:
6ty°
EXISTING BUILDING
EXISTING RETAINING WALL
SITE BOUNDARY
Unit 7 FFL:98.338
Unit 5 FFL:97.518
Unit 3 FFL:97.115
Unit 1 FFL:96.520
CONTROLLED DOCUMENT
Tasmanian Government
N
TEMPORARY SOCIAL HOUSING
106 & 112 CASCADE ROAD
SOUTH HOBART
COMMUNITIES TASMANIA
CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 3.
CGB
PAS
1:100
19.285
C04


SERVICES NOTE:
6ty°
Unit 9 FFL:99.012
Unit 7 FFL:98.338
Unit 5 FFL:97.518
CONTROLLED DOCUMENT
Tasmanian Government
PLAN
ELEVATION
NEW CUSTOM DN1050 MH GRATE DETAIL
N
TEMPORARY SOCIAL HOUSING
106 & 112 CASCADE ROAD
SOUTH HOBART
COMMUNITIES TASMANIA
CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 4.
CGB
PAS
1:100
19.285
C05

GEO-ENVIRONMENTAL SOLUTIONS

4/3/22

Ashley Brook
6ty°
PO Box 63
Riverside 7250

RE: Expired planning permit & re-application – 106 Cascade Road & 136 Westworth Street South Hobart – Environmental Site Assessment

Ashley, this letter is to confirm I have reviewed the application for the site due to the previous approved planning permit which has now lapsed.

As you are aware my company (Geo-Environmental Solutions Pty Ltd) provided an environmental site assessment for the property in October 2019. The environmental assessment report concluded that the site is suitable for the proposed development and there is no site contamination that would pose a risk to human health or the environment during or post the development. The content of the report and the conclusions in the report remain valid for the current application.

The ESA report included a thorough site history, site assessment, analysis and reporting according to NEPM guidelines. The ESA included a site history assessment and concluded that the potentially contaminating activities upslope (i.e. former waste disposal) did not impact the site. Therefore, I believe the proposed use and development on the site would be expect from the contaminated land code of the interim planning scheme under clause E2.4.3 as a site history has been provided that confirms the site is free from the impacts of potential contamination.

If you require any further information, please contact me at your convenience.

Kind regards,

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD
Director

GES

GEO-ENVIRONMENTAL

SOLUTIONS

ENVIRONMENTAL SITE ASSESSMENT

106 Cascade Road and 136 Wentworth Street, South Hobart

October 2019

For 6ty Architecture Surveying Engineering

Geo-Environmental Solutions P/L 29 Kirksway Place, Battery Point, 7004. Ph 6223 1839 E: Office@geosolutions.net.au

DOCUMENT CONTROL

Title	Version	Date	Author	Reviewed By
Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart, Tasmania	Version 1	23rd October 2019	M. Downie	S. Joyce

EXECUTIVE SUMMARY

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at 106 Cascade Road and 136 Wentworth Street, South Hobart Tasmania - hereby referred to as 'The Site'. GES was commissioned by 6ty Architecture Surveying Engineering to conduct the site assessment. This ESA has been prepared by a suitably qualified and experience practitioner in accordance with procedures and practices detailed in National Environmental Protection Measure [Assessment of Site Contamination] (NEPM ASC; 2013).

The objective of this ESA was to investigate the site for contamination, we have done this by addressing E2.6.2 performance criteria under the *Hobart Council Interim Planning scheme 2015* for excavation. To assess the suitability and safety of the soil for excavation at a typical depth for foundation excavation, and any human or environmental risks of the soil present on site.

The following information was gathered during the desktop investigation:

- The site is zoned *Recreation* under the *Hobart Council Interim Planning Scheme of 2015*. There is a proposal to place portable housing units (contained shipping containers) on the site.
- The geology of the site features Triassic sandstone, with man-made deposits upslope.
- The Hobart Council considers that the site may be a potentially contaminated site due to the proximity of the former waste disposal area directly upslope.
- Historical Aerial photographs since 1946 confirmed that the site has been vacant, with a large bank/batter installed prior to 1969 around the time that the refuse disposal site upslope was decommissioned.
- The former waste disposal area directly upslope is the only up-gradient contamination source that has been identified.
- Contaminants Of Potential Concern (COPC) at the site include the following: TPH/TRH; Mono Aromatic hydrocarbons: (BTEXN); PAH; Heavy Metals.

From the soil assessment, it is concluded that:

- Environment: Hydrocarbons or heavy metals were not detected. The soil does not pose a risk to ecological receptors.
- Human Health: There were no human health guideline exceedances and therefore no risk human receptors for dermal contact, dust inhalation and soil ingestion risk or vapour intrusion.
- Indoor Vapour Risk There were no indoor vapour risk identified and therefore no risk to human receptors for vapour.
- Excavated Soil Management: In terms of *IB105* there were no material above Level 1 (Clean Fill) levels of contamination.

GES recommends the following:

- There were no human health or environmental guideline exceedances, NEPM ASC 2013 or CRC CARE, for the soil on site. The soil as tested is considered Clean Fill.
- The presence of potential upslope contaminants were not found to be impacting the soil in the investigation area of the proposed development.
- The development of portable affordable housing (in the style of self-contained shipping container accommodation) will have minimal disturbance of soil.
- Excavations will not adversely impact on human health and/ or environmental health. The land is suitable for the intended use.
- No Contamination Management Plan will be required.

Table of Contents

DOCUMENT CONTROL I

EXECUTIVE SUMMARY II

ABREVIATIONS VI

1 INTRODUCTION 1

1.1 GENERAL 1
1.2 SITE LAYOUT 2
1.3 INVESTIGATION OBJECTIVES 2
1.4 SCOPE OF WORKS 2
1.5 SITE DETAILS 3

2 PLANNING 3

2.1.1 ACCEPTABLE SOLUTIONS 3
2.1.2 EXCAVATION WORKS E2.6.2 P1 3
2.1.3 STATEMENT OF SUITABILITY 3

3 DESKTOP STUDY 4

3.1 SITE ZONING 4
3.2 SITE WALKOVER 4
3.3 MRT GEOLOGY MAPPING 5
3.4 HISTORICAL AERIAL PHOTOGRAPHY INTERPRETATION 6
3.5 PREVIOUS SITE INVESTIGATIONS 6
3.6 SITE TOPOGRAPHY, DRAINAGE & HYDROGEOLOGY 6
3.7 GROUNDWATER 7
3.7.1 POTENTIAL UP-GRADIENT CONTAMINATION SOURCES 7
3.7.2 DOWNGRADIENT ECOSYSTEM RECEPTORS 7
3.8 POTENTIAL CONTAMINATION ISSUES 7
3.8.1 AREAS OF POTENTIAL CONCERN 7
3.8.2 CONTAMINANTS OF POTENTIAL CONCERN 7

4 FIELD INVESTIGATION PROCEDURES 8

4.1 WORKS SUMMARY 8
4.2 SOIL INVESTIGATION 8
4.2.1 BOREHOLE DRILLING 8
4.2.2 SOIL ANALYSIS 9

5 QUALITY CONTROL 10

5.1 FIELD 10
5.2 LABORATORY 11

6 FIELD INVESTIGATION FINDINGS 12

6.1 SOIL BORES 12
6.1.1 GEOLOGICAL INTERPRETATION 12
6.1.2 GRAIN & DEPTH CLASS INTERPRETATION 12
6.1.3 SOIL CONTAMINATION OBSERVATIONS 12

7 SOIL ECOLOGICAL IMPACT ASSESSMENT 13

7.1 PROTECTED ENVIRONMENTAL VALUES 13
7.2 NEPM ASC (2013) GUIDELINES 13
7.3 GUIDELINES 14
7.3.1 ECOLOGICAL SCREENING LEVELS 14
7.3.2 ECOLOGICAL INVESTIGATION LEVELS 14
7.4 FINDINGS 15
7.4.1 ECOLOGICAL SCREENING LEVELS 15
7.4.2 ECOLOGICAL INVESTIGATION LEVELS 16

8 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT 17

8.1 GUIDELINES 17
8.1.1 LAND USE CLASSIFICATION 17
8.1.2 ADOPTED LAND USE CLASSIFICATION 17
8.1.3 HEALTH INVESTIGATION & SCREENING LEVELS 17
8.2 FINDINGS 18
8.2.1 DERMAL CONTACT - PETROLEUM HYDROCARBONS 18
8.2.2 DUST INHALATION & SOIL INGESTION 18

9 INDOOR INHABITANT PVI ASSESSMENT – HSL'S 1

9.1 SELECTED MEDIA FOR ASSESSING PVI RISK 1
9.2 LAND USE CLASS 2
9.3 SOIL ASSESSMENT 2

10 TRENCH WORKER PVI ASSESSMENT – HSL'S 3

10.1 CLASSIFICATION 3
10.2 FINDINGS 3

11 SOIL DISPOSAL ASSESSSMENT 4

11.1 GUIDELINES 4
11.2 FINDINGS 4

12 CONCEPTUAL SITE MODEL 5

12.1 CONCEPTUAL SITE MODEL 5
12.2 POTENTIAL HUMAN RECEPTORS 5
12.3 POTENTIAL ECOLOGICAL RECEPTORS 5

13 CONCLUSIONS & RECOMMENDIATIONS 7

13.1 DESKTOP ASSESSMENT 7
13.2 ADOPTED GUIDELINE SETTINGS 7

13.3 SOIL ASSESSMENT 7
13.4 CONCLUSION SUMMARY 8

REFERENCES 9

LIMITATIONS STATEMENT 10

APPENDIX 1 GES STAFF 11

APPENDIX 2 HISTORICAL AERIAL PHOTOGRAPHS 12

APPENDIX 3 PID CALIBRATION RECORD 18

APPENDIX 4 CHAIN OF CUSTODY (COC) AND SAMPLE RECEIPT NOTIFICATION (SRN) 21

APPENDIX 5 QUALITY ASSURANCE AND QUALITY CONTROL 25

APPENDIX 6 CERTIFICATE OF ANALYSIS 36

Figures

FIGURE 1 SITE LOCATION (IMAGE C/O THE LIST) ... 1
FIGURE 2 EXISTING SITE LAYOUT (IMAGE C/O GOOGLE EARTH) ... 2
FIGURE 3 HOBART COUNCILS INTERIM PLANNING SCHEME ZONES (2015) ... 4
FIGURE 4 MINERAL RESOURCES TASMANIA 1:25.000 SCALE MAPPING. ... 5
FIGURE 5 CONTOUR ELEVATIONS AND INFERRED SURFACE AND GROUNDWATER FLOW DIRECTION ... 6
FIGURE 6 BOREHOLE PLAN ... 8

Tables

TABLE 1 SITE DETAILS ... 3
TABLE 2 SUMMARY OF SITE INVESTIGATION WORK DATES ... 8
TABLE 3 SUMMARY OF SOIL SAMPLING METHODS ... 9
TABLE 4 OVERVIEW OF SOIL ANALYSIS AND QUALITY CONTROL ... 9
TABLE 5 SOIL FIELD QA/QC PROCEDURES AND COMPLIANCE ... 10
TABLE 6 SOIL LABORATORY QA/QC PROCEDURES AND COMPLIANCE ... 11
TABLE 7 SUMMARY OF GRAIN CLASS BASED ON USCS CLASSIFICATION ... 12
TABLE 8 SUMMARY OF SOIL CONTAMINATES CONSIDERED AS PART OF THIS INVESTIGATION, BASED ON NEPM (2013) ASC ... 13
TABLE 9 ADOPTED LAND USE SCENARIO FOR THE SOIL BORES ... 14
TABLE 10 CATION EXCHANGE AND CLAY CONTENT, ADOPTED FOR THE SITE ... 15
TABLE 11 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED WITH ESL'S FOR COMMERCIAL/ INDUSTRIAL LAND USE ... 15
TABLE 12 SOIL ANALYTICAL RESULTS COMPARED AGAINST ECOLOGICAL INVESTIGATION LEVELS ... 16
TABLE 13 SUMMARY OF LAND USE SETTING AND DENSITY FOR DETERMINING EXPOSURE RISK ... 17
TABLE 14 SUMMARY OF EXPOSURE PATHWAYS AND PRELIMINARY (TIER 1) METHODS FOR ASSESSING HUMAN EXPOSURE RISK ... 17
TABLE 15 SOIL ANALYTICAL RESULTS COMPARED AGAINST CRC CARE (FRIEBEL & NADEBAUM, 2011) GUIDELINES FOR DERMAL CONTACT ... 18
TABLE 16 SOIL ANALYTICAL RESULTS COMPARED AGAINST NEPM ASC (2013) HEALTH INVESTIGATION LEVELS GUIDELINES ... 1
TABLE 17 PREFERRED METHODS FOR DETERMINING SITE PVI RISK ... 1
TABLE 18 SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL A FOR INDOOR VAPOUR RISK ... 2
TABLE 19 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL'S FOR ASSESSING PVI RISK TO TRENCH WORKERS ... 3
TABLE 20 SUMMARY OF IB105 CLASSIFICATION GUIDELINES ... 4
TABLE 21 SOIL ANALYTICAL RESULTS COMPARED AGAINST IB105 INVESTIGATION LIMITS FOR SOIL DISPOSAL ... 4
TABLE 22 CONCEPTUAL SITE MODEL ... 6

ABREVIATIONS

AEC	Areas of Environmental Concern
AHD	Australian Height Datum
ALS	Analytical Laboratory Services
ANZECC	Australia and New Zealand Environment and Conservation Council
BGS	Below Ground Surface
BH	Borehole
BTEXN	Benzene Toluene Ethylbenzene Xylene Naphthalene
COA	Certificate of Analysis
COC	Chain of Custody
COPC	Contaminant of Potential Concern
CRC CARE	Corporative Research Centre for Contamination Assessment and Remediation of the Environment
CSM	Conceptual Site Model
DQO	Data Quality Objectives
EOH	End Of Hole
EIL	Ecological Investigation Levels
ESL	Ecological Screening Levels
EPA	Environmental Protection Authority
ESA	Environmental Site Assessment
GDA94	Geocentric Datum of Australia 1994
GES	Geo-Environmental Solutions Pty. Ltd.
HIL	Health Investigation Levels
HSL	Health Screening Levels
IL	Investigation Levels
LOR	Limits of Reporting
MDL	Mean Detection Limit
NATA	National Association of Testing Authorities
NEPM ASC	National Environmental Protection (Assessment of Site Contamination) Measure
NHMRC	National Health and Medical Research Council
NL	Non Limiting
NRMMC	Natural Resource Management Ministerial Council
PAH	Polynuclear Aromatic Hydrocarbons
PCP	Physico-Chemical Parameters
PHC	Petroleum Hydrocarbons
PID	Photo-Ionisation Detector
PPA	Preferential (PVI) Pathways Assessment
PVI	Petroleum Vapour Intrusion
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
USCS	Unified Soil Classification System

1 INTRODUCTION

1.1 General

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at 106 Cascade Road and 136 Wentworth Street, South Hobart Tasmania - hereby referred to as 'The Site'. The site location is presented in Figure 1 (with titles for 106 Cascade Rd and 136 Wentworth Street highlighted in orange, and the investigation area highlighted in blue), and the aerial photograph is presented in Figure 2. GES was commissioned by 6ty Architecture Surveying Engineering to conduct the site assessment.

The site is currently considered a potentially contaminated site by Hobart Council due to the area directly upslope (136 Wellesley Street) being a former waste/refuse disposal (tip) site. The objective of the report is to prove or disprove the presence or absence of contamination at the site. The ESA will compare contamination against E2.6.2 Excavation code of the Potentially Contaminated Land Code which will account for any future potential contact or excavation of earth such as services trenches or digging for foundations.

This ESA has been prepared by a suitably qualified and experience practitioner in accordance with procedures and practices detailed in National Environmental Protection Measure [Assessment of Site Contamination] (NEPM ASC; 2013) guidelines and key regulations and policies identified in the References section of this document. Personnel engaged in preparing this ESA are listed in Appendix 1 along with their relevant qualifications and years of experience.

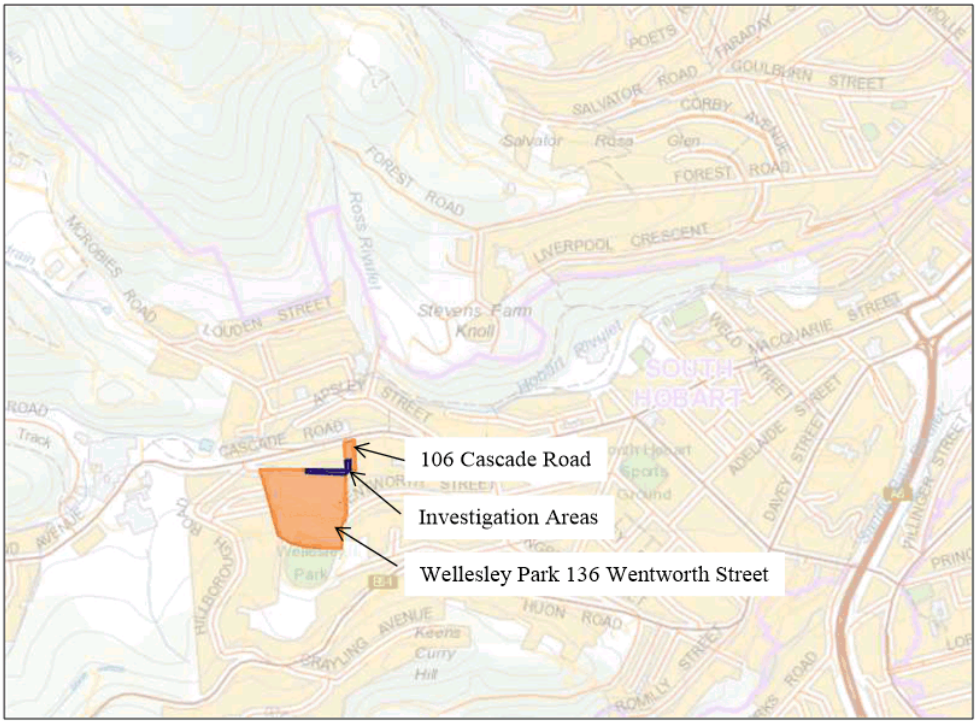


Figure 1 Site Location (Image C/O the LIST)

1.2 Site Layout

An aerial image of the existing site layout is presented in Figure 2.

Figure 2 Existing Site Layout (Image C/O Google Earth)

1.3 Investigation Objectives

The objective of this ESA was to investigate the site for contamination, by addressing E2.6.2 performance criteria under the *Hobart Council Interim Planning scheme 2015* for excavation. To assess the suitability and safety of the soil for excavation at a typical depth for foundation excavation, and any human or environmental risks of the soil present on site.

1.4 Scope of Works

The scope of work for this ESA was to:

- Conduct a desktop and an invasive soil investigation at the site.
- Drill four soil bores and collect four primary samples; the primary samples were sent for analysis of total recoverable hydrocarbons (TRH) Benzene Toluene Ethylbenzene Xylene Naphthalene (BTEXN), Polynuclear Aromatic Hydrocarbons (PAH), and a suit of fifteen (15) metals to a National Association of Testing Authorities (NATA) accredited laboratory.
- Samples were sent with quality assurance/ quality control (QA/QC) samples including a single rinsate blank, a duplicate sample and a trip blank.
- Determine the absence or presence and if present the level of site contamination and compare soil results against the relevant guidelines.
- Conduct a risk assessment, known as a Conceptual Site Model; and
- Report findings in an Environmental Site Assessment report, detailing specific onsite human health or environmental risk which may source from potentially detected contamination.

1.5 Site Details

Site details are presented in Table 1.

Table 1 Site Details

SITE LOCATION: 106 Cascade Road and 136 Wellesley Street, South Hobart, Tasmania.
INVESTIGATION AREA Area along the southern and eastern borders of 112 Cascade Road, as illustrated in Figure 2.
SITE ELEVATION & GRADIENT Approximately 95-100 m AHD
SITE SURFACING The site is vacant of buildings, it is generally grassed with some car parking to the east.
TITLE REFERENCES 106 Cascade Road: CT 40488/1; PID 5567823 136 Wellesely Street: CT 94118/1; PID 5598152
SITE OWNER Hobart City Council
PREVIOUS LANDUSE 136 Wellesley Street was the site of a waste disposal area prior to McRobies Gully Waste Management Centre opening in 1967. The waste disposal (tip) area was upslope of the investigation area.
SITE SURROUNDING LAND ZONING *Tasmanian Interim Planning Scheme 2015 – Recreation, surrounded by General Residential.*
SITE LAND USE *Recreation*
PROPOSED LAND USE Residential – Portable affordable housing.

2 PLANNING

2.1.1 Acceptable Solutions

As the history of the site suggests that potentially contaminating activities may have taken place on the site (former use of a waste disposal area), for any future potential ***excavation*** at the site, there are no acceptable solutions to proposed works, and therefore E2.6.2 P1 performance criteria are to be addressed.

2.1.2 Excavation Works E2.6.2 P1

As there is proposed excavation works at the site, there are no acceptable solutions to proposed works, E2.6.2 P1 performance criteria are to be addressed. The performance criteria identify that the excavation works must not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human health and the environment that includes:

  i. an environmental site assessment;

  ii. any specific remediation and protection measures required to be implemented before excavation commences; and

  iii. a statement that the excavation does not adversely impact on human health or the environment.

2.1.3 Statement of Suitability

A statement based on the results of the Environmental Site Assessment that the excavation as part of the planned works will not adversely impact on human health or the environment is to be provided (subject to implementation of any identified remediation and/or protection measures as required).

3 DESKTOP STUDY

3.1 Site Zoning

The site is zoned Recreation under the Hobart Councils Interim Planning Scheme of 2015. The land use surrounding the site is General Residential, and the Cascade Road is zoned Utilities (Figure 3). The proposed use of the site is Portable affordable housing, and site is therefore to be assessed against land use Class A.

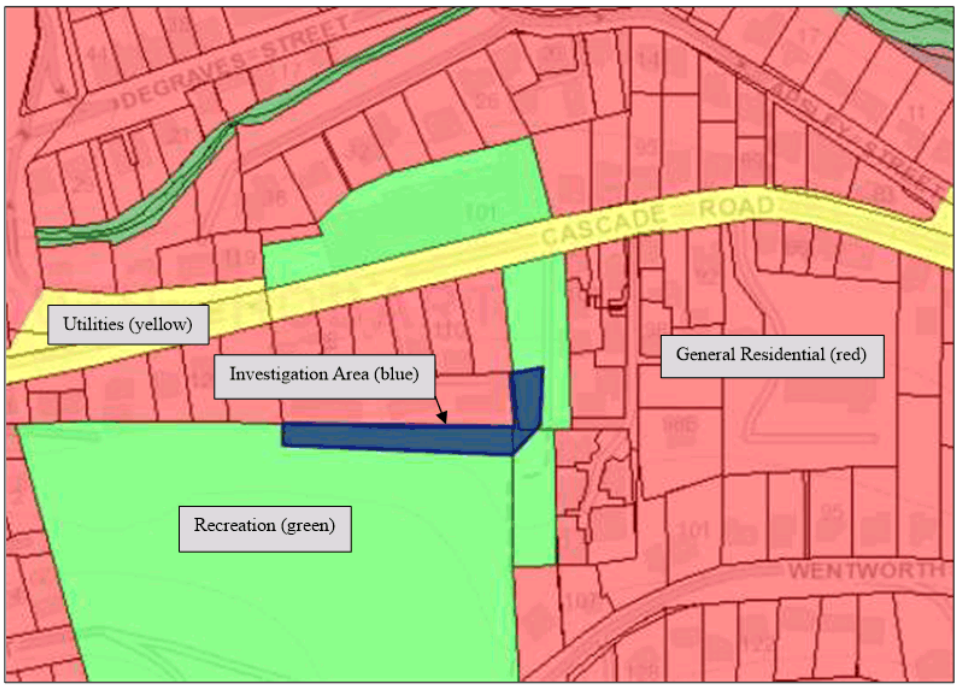


Figure 3 Hobart Councils Interim Planning Scheme Zones (2015)

3.2 Site Walkover

A site walkover was completed by GES staff on the 4th October 2019. There were no observed odour, staining, or any other signs of contamination or contaminating activities.

3.3 MRT Geology Mapping

The 1:25,000 scale geology map of the Greater Hobart area (see excerpt in Figure 4) indicates that the site is underlain by Triassic sediments, with man-made quaternary deposits upslope (former tip). The mapping units used in Figure 4 are;

Rqph – Late Carboniferous to Triassic sediments - Freshwater predominantly cross-bedded quartzose to feldspathic sandstone commonly with overturned cross-bedding, subordinate siltstone with sparse plant and vertebrate fossils (Knocklofty Formation)

Qhmm – Undifferentiated Quaternary sediments – Man-made deposits

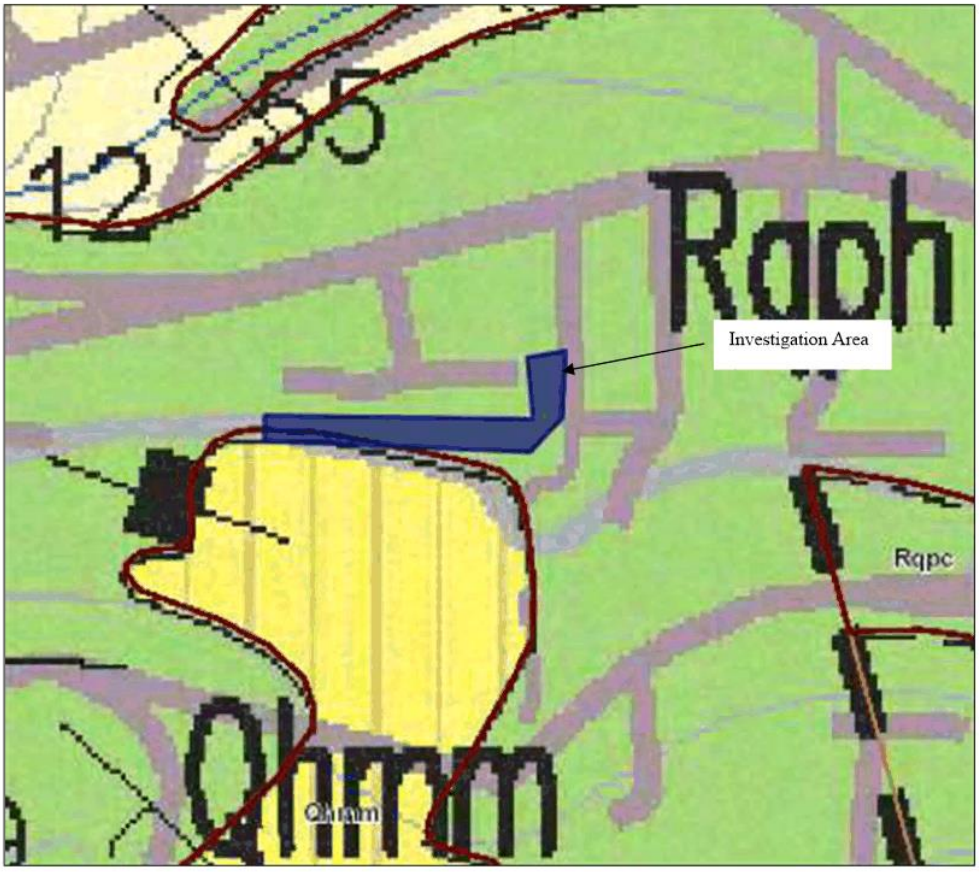


Figure 4 Mineral Resources Tasmania 1:25.000 Scale Mapping.

3.4 Historical Aerial Photography Interpretation

The 2019, 2017, 2003, 1981, 1969, 1958, and 1946 historical aerial photographs were viewed as part of this ESA. The photographs are presented in Appendix 2.

In summary the following observations can be made from the photographs: The investigation area during 1946, 1958 and 1969 does not appear to have a waste disposal (rubbish tip) area operating. The waste disposal area is likely to have been further upslope on 136 Wellesley Street. The batter/bund downslope of the waste disposal area, creating the large bank is visible in the 1969 photograph, and not prior. Prior to 1969 the area appears to have a sparse cover of small and medium trees. There is negligible change to the site since the 1969 photograph. In 2017 the demolition and construction of new units at 112 Cascade Road is visible.

Refer to individual images in Appendix 2.

3.5 Previous Site Investigations

GES conducted site investigations at 112 Cascade Road in June/July 2016. GES produced a Geotechnical Site Investigation Report, and a Limited Scope Soil Contamination Assessment (LSSCA). The LSSCA found no hydrocarbon or heavy metal contaminants present at 112 Cascade Road.

3.6 Site Topography, Drainage & Hydrogeology

The investigation area has a moderate fall to the North at around 10%, with a steeper bank upslope of around 50%. On average the site elevation is 90-100m AHD. The groundwater from the site is expected to follow the surface topography and drain towards the north towards the Hobart Rivulet 150-250m away.

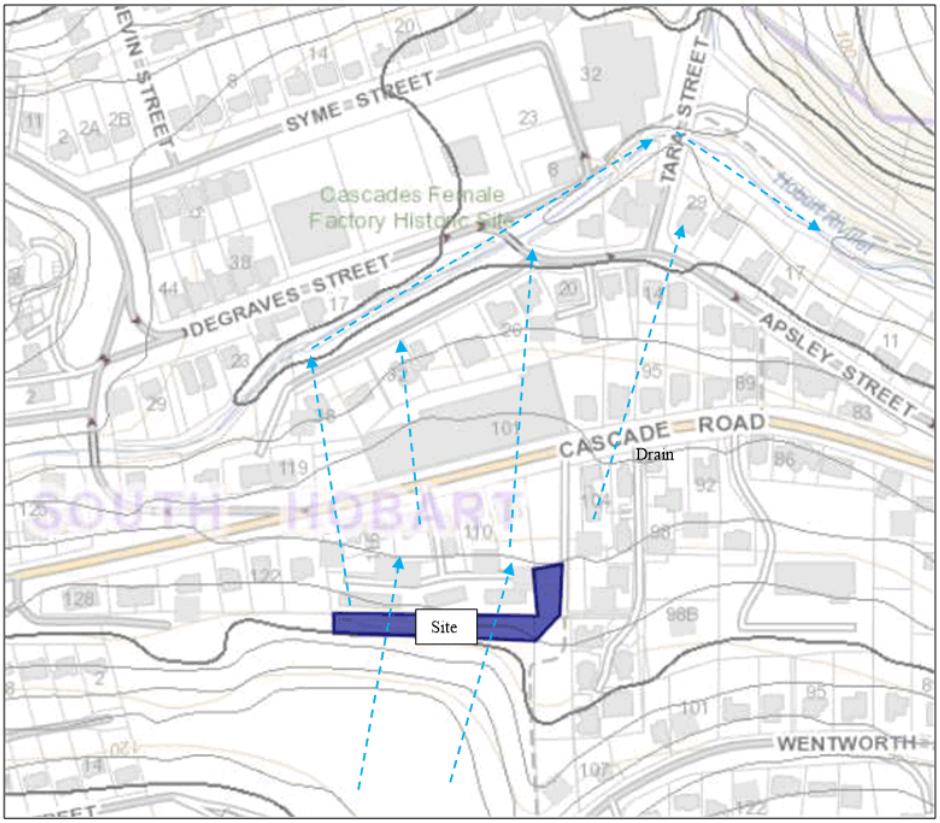


Figure 5 Contour Elevations and Inferred Surface and Groundwater Flow Direction

3.7 Groundwater

3.7.1 Potential Up-Gradient Contamination Sources

The former waste disposal site at 136 Wellesley Street, which closed between 1967 and 1969 is an upgradient contamination source.

3.7.2 Downgradient Ecosystem Receptors

The closest downgradient ecosystem receptor is Hobart Rivulet which is 150m to the NNW and 250m to the NNE.

3.8 Potential Contamination Issues

3.8.1 Areas of Potential Concern

The following areas of potential concern have been identified onsite as per Figure 6

- The entire site due to the possibility of upslope contaminant from the former waste disposal area leaching downslope to the site.

3.8.2 Contaminants of Potential Concern

Potential contaminants of potential concern (COPC) that have been considered include the following:

Petroleum Hydrocarbons:

- Total Petroleum/Recoverable Hydrocarbons (TPH/TRH);
- Mono Aromatic hydrocarbons: Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene (BTEXN);
- Polynuclear Aromatic Hydrocarbons (PAHs);

plus

- A suite of 15 Heavy Metals.

4 FIELD INVESTIGATION PROCEDURES

4.1 Works Summary

Site investigation works comprised of soil bore drilling which is summarised in Table 2 and Figure 6.

Table 2 Summary of Site Investigation Work Dates

Scope	Data	Lab Report	Details
Drilling/ Sample collection	4th October 2019	EM1916681 Primary Lab	4 Primary Samples were collected from 4 soil bore locations.

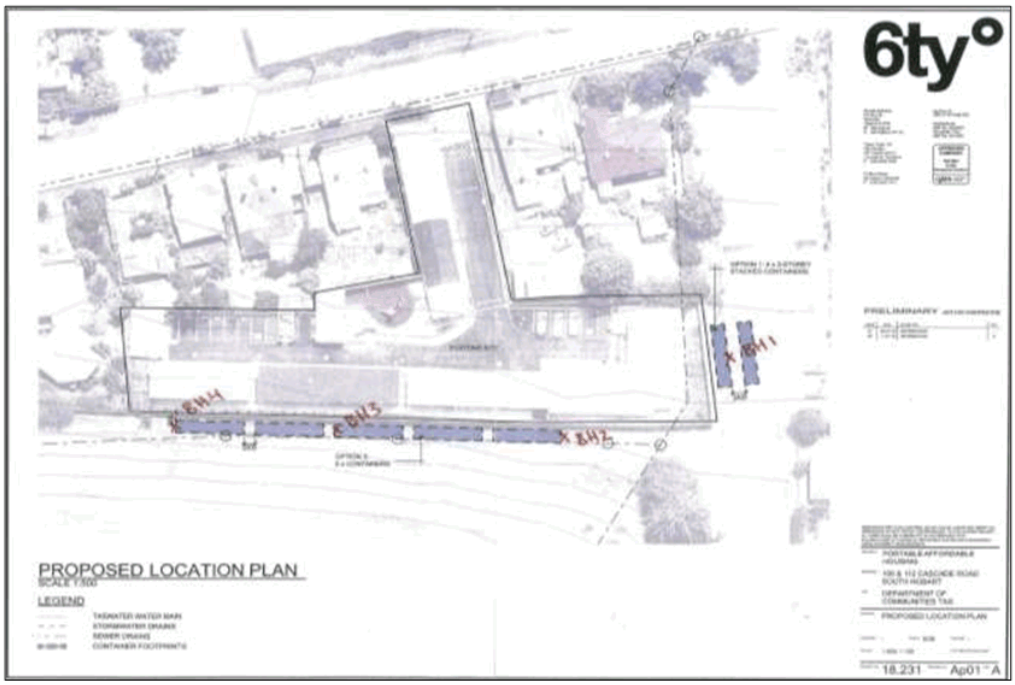


Figure 6 Borehole Plan

4.2 Soil Investigation

4.2.1 Borehole Drilling

A total of four 65 mm diameter soil bores were excavated for assessing site geology and sampling for contamination impact by a hand auger.

Soil sampling was conducted per the National Environmental Protection Measure (NEPM ASC 2013) and AS4482 sampling guidelines. Table 3 presents a summary of the soil assessment methodology adopted at the site.

Table 3 Summary of Soil Sampling Methods

Activity	Details / Comments
Drilling Method	Soil bores were drilled: • Hand auger
Soil Logging	Logging the soil was conducted in accordance with the unified soil classification system (USCS) as detailed in AS1726 (1993).
Decontamination of Sampling Equipment	Quantum Clean Laboratory Detergent (R213) was used to decontaminate reusable sampling equipment (hand auger) between each borehole sampling event. Fresh liners were used in the Geoprobe direct push sampling system.
Soil Screening	In accordance with AS4482.2. Individual soil samples were collected from the core tray at 0.5 intervals below ground surface (bgs) and/or change in geology. Collected samples were screened for volatile fractions using a photoionisation Detector (PID). This was done by placing the samples within snap lock bags and analysing the headspace with a PID probe. See appendix 3 for equipment calibration record.
Laboratory Soil Sample Collection	In accordance with AS4482.2. All samples were collected using disposable nitrile gloves. Samples were selected for laboratory analysis: • at 0.25-0.35m below ground surface.
Sample preservation	Samples were placed into a jar for laboratory analysis. Soil jars were placed in a pre-chilled cool box with ice bricks.
Sample holding times	Sample holding times were within acceptable range (based on NEPM ASC B3-2013) from collection to extraction.

4.2.2 Soil Analysis

Primary and QC samples were submitted to Analytical Laboratory Services (ALS), Springvale, Melbourne for analysis. All 4 samples were selected for analysis. Chain of Custody (COC) documentation was completed and is provided in Appendix 4 along with the Sample Receipt Notification (SRN). Table 4 presents a summary of the laboratory analyses undertaken.

Table 4 Overview of Soil Analysis and Quality Control

Analytes	Primary Samples	Duplicate[a]	Trip Blank[b]	Rinse Blank[c]
TPH	4	1	1	1
BTEX	4	1	1	1
PAH	4	1	1	1
Suite 15 Metals	4	1	1	1

Sampling Quality Control Standards (AS4482):
a – Duplicate one (1) in twenty (20) primary samples
b – Singe trip blank per eski where hydrocarbons are anticiptated
c- Single rinse sample per piece of equipment per day

Given metals were analysed, there was requirement to assess the following soil physical properties to determine soil threshold investigation levels: Soil grain class (sand/silt or clay); % Clay content; Cation exchange capacity (CEC); and Soil pH. The soil physical properties were based on knowledge of similar soil types encountered around the greater Hobart area.

5 QUALITY CONTROL

All Field and laboratory Quality Assurance and Quality Control (QA/QC) details and outputs are presented in Appendix 5.

5.1 Field

It is standard to expect up to 10% error in field duplication and up to 10% laboratory error. Therefore, in theory up to 20% error can be assumed on duplicate analysis. Some variation may exist in soil and groundwater because even though all efforts are made to split samples homogeneously, fragments of materials may bias samples in certain elements.

Relative Percentage Differences (RPDs) for the duplicate and triplicate samples where applicable are calculated using the method outlined below.

The acceptance criteria used for the RPDs depend on the levels of contaminants detected and the laboratory's Method Detection Limits. The closer the levels detected are to the MDL the greater the acceptable RPD. RPDs are calculated as follows:

- RPD <50% for low level results (<20 * MDL)
- RPD <30% for medium level results (20-100 * MDL)
- RPD <15% for high level results (>100 * MDL)
- No limit applies at <2 * MDL (Method Detection Limit)

Field QA/QC procedures and compliance are summarised in Table 5

Table 5 Soil Field QA/QC procedures and Compliance

QA/QC Requirement	Compliance	Comments
Appropriate sampling strategy used and representative samples collected	Yes	Sampling program was undertaken in accordance with AS4482.1-2005
Appropriate and well documented sample collection, handling, logging and transportation procedures.	Yes	Appropriate and well documented
Decontamination	Yes	Appropriate decontamination such as cleaning tools before sampling and between sample locations was undertaken
Chain-of-custody documentation completed	Yes	COC were completed in accordance with NEPM ASC Schedule B2, Section 5.4.5 and transported under strict COC procedures. The signed COC documents are included in this report, which includes the condition report on arrival of samples to the Laboratory, cross checking of sample identification and paperwork and preservation method.
Required number of splits: Duplicate & inter-lab splits: 1 per 20 primary samples	Yes/no	1 duplicate sample was collected and tested, for 4 primary samples as per AS4482.1-2005. No interlaboratory split sample was collected.
QA/QC samples reported RPD's within indicated MDL guidelines.	Yes	For Duplicate and BH2/0.25-0.35 pairs, there were no non-compliances.
Required numbers of rinse blank samples collected with no laboratory detections?	Yes	One rinse blank was collected as per AS4482.1-2005.
Trip blanks collected with no laboratory detections?	Yes	One trip blank was collected and tested. According to AS4482.2-1999, soil trip blanks are required where volatile hydrocarbons are discernible. Non were detected.
Field blanks collected with no laboratory detections?	NA	According to Australian Standards, there is no requirement to collect field blanks, unless there is concern with cross contamination risks.
Samples delivered to the laboratory within sample holding times and with correct preservative	Yes	All samples were sent to the laboratory within holding times and correct preservative.

5.2 Laboratory

Soil laboratory QA/QC procedures and compliance are summarised in Table 6.

Table 6 Soil Laboratory QA/QC Procedures and Compliance

QA/QC Requirement	Compliance	Comments
All analyses NATA accredited	Yes	ALS Laboratories is NATA Accredited. Appropriate analytical methods used, in accordance with Schedule B(3) of the NEPM ASC 2013. Acceptable laboratory limits of reporting (LORs) adopted.
Method Blanks: zero to <Practical Quantitation Limit (PQL)	Yes	There were no method blank value outliers in the QC1 report.
Laboratory Control Samples: 70% to 130% recovery for soil.	Yes	There were no laboratory control outliers in the QC1 report.
Matrix spikes: 70% to 130% recovery for organics or 80%-120% recovery for inorganics	No	MS recovery not determined, background level greater than or equal to 4x spike level for Manganese for sample EM1916581–012.
Duplicate Samples: 0% to <20% RPD.	No	RPD exceeds LOR based limits for Total Petroleum Hydrocarbons and Total Recoverable Hydrocarbons for sample EM1916704-001.
Surrogates: 70% to 130% recovery	Yes	There were no surrogate recovery outliers in the QCI report.
Analysis holding time outliers	Yes	No hold-time outliers exist in the QCI report.
Quality Control Sample Frequency Outliers	No	EM1916681: Rinsate water sample – laboratory duplicates and matrix spikes for PAH/Phenols and TRH semivolatile fraction, did not meet NEPM ASC 2013 B3 or ALS QC Standard.

6 FIELD INVESTIGATION FINDINGS

6.1 Soil Bores

6.1.1 Geological Interpretation

The geology of the site is likely to be Triassic sandstone (knocklofty formation), our bore holes did not yield refusal on bedrock in the 0.6m excavated. The Geotechnical assessment 112 Cascade Road found refusal on Triassic sandstone around 2.0m depth.

6.1.2 Grain & Depth Class Interpretation

Grain size classifications are applied to all soils at the site to determine threshold screening level concentrations for hydrocarbons (and chromium) to assess soil ecological and human health risks.

Grain class threshold values are determined based on either the:

- sample grain size (in the case of ecological screening levels or chromium limits); or
- average grain class overlying the sample point (when assessing petroleum vapour screening levels) relative to the proposed finished floor level.

Table 7 provides a summary of the grain class averages for material overlying the sample.

Table 7 Summary of Grain Class Based on USCS Classification

Sample	Footing Excavation Depth^ - Red Fill Thickness^ - Green	Sample PVI Depth (m) Relative to Slab/Cut Depth	Soil Grain Size Class Averaging Above Soil Sample																	Attenuation			Petroleum Vapour Intrusion HSL Grain Class*	SAMPLE USCS
			GW	GP	GM	GC	SW	SP	SM	SC	ML	CL	OL	MH	CH	OH	CI	Rock (R)	Existing Pavement (P)	Crawl Space Thickness (m)	Proposed CONCRETE (CH)	Crawl Space	Biodegradation	
BH1/0.25-0.35	0.5	0.4															0.3			NA	0.1	1.0	1.0	CLAY	CI
BH2/0.25-0.35	0.5	0.4															0.3			NA	0.1	1.0	1.0	CLAY	CI
BH3/0.25-0.35	0.5	0.4															0.3			NA	0.1	1.0	1.0	CLAY	CI
BH4/0.25-0.35	0.5	0.4															0.3			NA	0.1	1.0	1.0	CLAY	CI

Footnotes:
* Grain class is modified based on proposed building construction: concrete is interpreted to have similar vapour intrusion properties to clay and is therefore designated as CLAY within the grain size averaging assessment; backfill is inferred to comprise of gravel (GW)
< Sample has been collected from above the proposed excavation (base of slab or proposed ground level) and is not relevant in PVI risk assessment
^ Excavation depths are approximate and may vary due to change in services depths or overall building/footing construction design

6.1.3 Soil Contamination Observations

No staining or odour consistent with hydrocarbon contamination were observed during the site visit.

7 SOIL ECOLOGICAL IMPACT ASSESSMENT

7.1 Protected Environmental Values

The requirement for protecting soil from contaminated activities in Tasmania is managed under the Environmental Management and Pollution Control Act 1994 (EMPCA) which states in Part 5A:

(2) An area of land is a contaminated site if –

(a) there is in, on or under that area of land a pollutant in a concentration that –

(i) is above the background concentration; and

(ii) is causing or is likely to be causing serious or material environmental harm or environmental nuisance, or is likely to cause serious or material environmental harm or environmental nuisance in the future if not appropriately managed;

Potential soil impact at the site is assessed through application of the following environmental investigation guidelines.

7.2 NEPM ASC (2013) Guidelines

The following ecological investigation guidelines are to be addressed in order to assess acceptable levels of risk to terrestrial ecosystems:

- NEPM ASC (2013) Ecological Investigation Levels (EIL's) – have been developed for selected metal and organic substances. EIL's depend on specific soil and physicochemical properties and land use scenarios and generally apply to the top two (2) metres of the soil profile (NEPM ASC 2013);
- NEPM ASC (2013) Ecological Screening Levels (ESL's) – have been developed for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon fractions. ESL's broadly apply to coarse- and fine-grained soils and various land use scenarios within the top two (2) metres of the soil profile (NEPM ASC 2013).

Soil analytical results are compared against Ecological Screening Levels (ESL's) and EIL's limits presented in Table 8.

Table 8 Summary of Soil Contaminates Considered as part of this investigation, based on NEPM (2013) ASC

Investigation Levels (IL)	Analytes Investigated						
	Hydrocarbons				Metals		DDT
	BTEX	TRH (F1 to F4)	Benzo(a) pyrene (PAH)	Naphthalene (PAH)	Zn, Cu, Cr(III), Ni & As	Lead	
ESL's	Analysed	Analysed	Analysed				
EIL's				Analysed	Analysed	Analysed	Not Analysed

7.3 Guidelines

7.3.1 Ecological Screening Levels

The following compounds were compared against NEPM ASC (2013) Ecological Screening Levels (ESL's):

- BTEX;
- F1 to F4 TRH; and
- Benzo(a)pyrene (PAH)

Selection of ESL threshold investigation limits are set out in the NEPM ASC (2013) guidelines and require classification of the soil according to:

- Land use sensitivity:
    - Areas of ecological significance
    - Urban residential and public open space; and
    - Commercial and industrial.

- Dominant particle size passing through a 2 mm sieve into:
    - Coarse – sand sizes and greater; and
    - Fine – clay and silt sizes.

Adopted NEPM ASC (2013) soil and land use classifications are presented below.

7.3.2 Ecological Investigation Levels

The following compounds were compared against Environmental Investigation Levels:

- Lead;
- Nickel;
- Chromium;
- Zinc;
- Copper;
- Arsenic; and
- Naphthalene.

There was a requirement to classify the soil according to physicochemical properties given that the above listed compounds. Adopted physicochemical parameters are presented in the results tables.

Selection of EIL threshold investigation limits are set out in the NEPM ASC (2013) guidelines and require classification of the soil per specific soil and physicochemical properties which are presented in the results tables. The adopted land use scenarios presented in Table 9.

Table 9 Adopted Land Use Scenario for the Soil Bores

Land Use Scenario	Applicable Soil Bores
Areas of Ecological Significance	
Urban Residential & Public Open Space	*All soil bores*
Commercial & Industrial	

Based on a preliminary assessment of site soil conditions, the following physicochemical properties are applied to assess guideline EIL's:

- Clay content consistent with field observations;
- A soil pH and cation exchange capacity (CEC) consistent with Table 10.

Table 10 Cation Exchange and Clay content, Adopted For the Site

Soil Physicochemical Properties Adopted for The Site			
USCS	Clay %	CEC	pH
R	100	10	6.0
GW	0	10	6.0
GP	0	10	6.0
GM	10	15	6.0
GC	30	20	6.0
SW	0	10	6.0
SP	0	10	6.0
SM	10	15	6.0
SC	20	20	6.0
ML	30	20	6.0
CL	100	35	6.0
OL	50	35	6.0
MH	30	35	6.0
CH	100	45	6.0
OH	100	60	6.0
PT	100	80	6.0
P	0	0	6.0
CL	100	35	6.0
CI	100	35	6.0

7.4 Findings

7.4.1 Ecological Screening Levels

Laboratory analytical results are presented in Appendix 6. Table 11 compares soil analytical results against relevant NEPM ASC (2013) ESL's. Concentrations which exceeded laboratory limit of reporting (LOR) would be highlighted in bold, ESL exceedances would highlighted with a coloured cell, and samples within the proposed excavation zone for footing excavations are marked with an X.

No hydrocarbons were detected, and no hydrocarbons are at levels above ESL guideline limits.

Table 11 Summary of Soil Analytical Results Compared with ESL's for commercial/ industrial land use.

NEPM Ecological Screening Levels for Soil				BTEX				PAH	TRH			
Bold - Indicates LOR Exceedances X - Indicates Sample has been Excavated Colour Shading - Indicates ESL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x				Benzene	Toluene	Ethylbenzene	Xylenes	Benzo(a)pyrene	F1 (C6 - C10)	F2 (>C10 - C16)	F3 (>C16 - C34)	F4 (>C34 - C40)
Sample ID	Sample Date	Soil Texture Class (fine /coarse)	Land Use	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 0.5	LOR 10	LOR 50	LOR 100	LOR 100
BH1/0.25-0.35 X	4/10/19	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH2/0.25-0.35 X	4/10/19	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH3/0.25-0.35 X	4/10/19	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH4/0.25-0.35 X	4/10/19	F	URBAN	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100

7.4.2 Ecological Investigation Levels

Table 12 compares soil analytical results against relevant EIL's. Concentrations which exceeded laboratory LOR are reported in the table, EIL exceedances would be highlighted with a coloured cell, and samples within the proposed excavation zone for footing excavations are marked with an X. There were no exceedances above the EILs guideline limits.

Table 12 Soil Analytical Results Compared Against Ecological Investigation Levels

NEPM Ecological Investigation Levels for Soil													
Bold - Indicates LOR Exceedances X - Indicates Sample Withiin Inferred Excavation													
Colour Shading - Indicates ESL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x													
Sample ID	Sample Date	EIL Land Use Sensitivity Class	Soil CEC (cmolc/kg)	Soil pH	Soil Texture Class (fine /coarse)	Copper (CEC)	Copper (pH)	Nickel	Zinc	Chromium III	Lead	Arsenic	Naphthalene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1/0.25-0.35 X	4/10/19	URBAN	35	6 (3)	F	41	41	6	100	4	46	<5	<1
BH2/0.25-0.35 X	4/10/19	URBAN	35	6 (3)	F	27	27	11	28	8	16	<5	<1
BH3/0.25-0.35 X	4/10/19	URBAN	35	6 (3)	F	<5	<5	<2	15	4	9	<5	<1
BH4/0.25-0.35 X	4/10/19	URBAN	35	6 (3)	F	<5	<5	4	10	21	22	<5	<1

pH Designation:
(1) Using 0.01M CaCl2 extract. Rayment, G.E. and Lyons, D.J. (2011). "Soil Chemical Methods – Australasia". 495+20 pp. CSIRO Publishing, Melbourne.
(2) pHF (1:5). Adjusted by subtracting 0.75 with +/- 0.25 error to calibrate to the CaCl2 method (per comm. ALS Brisbane Acid Sulphate Soils Laboartory). Methods in accordance with Ahern, C.R., Stone Y., and Blunden B. (1998b). 'Acid Sulfate Soils Assessment Guidelines'. Acid Sulfate Soils Management Advisory Committee, Wollongbar, NSW, Australia.
(3) Classified in accordance with parent material typical soil pH as per the Tasmanian soils database

8 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT

8.1 Guidelines

Guidelines presented herein are based on potential exposure of human receptors to soil impact which may include:

- Trench workers repairing or building services (typically to 1 m bgs). This classification is not dependent on the land use class, and
- Onsite inhabitants which may be exposed to potential shallow soil impact in non-paved areas of the site.

8.1.1 Land Use Classification

The NEPM ASC (2013) guidelines have been referenced to ensure that the correct land use and density category has been adopted for the site and the surrounding properties (where applicable). As per NEPM ASC 2013 guidelines, the adopted land use class is dependent on the building density and the opportunity for soil access by site occupants (exposure to potentially impacted soil). Aspects needing to be considered include:

- Whether the site is of sensitive land use such as a childcare centre, preschool, primary school or aged care facility in which case land use Class A is applicable;
- The percentage of paved area to determine direct contact exposure risk and therefore classification as low or high density; and
- Classification based on residential, recreational or commercial/industrial setting.

8.1.2 Adopted Land Use Classification

The adopted land use class is presented in Table 13. Land use class is based on the opportunity for soil access as per NEPM ASC 2013 guidelines. Soil access is anticipated to include workers involved with residential property construction plus future residence and future trenchworks on site.

Table 13 Summary of Land Use Setting and Density for Determining Exposure Risk

Soil Bores	Construction Phase	Location	Land Use	Pathway	Land Use Class
All soil	During	Site	Construction worker and trench workers	ALL	D and trench worker specific
		Offsite	Residential land users	ALL	A
	Post	Site	Future trench workers	ALL	D and trench worker specific
			Future residence	ALL	A

DC – Dermal Contact - Trench Worker Guidelines (CRC CARE 2013)
DI – Dust Inhalation - HIL Guidelines (NEPM ASC 2013)
SI – Soil Ingestion - HIL Guidelines (NEPM ASC 2013)
ALL – All of above

8.1.3 Health Investigation & Screening Levels

The main exposure pathways and methods for assessing heath risk from contaminated soils are presented in Table 14.

Table 14 Summary of Exposure Pathways and Preliminary (Tier 1) Methods for Assessing Human Exposure Risk

Exposure Scenario	Contaminant Type	Tier 1 Assessment Method	Reference
Vapour Inhalation – Indoor (PVI)	Petroleum Hydrocarbons	HSL's (addressed in PVI sections)	NEPM ASC (2013)
Vapour Inhalation – Trench (PVI)			CRC CARE (Friebel & Nadebaum, 2011)
Dermal Contact		HSL's	
Dust Inhalation	Metals PAH's	Health Investigation Levels (HIL's)	NEPM ASC (2013)
Soil Ingestion			

PVI – Petroleum Vapour Intrusion

8.2 Findings

8.2.1 Dermal Contact - Petroleum Hydrocarbons

Laboratory analytical results are presented in Appendix 6. Table 15 presents soil hydrocarbon analytical results compared against CRC CARE (Friebel & Nadebaum, 2011) HSL guidelines for assessing dermal contact risk. Concentrations which exceeded laboratory LOR would be highlighted in bold, HSL exceedances would be highlighted with a coloured cell indicating the highest HSL land used class which is exceeded, and samples within the proposed excavation zone for footing excavations are marked with an X.

There were no detections of hydrocarbons. There were no guideline exceedances for dermal contact and no dermal contact risk identified.

Table 15 Soil Analytical Results Compared Against CRC CARE (Friebel & Nadebaum, 2011) Guidelines for Dermal Contact

CRC CARE Health Screening Level Dermal Contact Hazard from Soil Hydrocarbons'		EP080: BTEXN					EP080/071: TRH			
		Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.2	0.5	0.5	0.5	1	10	50	100	100
HSL A Low Density Residential		100	14000	4500	12000	1400	4400	3300	4500	6300
HSL C Recreational		120	18000	5300	15000	1900	5100	3800	5300	7400
HSL D Commercial/Industrial		430	99000	27000	81000	11000	26000	20000	27000	38000
Intrusive Maintenance Worker		1100	120000	85000	130000	29000	82000	62000	85000	120000
Date	Sample									
4/10/2019	BH1/0.25-0.35 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
4/10/2019	BH2/0.25-0.35 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
4/10/2019	BH3/0.25-0.35 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
4/10/2019	BH4/0.25-0.35 X	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100

8.2.2 Dust Inhalation & Soil Ingestion

Laboratory analytical results are presented in Appendix 6. Soil analytical results are compared against combined dust inhalation and soil ingestion risk is assessed through the application of NEPM ASC (2013) Health Investigation Levels (HILs) for exposure to soil contaminants are presented in Table 16.

Concentrations which exceeded laboratory LOR are highlight in bold (except for the metals), and HIL exceedances would be highlighted with a coloured cell indicating the highest HIL land used class which is exceeded and samples within the proposed excavation zone for footing excavations are marked with an X. There were no guideline exceedances for dust inhalation and soil ingestion and therefore no risk identified.

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Table 16 Soil Analytical Results Compared Against NEPM ASC (2013) Health Investigation Levels Guidelines

Bold - Indicates LOR Exceedance in Non Metalic Compounds		EA055: Moisture Content	EG005T: Total Metals by ICP-AES														EG035T: Total Recoverable Mercury by FIMS	EP075(SIM)B: Polynuclear Aromatic Hydrocarbons																	
NEPM Health Investigation Levels (HIL's) Dust Inhalation and Soil Ingestion Assessment X - Indicates Sample Within Proposed Excavation Zone		Moisture Content	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	PAHs	Benzo(a)pyrene TEQ (WHO)
Units		%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		1	5	10	1	50	1	2	2	5	5	5	2	5	5	5	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HIL A Low Density Residential	☑ HIL A		100		60	4500	20		100	6000	300	3800	400	200		7400	40																	300	3
HIL C Recreational	☑ HIL C		300		90	20000	90		300	17000	600	19000	1200	700		30000	80																	300	3
HIL D Commerial/Industrial	☑ HIL D		3000		500	300000	900		4000	240000	1500	60000	6000	10000		400000	730																	4000	40
Sample date:	Sample ID																																		
4/10/2019	BH1/0.25-0.35 X	8.5	<5	40	<1	<50	<1	4	7	41	46	227	6	<5	24	100	0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4/10/2019	BH2/0.25-0.35 X	15.2	<5	200	<1	<50	<1	8	10	27	16	56	11	<5	10	28	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5
4/10/2019	BH3/0.25-0.35 X	14.7	<5	270	<1	<50	<1	4	<2	<5	9	20	<2	<5	7	15	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4/10/2019	BH4/0.25-0.35 X	24.1	<5	70	<1	<50	<1	21	6	<5	22	36	4	<5	40	10	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

9 INDOOR INHABITANT PVI ASSESSMENT – HSL's

This PVI assessment has been conducted in accordance with relevant CRC CARE Technical Documentation and NEPM 2013 guidelines presented in references section of this report. The HSL assessment approach is generally the first (Tier 1) investigation phase adopted for assessing PVI risk at petroleum hydrocarbon (PHC) impacted sites. HSL guidelines have been applied for samples collected from the site to account for risks that may be associated with volatile hydrocarbon vapour intrusion into confined spaces where there may be an inhalation risk through longer term exposure. This does not constitute a full vapour risk assessment but provides additional information from which to further quantify any risk.

A detailed investigation (Tier 2 to 3) is recommended over an HSL assessment where an acute risk has been identified at the site (CRC CARE 2013) because of:

- Migrating product on surface soils beneath buildings;
- Strong PHC odours;
- Flammable risk in confined spaces; and/or
- Health complaints from occupants.

Based on the site visits, none of the above conditions have been identified at the site. If the outcome of this Tier 1 assessment reveals HSL exceedances for hydrocarbon vapour intrusion, a more detailed (Tier 2) assessment will be required to further evaluate the human health risk.

PVI risk is initially interpreted through the development of HSL threshold limits from the following classifications:

- The geology and or hydrogeology of the investigation point; and
- Land use sensitivity:

The resulting HSL threshold limits are compared with laboratory analytical results.

9.1 Selected Media for Assessing PVI Risk

Table 17 presents a summary of the preferred HSL approach to assessing PVI risk. In this case, all soil investigated was within the excavation zone and within the water table.

Table 17 Preferred Methods for Determining Site PVI Risk

Media Analysed	Method	Limitations	Order of Preference
Soil Gas	Concentrations of a soil gas through a soil vapor probe	This approach provides the most reliable data in interpreting PVI risk, although direct modelling should be applied if concentrations exceed HSL threshold limits.	Primary
Groundwater	Concentrations of PHC in groundwater through deployment of monitoring wells	More robust and reliable that soil in determining onsite and in particular, offsite risks. Determining PVI risk based on groundwater is inherently conservative when interpreting vapour risk to account for not readily discernible preferential pathways. Reference may be drawn to alternative assessment approaches: 1) Application of site-specific conditions to the CRC CARE model for assessing PVI risk 2) Soil gas interpretation for areas where a PVI risk is identified from groundwater analysis.	Secondary
Soil	Concentrations of PHC in soil	Concentrations in soil may be subject variability due to soil moisture, organic content and oxygen ingress all which create significant bias in threshold values. Reliance is place on utilizing groundwater analysis over soil. Soil results provide localised information.	Tertiary

9.2 Land Use Class

For surrounding properties, the potential PVI risk is characterized through application of CRC CARE HSL's for each individual property based on their existing land use (NEPM 2013; Friebel & Nadebaum 2010). The CRC CARE guidelines have been referenced to ensure that the correct land use and density category has been adopted for surrounding land use to ensure health risks are consistent with the HSL models. Aspects considered include the:

- Sensitivity of the existing or potential land use;
- Percentage of paved area for defining potential vapour migration risk;
- Type of basement garage which may influence the confinement of PHC vapors;
- Presence of a slab or cavity for discerning vapour intrusion risk.

If hydrocarbon impacted soil is discerned at the site, consideration is given to downgradient receptors. Where applicable, land use class therefore considers:

- Downgradient receptors where onsite HSL exceedances have been identified in soil; and
- Variations in land use for different parts of the proposed development.

The following land use classes are applied:

- *HSL A for low density residential and public open spaces*

9.3 Soil Assessment

Laboratory analytical results are presented in Appendix 6. Table 18 presents the results against a potential indoor vapour risk. Concentrations which exceeded laboratory LOR would be highlighted in bold. HSL exceedances would be highlighted with a coloured cell.

There were no detection of hydrocarbons, and consequently not indoor vapour risk.

Table 18 Soil Analytical Results Compared Against HSL A for Indoor Vapour Risk

Soil Hydrocarbon HSL's for Assessing Indoor Vapour Intrusion (NEPM 2013) Soil Sample Analysis					EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances					Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	F1	F2
Colour Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x											
Sample ID	Sample Date	Depth Class	Grain Class	HSL	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
					LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH1/0.25-0.35	4/10/2019	0 - 1	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH2/0.25-0.35	4/10/2019	0 - 1	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH3/0.25-0.35	4/10/2019	0 - 1	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH4/0.25-0.35	4/10/2019	0 - 1	CLAY	A	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

10 TRENCH WORKER PVI ASSESSMENT – HSL's

10.1 Classification

The following Health Screening Assessment is based on hydrocarbon vapour intrusion risk to subsurface excavation workers within excavations. This is assessed through analysis of vapours from soil and soil vapours. Groundwater is generally not used to assess risk as threshold limits for all depth and grain classes are non-limiting. Land use classes are not applicable when assessing vapour intrusion into trenches.

Soil and soil vapour HSL's for assessing hydrocarbon risk to maintenance workers are based on CRC CARE Technical Report 10 guidelines (Friebel & Nadebaum 2011) and the following variables:

- Dominant grain size class of material at the soil sample depth or based on the dominant grain class of the backfill material based on US Agriculture Soil Classification System (SCS) and partitioning into either sand, silt or clay; and
- Classifying soil according to depth ranges: 0 to 2 m; 2 to 4 m; 4 to 8 m; and greater than 8 m;

10.2 Findings

Laboratory analytical results are presented in Appendix 6. Summary of Soil Analytical Results Compared against HSL's for Assessing PVI Risk to Trench Workers are presented in Table 19. Concentrations that exceeded laboratory LOR would be highlighted in bold, and if there were any HSL exceedances they would be highlighted with a coloured cell. There were no exceedances of the CRC CARE HSL guidelines for Assessing PVI Risk to Trench Workers and no risk identified.

Table 19 Summary of Soil Analytical Results Compared against HSL's for Assessing PVI Risk to Trench Workers

CRC CARE Health Screening Level Assessment for PHC Inhalation Risk To Trench Workers From Soil Sample Analysis				EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances										
Dark Grey Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, * 20-50 x, **** >50 x**				Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction
Sample ID	Sample Date	Depth Class	Grain Class	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH1/0.25-0.35	4/10/2019	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH2/0.25-0.35	4/10/2019	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH3/0.25-0.35	4/10/2019	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH4/0.25-0.35	4/10/2019	0 to 2m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

11 SOIL DISPOSAL ASSESSSMENT

11.1 Guidelines

Soil which is excavated from the site for landfill disposal is to be assessed against Information Bulletin 105 (IB105) for Classification and Management of Contaminated Soil for Disposal. The EPA uses four categories to classify contaminated soil as per Table 20:

- (Level 1) Fill Material;
- (Level 2) Low Level Contaminated Soil;
- (Level 3) Contaminated Soil; and
- (Level 4) Contaminated Soil for Remediation.

Fixed numerical values are presented for soil concentrations and leachable fraction concentrations.

Table 20 Summary of IB105 Classification Guidelines

	Classification (with reference to Table 2)	Controlled Waste[1]	Comments
Fill Material[2] (Level 1)	Soil that exhibits levels of contaminants below the limits defined under *Fill Material* in Table 2.	Unlikely	Soil classified as *Fill Material* can still be a 'pollutant' under the *Environmental Management and Pollution Control Act 1994* and needs to be responsibly managed.
Low Level Contaminated Soil (Level 2)	Soil that exhibits levels of contaminants above the limits defined under *Fill Material* but below the limits defined under *Low Level Contaminated Soil* in Table 2.	Likely	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil (Level 3)	Soil that exhibits levels of contaminants above the limits defined under *Low Level Contaminated Soil* but below the limits defined under *Contaminated Soil* in Table 2.	Yes	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil for Remediation (Level 4)	Soil that exhibits levels of contaminants above the limits defined under *Contaminated Soil* in Table 2 (regardless of the maximum total concentrations) is generally ***not*** considered acceptable for off-site disposal without prior treatment.	Yes	Soil that contains contaminants that do not have criteria for leachable concentrations (*e.g.* petroleum hydrocarbons), and the levels of contaminants exceed the maximum total concentrations listed in *Contaminated Soil*, are generally classified as *Contaminated Soil for Remediation*.

[1] Controlled Waste is defined in the *Environmental Management and Pollution Control Act 1994*.
[2] Criteria for *Fill Material* are the limits set by the Director for the purposes of R.9(2)(a)(ii) in the *Regulations*.

11.2 Findings

The soil samples have been compared against IB105 guidelines for potential future soil disposal, see Table 21. All samples tested are considered Level 1 – CLEAN FILL

Table 21 Soil Analytical Results Compared Against IB105 Investigation Limits for soil Disposal

Information Bulletin 105 Classification and Management of Contaminated Soil For Disposal		Arsenic	Barium	Beryllium	Cadmium	Chromium Total	Copper	Cobalt	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Benzo(a)pyrene	C6 - C9 Fraction	C10 - C36 Fraction (sum)	Sum of polycyclic aromatic hydrocarbons	Benzene	Toluene	Ethylbenzene	Total Xylenes
Unit		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		5	10	1	1	2	5	2	5	5	0.1	2	5	5	0.5	10	50	0.5	0.2	0.5	0.5	0.5
Investigation Level Selected																						
IB105 Level 1		<20	<300	<2	<3	<50	<100	<100	<300	<500	<1	<60	<10	<200	<0.08	<65	<1000	<20	<1	<1	<3	<14
IB105 Level 2		20	300	2	3	50	100	100	300	500	1	60	10	200	0.08	65	1000	20	1	1	3	14
IB105 Level 3		200	3000	40	40	500	2000	200	1200	5000	30	600	50	14000	2	650	5000	40	5	100	100	180
IB105 Level 4		750	30000	400	400	5000	7500	1000	3000	25000	110	3000	200	50000	20	1000	10000	200	50	1000	1080	1800
4/10/2019	BH1/0.25-0.35	<5	40	<1	<1	4	41	7	46	227	0.1	6	<5	100	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
4/10/2019	BH2/0.25-0.35	<5	200	<1	<1	8	27	10	16	56	<0.1	11	<5	28	<0.5	<10	<50	1.2	<0.2	<0.5	<0.5	<0.5
4/10/2019	BH3/0.25-0.35	<5	270	<1	<1	4	<5	<2	9	20	<0.1	<2	<5	15	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5
4/10/2019	BH4/0.25-0.35	<5	70	<1	<1	21	<5	6	22	36	<0.1	4	<5	10	<0.5	<10	<50	<0.5	<0.2	<0.5	<0.5	<0.5

12 CONCEPTUAL SITE MODEL

12.1 Conceptual Site Model

The site has been a vacant/recreational area since at least 1946. A waste disposal site was previously situated directly upslope, which was decommissioned around the time that McRobies Gully waste facility opened, directly after the 1967 bushfires. Since 1969, or prior, a large batter/bank has been in place between the proposed development area and the former waste disposal site. The risk of contaminant in the investigation area, is from contaminants leaching from the former waste disposal site upslope.

Table 22 illustrates potential risks may be associated with potential site contamination. Potential pathways have been identified and ruled out in the Conceptual Site Model.

12.2 Potential Human Receptors

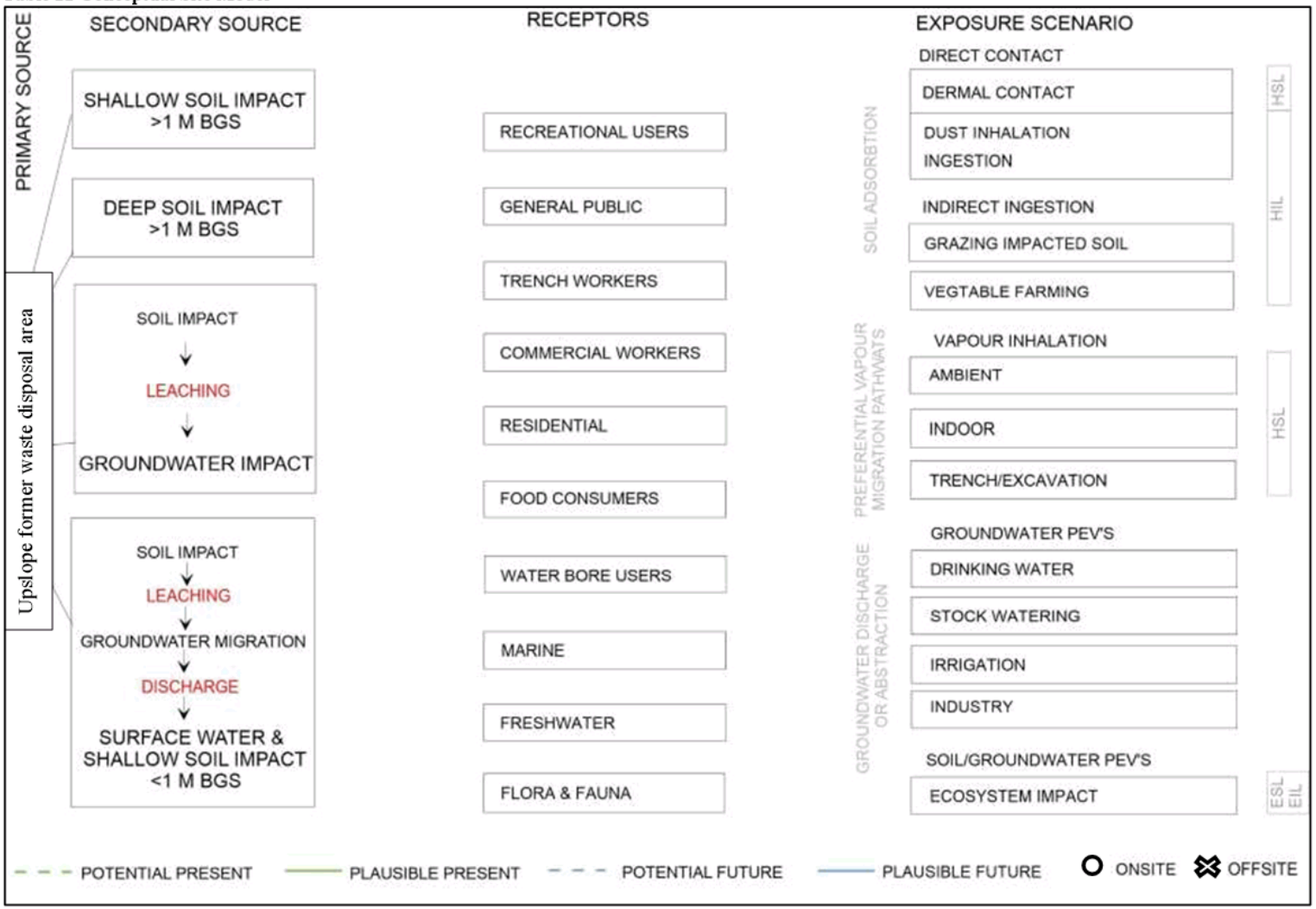
Potential human receptors considered during this investigation include onsite construction workers, future residential users, and both future and current recreational users.

12.3 Potential Ecological receptors

The closest ecological receptor is the Hobart Rivulet 150m to the NNW, and 250m to the NNE. There is a registered water bore approximately 600m to the west, upgradient of Hobart Rivulet. There are no registered water bores downgradient of the site.

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Table 22 Conceptual Site Model



13 CONCLUSIONS & RECOMMENDIATIONS

13.1 Desktop Assessment

The following information was gathered during the desktop investigation:

- The site is zoned *Recreation* under the *Hobart Council Interim Planning Scheme of 2015*. There is a proposal to place portable housing units (self-contained shipping containers) on the site.
- The geology of the site features Triassic sandstone, with man-made deposits upslope.
- The Hobart Council considers that the site may be a potentially contaminated site due to the proximity of the former waste disposal area directly upslope.
- Historical Aerial photographs since 1946 confirmed that the site has been vacant, with a large bank/batter installed prior to 1969 around the time that the refuse disposal site upslope was decommissioned.
- The former waste disposal area directly upslope is the only up-gradient contamination source that has been identified.
- Contaminants Of Potential Concern (COPC) at the site include the following: TPH/TRH; Mono Aromatic hydrocarbons: (BTEXN); PAH; Heavy Metals.

13.2 Adopted Guideline Settings

The following investigation limits were adopted for the site:

- Ecosystem receptor
  - Urban Residential & Public Open Spaces land use (River Derwent - offsite) ESL and EILs
- Human Receptor
  - HIL A/ HIL C/ HIL D for soil direct contact risk to Future land user soil direct contact risk – residential users may have access to soil / recreational users / Future construction workers
  - HIL A / HIL C/ HIL D for soil ingestion and dust inhalation risk to low density residential land users for future occupants of potential residential property / recreational users / Future construction workers soil direct contact risk
  - HSL A/ HSL C/ HSL D indoor vapour risk to residence/ recreational users and trench workers

13.3 Soil Assessment

From the soil assessment, it is concluded that:

- Environment: Hydrocarbons or heavy metals were not detected. The soil does not pose a risk to ecological receptors.
- Human Health: There were no human health guideline exceedances and therefore no risk human receptors for dermal contact, dust inhalation and soil ingestion risk or vapour intrusion.
- Indoor Vapour Risk There were no indoor vapour risk identified and therefore no risk to human receptors for vapour.
- Excavated Soil Management: In terms of *IB105* there were no material above Level 1 (Clean Fill) levels of contamination.

13.4 Conclusion Summary

GES recommends the following:

- There were no human health or environmental guideline exceedances, NEPM ASC 2013 or CRC CARE, for the soil on site. The soil as tested is considered Clean Fill.
- The presence of potential upslope contaminants were not found to be impacting the soil in the investigation area of the proposed development.
- The development of portable affordable housing (in the style of self-contained shipping container accommodation) will have minimal disturbance of soil.
- Excavations will not adversely impact on human health and/ or environmental health. The land is suitable for the intended use.
- No Contamination Management Plan will be required.

Yours faithfully,

Sarah Joyce BSc (Hons)
Environmental Geologist

REFERENCES

ANZECC, 2000. *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*. Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council.

AS/NZS 1726:1993. Geotechnical Site Investigations. Standards Australia, 1993.

AS 4482:2005 Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds, Standards Australia, 2005.

CRC CARE 2017b, Risk-based Management and Remediation guidance for benzo(a)pyrene. Technical Report no. 39, CRC for Contamination Assessment and Remediation of the Environment, Newcastle, Australia.

Davis, GB, Merrick, NP & McLaughlan, RG 2006, Protocols and techniques for characterising sites with subsurface petroleum hydrocarbons – a review, Technical Report no. 2, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Patterson, BM & Trefry, MG 2009a, Biodegradation of petroleum hydrocarbon vapours, Technical Report no. 12, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

EPA Tasmania, 2018. Information Bulletin (IB)105. *Classification and Management of Contaminated Soil for Disposal.* Version 3. Environmental Protection Authority Tasmania.

Friebel, E & Nadebaum, 2011a, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document', CRC for Contamination Assessment and Remediation of the Environment, CRC CARE Technical Report no. 10, Adelaide.

Friebel, E & Nadebaum, 2011b, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 2: Application document', CRC for Contamination Assessment and Remediation of the Environment, CRC CARE Technical Report no. 10, Adelaide.

LIST (2019). Land Information System Tasmania Online Database. Department of Primary Industries, Parks, Water and Environment. 2019. https://www.thelist.tas.gov.au/app/content/home

NEPC, 1999. Guideline on Data Collection, Sample Design and Reporting Schedule B (2), National Environmental Protection Measure (Assessment of Site Contamination), National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)

NEPM, 1999.Guideline on Investigation Levels for Soil and Groundwater, Schedule B (1), National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1).

Rayment, G. E. & Lyons, D. J. 2011. Soil Chemical Methods Australasia. CSIRO Publishing.

LIMITATIONS STATEMENT

This *Environmental Site Assessment* Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and 6ty Architecture Surveying Engineering ('the Client'). To the best of GES's knowledge, the information presented herein represents the Client's requirements at the time of printing of the Report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that described in this Report. In preparing this Report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this Report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible soil and groundwater contaminant over the whole area of the site. Samples collected from the investigation area are assumed to be representative of the areas from where they were collected and indicative of the contamination status of the site at that point in time. The conclusions described within this report are based on these samples, the results of their analysis and an assessment of their contamination status.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third party.

Appendix 1 GES Staff

Geo-Environmental Solutions (GES) is a specialist geotechnical and environmental consultancy providing advice on all aspects of soils, geology, hydrology, and soil and groundwater contamination across a diverse range of industries.

Geo Environmental Solutions Pty Ltd:

- ACN – 115 004 834
- ABN – 24 115 004 834

GES STAFF - ENGAGED IN SITE INVESTIGATION WORKS

Dr John Paul Cumming B.Agr.Sc (Hons) Phd CPSS GAICD

- Principle Author and Principle Environmental Consultant
- PhD in Environmental Soil Chemistry from the University of Tasmania in 2007
- 18 years' experience in environmental contamination assessment and site remediation.

Ms Sarah Joyce BSc (Hons)

- Senior Environmental Scientist
- Honours in Geography and Environmental Science at the University of Tasmania in 2003;
- Undergraduate Degree Double Major in Geology and Geography & Environmental Science
- 15 years professional work experience and 7 years contaminated site assessment
- Attendance to recent relevant workshops by ALGA – Risk Assessment 101 (May 2018); Vapour Intrusion Workshop (Part A) – Petroleum Hydrocarbons (July 2017)

Mr Mark Downie B.Agr.Sc

- Soil Scientist
- 8 Year experience in contamination assessment and reporting of soils and groundwater.

GES STAFF – CONTAMINATED SITES EXPERIENCE

Mr Grant McDonald (Adv. cert. hort.)

- Soil Technician
- 10 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

Mr Kris Taylor Bsc (Hons)

- Senior Environmental & Engineering Geologist
- Honours in Environmental Geology at the University of Tasmania in 1998
- 20 years' experience in environmental contamination assessments and hydrogeology (including honours in mine site tailing pollution assessment)

Mr Sam Rees B.Agr.Sc (Phd)

- Soil & Environmental Scientist
- 6 years' experience in hydrocarbon and heavy metal contamination assessment and reporting of soils and groundwater.

Ms Peri Lucas B.Agr.Sc (Hons)

- Soil Scientist
- 2 Year experience in contamination assessment and reporting of soils and groundwater.

Mr Aaron Plummer (Cert. IV)

- Soil Technician
- 6 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

Appendix 2 Historical Aerial Photographs

April 2019 – Source Google Earth

November 2017 – Source Google Earth

October 2017 – Source Google Earth

May 2017 – Source Google Earth

October 2003 – Source Google Earth

1981 – Source DPIPWE

1969 – Source DPIPWE

1959 – Source DPIPWE

1946 – Source DPIPWE

Appendix 3 PID Calibration Record

Imbros Pty Ltd
1059 Cambridge Road
Cambridge TAS 7170 Australia
info@imbros.com.au
www.imbros.com.au
ABN 29 009 525 053
Ph: (03) 6216 1500
Fax: (03) 6216 1555

SERVICE / REPAIR REPORT

Customer:

Cash Sales
Aaron Plummer
0400 821 977
aplummer@geosolutions.net.au

Job No:	4161
Cust ABN:	
Date:	24/07/2019
Service Engineer:	Hills, Adrian

Reported Fault / Required Service:

RAE SYSTEMS PGM7300 MiniRAE Lite
Serial Number: 590-902123

Service and calibration

Work Performed / Recommendation (if any):

Incoming evaluation - no faults found.

Calibration carried out successfully.
Functionality test - passed.

See calibration sheet for full details.

Page 1 of 1

Technology for Laboratory and Marine Science

Imbros Pty Ltd
ABN 29 009 525 053

1059 Cambridge Road, Cambridge
Tasmania Australia 7170

Phone (03) 6216 1500
Fax (03) 6216 1555
info@imbros.com.au

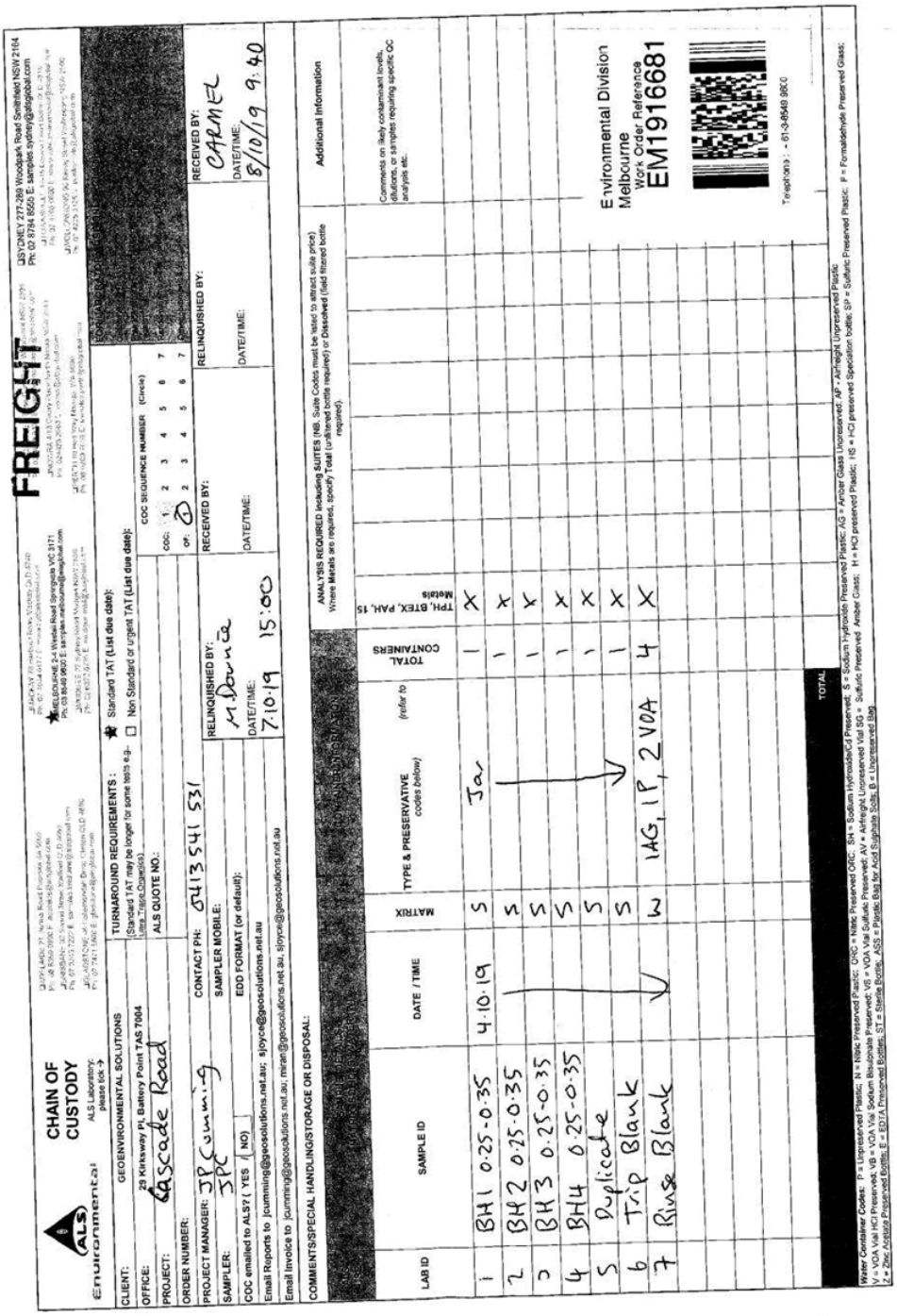
Calibration Test Certificate

24/07/2019

Device					
Serial Number:	**590-902123**		Device Type:		**MiniRAE Lite**
Manufacturer:	**RAE Systems**		Next Cal Due:		**24/01/2020**
Test Result	**Pass**				
Sensors					
Type:	**Isobutelyne**				
Result:	**Pass**				
Final Reading:	**100.0 ppm**				
Next Calibration Due:	**24/07/2020**				
Set Points					
Type:	**Isobutelyne**				
High Alarm:	**100ppm**				
Low Alarm:	**50ppm**				
TWA Alarm:					
STEL Alarm:					
Options					
Datalog Interval:	**N/A**		Unit Programmed:		**N/A**
H2S STEL Period:	**N/A**				
Test Station					
Dock Serial Number:	**Z309-002181**		Dock Location:		**Imbros Cal Lab**
	Inlet 1:	Inlet 2:	Inlet 3:	Inlet 4:	Inlet 5:
Used:	**Yes**	**Yes**	**No**	**No**	**No**
Concentration:	**20.9 %**	**100ppm**			
Type:	**Purge**	**Isobutelyne**			
Notes:					

Technology for Laboratory and Marine Science

Appendix 4 Chain of Custody (COC) and Sample Receipt Notification (SRN)



ALS Environmental

CHAIN OF CUSTODY

ALS Laboratory: please tick →

FREIGHT

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

CLIENT: GEOENVIRONMENTAL SOLUTIONS

OFFICE: 29 Kirksway Pl, Battery Point TAS 7004

PROJECT: Cascade Road

ORDER NUMBER:

PROJECT MANAGER: JP Cumming

SAMPLER: JPC

COC emailed to ALS? (YES / NO): NO

EDD FORMAT (or default):

Email Reports to jcumming@geosolutions.net.au; sjoyce@geosolutions.net.au

Email Invoice to jcumming@geosolutions.net.au, miran@geosolutions.net.au, sjoyce@geosolutions.net.au

TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date): ★ Standard TAT (List due date):

ALS QUOTE NO.:

CONTACT PH: 0413 541 531

SAMPLER MOBILE:

DATE/TIME:

COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7 or 1 2 3 4 5 6 7

RELINQUISHED BY: M Bourne

DATE/TIME: 7.10.19 15:00

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY: CARMEL

DATE/TIME: 8/10/19 9.40

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TPH, BTEX, PAH, 15 Metals	Additional Information
1	BH1 0.25-0.35	4.10.19	S	Jar	1	X	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
2	BH2 0.25-0.35		S		1	X	
3	BH3 0.25-0.35		S		1	X	
4	BH4 0.25-0.35		S		1	X	
5	Duplicate		S		1	X	
6	Trip Blank		S		1	X	
7	Rinse Blank		W	1AG, 1P, 2VOA	4	X	
				TOTAL			

Environmental Division Melbourne Work Order Reference EM1916681

Telephone : - 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Thiosulfate Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial Hydrochloric Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EM1916681**		
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Contact	: Shirley LeCornu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: jcumming@geosolutions.net.au	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: +61 03 6223 1839	Telephone	: +6138549 9630
Facsimile	: +61 03 6223 4539	Facsimile	: +61-3-8549 9626
Project	: Cascade Road	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017GEOENVSOL0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Cascade Road		
Sampler	: JOHN PAUL CUMMING		

Dates

Date Samples Received	: 08-Oct-2019 09:40	Issue Date	: 08-Oct-2019
Client Requested Due Date	: 15-Oct-2019	Scheduled Reporting Date	: **15-Oct-2019**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.2°C
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

RIGHT SOLUTIONS | RIGHT PARTNER

Issue Date	: 08-Oct-2019
Page	: 2 of 3
Work Order	: EM1916681 Amendment 0
Client	: GEO-ENVIRONMENTAL SOLUTIONS

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-03 15 Metals (NEPM 2013 Suite - incl. Digestion)	SOIL - S-07 TRH/BTEXN/PAH (SIM)
EM1916681-001	04-Oct-2019 00:00	BH1/0.25-0.35	✓	✓	✓
EM1916681-002	04-Oct-2019 00:00	BH2/0.25-0.35	✓	✓	✓
EM1916681-003	04-Oct-2019 00:00	BH3/0.25-0.35	✓	✓	✓
EM1916681-004	04-Oct-2019 00:00	BH4/0.25-0.35	✓	✓	✓
EM1916681-005	04-Oct-2019 00:00	Duplicate	✓	✓	✓
EM1916681-006	04-Oct-2019 00:00	Trip Blank	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-07 TRH/BTEXN/PAH
EM1916681-007	04-Oct-2019 00:00	Rinse Blank	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Issue Date	: 08-Oct-2019
Page	: 3 of 3
Work Order	: EM1916681 Amendment 0
Client	: GEO-ENVIRONMENTAL SOLUTIONS

Requested Deliverables

All Invoices		
- A4 - AU Tax Invoice (INV)	Email	smcintosh@geosolutions.net.au
JOHN PAUL CUMMING		
- *AU Certificate of Analysis - NATA (COA)	Email	jcumming@geosolutions.net.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jcumming@geosolutions.net.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jcumming@geosolutions.net.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jcumming@geosolutions.net.au
- A4 - AU Tax Invoice (INV)	Email	jcumming@geosolutions.net.au
- Chain of Custody (CoC) (COC)	Email	jcumming@geosolutions.net.au
- EDI Format - ENMRG (ENMRG)	Email	jcumming@geosolutions.net.au
- EDI Format - XTab (XTAB)	Email	jcumming@geosolutions.net.au
M IRAN		
- A4 - AU Tax Invoice (INV)	Email	miran@geosolutions.net.au
SARAH JOYCE		
- *AU Certificate of Analysis - NATA (COA)	Email	sjoyce@geosolutions.net.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	sjoyce@geosolutions.net.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	sjoyce@geosolutions.net.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	sjoyce@geosolutions.net.au
- A4 - AU Tax Invoice (INV)	Email	sjoyce@geosolutions.net.au
- Chain of Custody (CoC) (COC)	Email	sjoyce@geosolutions.net.au
- EDI Format - ENMRG (ENMRG)	Email	sjoyce@geosolutions.net.au
- EDI Format - XTab (XTAB)	Email	sjoyce@geosolutions.net.au

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Appendix 5 Quality Assurance and Quality Control

Duplicate Comparrison	Sample	Moisture Content (dried @ 103°	Arsenic	Barium	Beryllium	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Vanadium	Zinc	Mercury	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of polycyclic aromatic hydr	Benzo(a)pyrene TEQ (WHO)
Unit		%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		1	5	10	1	1	2	2	5	5	5	2	5	5	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
4/10/2019	Duplicate	13.8	<5	140	<1	<1	8	12	36	20	73	12	10	43	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4/10/2019	BH2/0.25-0.35	15.2	<5	200	<1	<1	8	10	27	16	56	11	10	28	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5
Relative Percentage Difference (RPD) %		9.7	NA	35.3	NA	NA	0.0	18.2	28.6	22.2	26.4	8.7	0.0	42.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RPD Compliance Limit %			NA	50	NA	NA	50	50	50	50	50	50	50	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Method Detection Limit (MDL)		20	NA	200	NA	NA	40	40	100	100	100	40	100	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MDL Class		LOW	NONE	LOW	NONE	NONE	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
RPD Compliance With MDL?	56/56 (100%)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Duplicate Comparrison	Sample	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Sum of BTEX	Total Xylenes	Naphthalene	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C6 - C10 Fraction	F1	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	>C10 - C40 Fraction (sum)	F2	Selenium	Boron	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)
Unit		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.2	0.5	0.5	0.5	0.5	0.2	0.5	1	10	50	100	100	50	10	10	50	100	100	50	50	5	50	0.5	0.5
4/10/2019	Duplicate	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<50	<5	<50	0.6	1.2
4/10/2019	BH2/0.25-0.35	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	<50	<5	<50	0.6	1.2
Relative Percentage Difference (RPD) %		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0
RPD Compliance Limit %		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50
Method Detection Limit (MDL)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10
MDL Class		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	LOW
RPD Compliance With MDL?	56/56 (100%)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

***Footnote: For Duplicate and BH2/0.25-0.35 pairs, there were no non-compliances.**

Quality Control Blanks		Arsenic	Beryllium	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Boron	Mercury	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Sum of BTEX	Naphthalene	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	>C10 - C40 Fraction (sum)	>C10 - C16 Fraction minus Naphthalene (F2)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b+j)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of polycyclic aromatic hydrocarbons	Benzo(a)pyrene TEQ (zero)
Unit		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		0.001	0.001	0.001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.01	0.005	0.05	0.0001	1	2	2	2	2	2	1	5	20	50	100	50	50	20	20	100	100	100	100	100	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	0.5	0.5
Date	Sample																																																						
4/10/2019	Rinse Blank	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.005	<0.05	<0.0001	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	<20	<20	<100	<100	<100	<100	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: EM1916681	Page	: 1 of 11
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Contact	: Shirley LeCornu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61386549 9630
Project	: Cascade Road	Date Samples Received	: 08-Oct-2019
Order number	: —	Date Analysis Commenced	: 08-Oct-2019
C-O-C number	: —	Issue Date	: 14-Oct-2019
Sampler	: JOHN PAUL CUMMING		
Site	: Cascade Road		
Quote number	: EN/222		
No. of samples received	: 7		
No. of samples analysed	: 7		

ilac-MRA NATA

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Aneice Vijayaratnam	Non-metals prep supervisor	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stapinawski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 11
Work Order	: EM1916681
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Cascade Road

ALS

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL

						Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2631164)									
EM1916681-009	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	38	38	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	25	32	22.5	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	65	76	15.0	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	30	19.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	14	31.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	612	627	2.39	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	15	18	15.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	93	109	15.8	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1916681-002	BH202.25-0.35	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	200	200	0.00	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	10	11	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	12	10.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	27	24	10.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	15	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	58	67	19.0	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Page : 3 of 11
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: SOIL									
				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/ Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2631164) - continued									
EM1916681-002	BH20.25-0.35	EG005T: Vanadium	7440-62-2	5	mg/kg	10	11	10.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	28	32	11.4	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2631525)									
EM1916653-004	Anonymous	EA055: Moisture Content	—	0.1	%	21.0	20.6	2.20	0% - 20%
EM1916663-002	Anonymous	EA055: Moisture Content	—	0.1	%	29.8	29.4	1.24	0% - 30%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2631526)									
EM1916681-005	Duplicate	EA055: Moisture Content	—	0.1	%	13.8	14.2	2.91	0% - 50%
EM1916687-001	Anonymous	EA055: Moisture Content	—	0.1	%	4.7	4.9	4.70	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2631163)									
EM1916681-009	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1916681-002	BH20.25-0.35	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2631324)									
EM1916704-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	1.7	2.4	32.3	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	3.9	4.4	13.2	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	1.4	2.0	36.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	2.4	3.3	31.9	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	32.6	38.1	15.5	0% - 30%
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	10.0	11.9	17.1	0% - 50%
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	50.2	56.3	11.6	0% - 20%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	51.5	56.7	9.58	0% - 20%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	24.4	27.1	10.6	0% - 20%
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	22.7	25.5	11.8	0% - 20%
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	30.5	34.7	13.0	0% - 20%
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	10.1	12.1	18.1	0% - 30%
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	28.4	32.0	12.1	0% - 20%
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	13.2	14.4	8.67	0% - 50%
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	3.2	3.6	11.5	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	16.0	17.6	10.0	0% - 50%
EM1916287-035	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page : 4 of 11
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: SOIL									
				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method/ Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2631324) - continued									
EM1916287-035	Anonymous	EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2628487)									
EM1916681-001	BH10.25-0.35	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.00	No Limit
EM1916725-010	Anonymous	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2631323)									
EM1916287-035	Anonymous	EP071: C15 - C28 Fraction	—	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	—	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	0.00	No Limit
EM1916704-001	Anonymous	EP071: C15 - C28 Fraction	—	100	mg/kg	480	690	35.1	No Limit
		EP071: C29 - C36 Fraction	—	100	mg/kg	220	310	33.4	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	—	50	mg/kg	700	# 1000	35.3	0% - 30%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2628487)									
EM1916681-001	BH10.25-0.35	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1916725-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2631323)									
EM1916287-035	Anonymous	EP071: >C16 - C34 Fraction	—	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	—	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	—	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	—	50	mg/kg	<50	<50	0.00	No Limit
EM1916704-001	Anonymous	EP071: >C16 - C34 Fraction	—	100	mg/kg	840	920	34.9	No Limit
		EP071: >C34 - C40 Fraction	—	100	mg/kg	<100	110	13.5	No Limit
		EP071: >C10 - C16 Fraction	—	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	—	50	mg/kg	840	# 1000	46.7	0% - 30%
EP080: BTEXN (QC Lot: 2628487)									
EM1916681-001	BH10.25-0.35	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Page : 5 of 11
Work Order : EM1916981
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: SOIL						Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method/ Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2628487) - continued									
EM1916681-001	BH10.25-0.35	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1916725-010	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: WATER						Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method/ Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2631569)									
EM1916287-036	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1916660-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.026	0.025	6.88	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.008	0.008	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.004	0.003	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.026	0.026	0.00	0% - 30%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.152	0.148	2.70	0% - 20%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.43	0.42	6.46	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2631570)									

Page : 6 of 11
Work Order : EM1916981
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: WATER						Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method/ Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035F: Dissolved Mercury by FIMS (QC Lot: 2631570) - continued									
EM1916287-036	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1916660-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP040/071: Total Petroleum Hydrocarbons (QC Lot: 2627722)									
EM1916399-012	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
EM1916660-009	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2627722)									
EM1916399-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1916660-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2627722)									
EM1916399-012	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1916660-009	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Page : 7 of 11
Work Order : EM1019981
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

ALS

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2631194)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	85.4	76.5	107
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	83.4	76.4	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	92.8	85.4	114
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	99.4	84.4	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.44 mg/kg	81.2	76.2	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	86.1	77.7	110
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	84.0	78.1	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	87.4	78.1	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	90.8	78.4	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	90.0	80.6	110
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	86.0	79.9	109
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	110	82.0	110
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	85.5	78.5	106
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.9 mg/kg	84.3	79.1	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2631163)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	98.8	76.9	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2631324)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	105	84.6	128
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	102	76.9	127
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	98.6	85.3	128
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	97.4	82.1	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	92.9	85.4	133
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	98.1	88.7	136
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	97.1	83.4	136
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	98.5	85.1	140
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	92.7	83.7	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	102	85.2	141
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	98.8	68.5	120
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	114	90.1	132
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	102	87.4	120
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	93.4	66.0	126
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	94.1	65.4	127
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	93.5	67.8	127

Page : 8 of 11
Work Order : EM1019981
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

ALS

Sub-Matrix: **SOIL**

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2628487)								
EP080: C6 - C9 Fraction	—	10	mg/kg	<10	36 mg/kg	89.3	61.2	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2631323)								
EP071: C10 - C14 Fraction	—	50	mg/kg	<50	688 mg/kg	102	71.8	129
EP071: C15 - C28 Fraction	—	100	mg/kg	<100	3100 mg/kg	99.6	83.9	125
EP071: C29 - C36 Fraction	—	100	mg/kg	<100	1490 mg/kg	99.6	77.9	119
EP071: C10 - C36 Fraction (sum)	—	50	mg/kg	<50	—	—	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2628487)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	87.8	59.5	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2631323)								
EP071: >C10 - C16 Fraction	—	50	mg/kg	<50	1050 mg/kg	101	72.2	128
EP071: >C16 - C34 Fraction	—	100	mg/kg	<100	3960 mg/kg	100	82.1	122
EP071: >C34 - C40 Fraction	—	100	mg/kg	<100	280 mg/kg	93.4	55.1	131
EP071: >C10 - C40 Fraction (sum)	—	50	mg/kg	<50	—	—	—	—
EP080: BTEXN (QCLot: 2628487)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	89.2	62.7	119
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	92.1	66.6	126
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	87.0	66.3	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	91.3	67.5	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	94.5	73.0	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	91.7	61.2	123

Sub-Matrix: **WATER**

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2631569)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.2	88.5	108
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	93.4	81.6	109
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.7	83.6	109
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.2	83.5	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.6	83.2	105
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	93.6	84.3	108
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	83.1	106
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.1	84.6	107
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.5	84.8	107
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.6	84.3	108
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	82.3	110
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	91.6	83.7	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.8	86.3	111

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Page : 9 of 11
Work Order : EM1916981
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: WATER

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2631569) - continued								
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	104	85.4	113
EG035F: Dissolved Mercury by FIMS (QCLot: 2631570)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	88.2	71.1	112
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2627708)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	85.7	41.1	116
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	99.4	47.2	121
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	97.8	47.3	118
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	98.7	49.4	121
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	105	52.5	124
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	106	52.3	125
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	105	52.4	127
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	106	51.3	130
EP075(SIM): Benzo(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	111	50.0	130
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	108	49.6	131
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	105	51.5	132
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	104	54.0	131
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	112	52.5	133
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	108	50.4	127
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	106	50.0	127
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	106	50.8	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2627109)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	3330 µg/L	89.4	44.8	125
EP071: C15 - C28 Fraction	---	100	µg/L	<100	16500 µg/L	88.7	51.3	135
EP071: C29 - C36 Fraction	---	50	µg/L	<50	7800 µg/L	70.5	49.4	134
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2627722)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	360 µg/L	89.5	65.5	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2627109)								
EP071: >C10 - C16 Fraction	---	100	µg/L	<100	5690 µg/L	59.9	47.3	129
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	20700 µg/L	70.0	50.4	133
EP071: >C34 - C40 Fraction	---	100	µg/L	<100	1510 µg/L	73.7	45.2	136
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2627722)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	85.5	64.3	126
EP080: BTEXN (QCLot: 2627722)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	86.3	69.8	124
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	92.6	73.6	126
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	91.2	72.0	126

Page : 10 of 11
Work Order : EM1916981
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: WATER

Method / Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP080: BTEXN (QCLot: 2627722) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	71.5	132
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	103	76.5	132
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	92.5	70.5	127

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method / Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2631164)							
EM1916581-012	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	94.6	78.0	124
		EG005T: Barium	7440-39-3	50 mg/kg	101	71.0	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	98.2	85.0	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.3	84.0	116
		EG005T: Chromium	7440-47-3	50 mg/kg	108	79.0	121
		EG005T: Copper	7440-50-8	50 mg/kg	86.9	82.0	124
		EG005T: Lead	7439-92-1	50 mg/kg	102	76.0	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68.0	136
		EG005T: Nickel	7440-02-0	50 mg/kg	101	78.0	120
		EG005T: Selenium	7782-49-2	50 mg/kg	88.8	71.0	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	96.1	78.0	124
		EG005T: Zinc	7440-66-6	50 mg/kg	87.1	74.0	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2631163)							
EM1916581-012	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	109	76.0	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2631324)							
EM1916490-057	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	98.2	67.0	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	95.5	52.0	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2628487)							
EM1916581-001	BH1(0.25-0.35)	EP080: C6 - C9 Fraction	---	28 mg/kg	45.4	42.0	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2631323)							
EM1916490-051	Anonymous	EP071: C10 - C14 Fraction	---	648 mg/kg	102	53.0	123
		EP071: C15 - C28 Fraction	---	3100 mg/kg	99.4	70.0	124
		EP071: C29 - C36 Fraction	---	1490 mg/kg	99.0	64.0	118

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Page : 11 of 11
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2628487)							
EM1916681-001	BH10.25-0.35	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	42.8	39.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2631333)							
EM1916490-051	Anonymous	EP071: >C10 - C16 Fraction	---	1050 mg/kg	100	65.0	123
		EP071: >C16 - C34 Fraction	---	3960 mg/kg	100	67.0	121
		EP071: >C34 - C40 Fraction	---	280 mg/kg	91.5	44.0	126
EP080: BTEXN (QCLot: 2628487)							
EM1916681-001	BH10.25-0.35	EP080: Benzene	71-43-2	2 mg/kg	62.2	50.0	136
		EP080: Toluene	108-88-3	2 mg/kg	58.5	56.0	139

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2631566)							
EM1916287-036	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	90.6	85.0	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	99.3	73.0	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	89.6	75.0	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	89.2	81.0	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	89.4	71.0	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	90.5	78.0	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	88.5	78.0	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	85.8	75.0	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	88.0	84.0	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	91.4	73.0	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	88.2	73.0	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.6	75.0	131
EG035F: Dissolved Mercury by FIMS (QCLot: 2631570)							
EM1916399-040	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	96.7	70.0	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2627722)							
EM1916663-001	Anonymous	EP080: C6 - C9 Fraction	---	250 µg/L	105	43.0	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2627722)							
EM1916663-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	103	44.0	122
EP080: BTEXN (QCLot: 2627722)							
EM1916663-001	Anonymous	EP080: Benzene	71-43-2	30 µg/L	110	68.0	130
		EP080: Toluene	108-88-3	30 µg/L	114	72.0	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1916681	Page	: 1 of 8
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Telephone	: +61 38549 9630
Project	: Cascade Road	Date Samples Received	: 08-Oct-2019
Site	: Cascade Road	Issue Date	: 14-Oct-2019
Sampler	: JOHN PAUL CUMMING	No. of samples received	: 7
Order number	: ----	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080/071: Total Petroleum Hydrocarbons	EM1916704-001	Anonymous	**C10 - C36 Fraction (sum)**	—	35.3 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1916704-001	Anonymous	**>C10 - C40 Fraction (sum)**	—	46.7 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	EM1916581-012	Anonymous	**Manganese**	7439-96-5	Not Determined	—	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarises extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days, others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** — Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	—	—	—	**10-Oct-2019**	18-Oct-2019	✓

Page : 3 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Matrix: **SOIL** — Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**10-Oct-2019**	01-Apr-2020	✓	**10-Oct-2019**	01-Apr-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**10-Oct-2019**	01-Nov-2019	✓	**10-Oct-2019**	01-Nov-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**10-Oct-2019**	18-Oct-2019	✓	**10-Oct-2019**	19-Nov-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**09-Oct-2019**	18-Oct-2019	✓	**11-Oct-2019**	18-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**10-Oct-2019**	18-Oct-2019	✓	**10-Oct-2019**	19-Nov-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**09-Oct-2019**	18-Oct-2019	✓	**11-Oct-2019**	18-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**10-Oct-2019**	18-Oct-2019	✓	**10-Oct-2019**	19-Nov-2019	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH1/0.25-0.35, BH2/0.25-0.35, BH3/0.25-0.35, BH4/0.25-0.35, Duplicate, Trip Blank	**04-Oct-2019**	**09-Oct-2019**	18-Oct-2019	✓	**11-Oct-2019**	18-Oct-2019	✓

Matrix: **WATER** — Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample IDs	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Page : 4 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035A-F)							
Rinse Blank	04-Oct-2019	—	—	—	10-Oct-2019	01-Apr-2020	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)							
Rinse Blank	04-Oct-2019	—	—	—	10-Oct-2019	01-Nov-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
Rinse Blank	04-Oct-2019	08-Oct-2019	11-Oct-2019	✓	09-Oct-2019	17-Nov-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Rinse Blank	04-Oct-2019	08-Oct-2019	11-Oct-2019	✓	09-Oct-2019	17-Nov-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinse Blank	04-Oct-2019	08-Oct-2019	18-Oct-2019	✓	09-Oct-2019	18-Oct-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Rinse Blank	04-Oct-2019	08-Oct-2019	11-Oct-2019	✓	09-Oct-2019	17-Nov-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinse Blank	04-Oct-2019	08-Oct-2019	18-Oct-2019	✓	09-Oct-2019	18-Oct-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinse Blank	04-Oct-2019	08-Oct-2019	18-Oct-2019	✓	09-Oct-2019	18-Oct-2019	✓

Page : 5 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was/were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Reqmnt	Rate (%): Actual	Expected	Evaluation	Quality Control Specification
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Reqmnt	Rate (%): Actual	Expected	Evaluation	Quality Control Specification
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 6 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reader	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 7 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time)
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-ENVIRO-EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A. The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D. Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Page : 8 of 8
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B. Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GC/MS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3).

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils, sediments and sludges	ENV8	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion. 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B. 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Appendix 6 Certificate of Analysis

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: EM1916681	Page	: 1 of 12
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: DR JOHN PAUL CUMMING	Contact	: Shirley LeComu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61386549 9630
Project	: Cascade Road	Date Samples Received	: 08-Oct-2019 09:40
Order number	: —	Date Analysis Commenced	: 08-Oct-2019
C-O-C number	: —	Issue Date	: 14-Oct-2019 17:09
Sampler	: JOHN PAUL CUMMING		
Site	: Cascade Road		
Quote number	: EN/222		
No. of samples received	: 7		
No. of samples analysed	: 7		

ilac-MRA NATA Accreditation No. 825 Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Aneesa Vijayaratnam	Non-metals prep supervisor	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 12
Work Order	: EM1916681
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Cascade Road

ALS

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
* = This result is computed from individual analyte detections at or above the level of reporting
a = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3,cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for "TEQ Zero" are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3,cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for "TEQ Zero" are treated as zero, for "TEQ 1/2LOR" are treated as half the reported LOR, and for "TEQ LOR" are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Page : 3 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1/0.25-0.35	BH2/0.25-0.35	BH3/0.25-0.35	BH4/0.25-0.35	Duplicate
			Client sampling date / time	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	EM1916681-001	EM1916681-002	EM1916681-003	EM1916681-004	EM1916681-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.5	15.2	14.7	24.1	13.8
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	40	290	270	70	140
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	4	8	4	21	8
Cobalt	7440-48-4	2	mg/kg	7	10	<2	6	12
Copper	7440-50-8	5	mg/kg	41	27	<5	<5	36
Lead	7439-92-1	5	mg/kg	46	16	9	22	20
Manganese	7439-96-5	5	mg/kg	227	56	20	36	73
Nickel	7440-02-0	2	mg/kg	6	11	<2	4	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	24	10	7	40	10
Zinc	7440-66-6	5	mg/kg	100	28	15	10	43
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2,205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3,cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Page : 4 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1/0.25-0.35	BH2/0.25-0.35	BH3/0.25-0.35	BH4/0.25-0.35	Duplicate
			Client sampling date / time	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	EM1916681-001	EM1916681-002	EM1916681-003	EM1916681-004	EM1916681-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
* Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	1.2	<0.5	<0.5	<0.5
* Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
* Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
* Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
* C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
* >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
* >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
* Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
* Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	103	97.2	102	100	102
2-Chlorophenol-D4	93951-73-6	0.5	%	95.9	91.8	95.6	94.6	94.8
2,4,6-Tribromophenol	118-79-6	0.5	%	86.9	77.6	82.2	75.4	77.7

Page : 5 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1/0.25-0.35	BH2/0.25-0.35	BH3/0.25-0.35	BH4/0.25-0.35	Duplicate
			Client sampling date / time	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00	04-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	EM1916681-001	EM1916681-002	EM1916681-003	EM1916681-004	EM1916681-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	104	99.2	96.9	97.1	97.9
Anthracene-d10	1719-06-8	0.5	%	116	113	109	110	117
4-Terphenyl-d14	1718-51-0	0.5	%	102	96.7	103	99.6	101
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	84.0	83.2	75.4	94.3	76.9
Toluene-D8	2037-26-5	0.2	%	71.3	69.6	59.5	77.1	97.0
4-Bromofluorobenzene	460-00-4	0.2	%	85.9	87.6	80.0	93.7	118

Page : 6 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Trip Blank	—	—	—	—
			Client sampling date / time	04-Oct-2019 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit	EM1916681-006	—	—	—	—
				Result	—	—	—	—
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	<1.0	—	—	—	—
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	—	—	—	—
Barium	7440-39-3	10	mg/kg	<10	—	—	—	—
Beryllium	7440-41-7	1	mg/kg	<1	—	—	—	—
Boron	7440-42-8	50	mg/kg	<50	—	—	—	—
Cadmium	7440-43-9	1	mg/kg	<1	—	—	—	—
Chromium	7440-47-3	2	mg/kg	<2	—	—	—	—
Cobalt	7440-48-4	2	mg/kg	<2	—	—	—	—
Copper	7440-50-8	5	mg/kg	<5	—	—	—	—
Lead	7439-92-1	5	mg/kg	<5	—	—	—	—
Manganese	7439-96-5	5	mg/kg	<5	—	—	—	—
Nickel	7440-02-0	2	mg/kg	<2	—	—	—	—
Selenium	7782-49-2	5	mg/kg	<5	—	—	—	—
Vanadium	7440-62-2	5	mg/kg	<5	—	—	—	—
Zinc	7440-66-6	5	mg/kg	<5	—	—	—	—
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	—	—	—	—
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	—	—	—	—
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	—	—	—	—
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	—	—	—	—
Fluorene	86-73-7	0.5	mg/kg	<0.5	—	—	—	—
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	—	—	—	—
Anthracene	120-12-7	0.5	mg/kg	<0.5	—	—	—	—
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	—	—	—	—
Pyrene	129-00-0	0.5	mg/kg	<0.5	—	—	—	—
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	—	—	—	—
Chrysene	218-01-9	0.5	mg/kg	<0.5	—	—	—	—
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	—	—	—	—
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	—	—	—	—
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	—	—	—	—
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	—	—	—	—
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	—	—	—	—

Page : 7 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Trip Blank	—	—	—	—
				Client sampling date / time	04-Oct-2019 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit		EM1916681-006	—	—	—	—
					Result	—	—	—	—
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	—	—	—	—
* Sum of polycyclic aromatic hydrocarbons	—	0.5	mg/kg		<0.5	—	—	—	—
* Benzo(a)pyrene TEQ (zero)	—	0.5	mg/kg		<0.5	—	—	—	—
* Benzo(a)pyrene TEQ (half LOR)	—	0.5	mg/kg		0.6	—	—	—	—
* Benzo(a)pyrene TEQ (LOR)	—	0.5	mg/kg		1.2	—	—	—	—
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	—	10	mg/kg		<10	—	—	—	—
C10 - C14 Fraction	—	50	mg/kg		<50	—	—	—	—
C15 - C28 Fraction	—	100	mg/kg		<100	—	—	—	—
C29 - C36 Fraction	—	100	mg/kg		<100	—	—	—	—
* C10 - C36 Fraction (sum)	—	50	mg/kg		<50	—	—	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	—	—	—	—
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	—	—	—	—
>C10 - C16 Fraction	—	50	mg/kg		<50	—	—	—	—
>C16 - C34 Fraction	—	100	mg/kg		<100	—	—	—	—
>C34 - C40 Fraction	—	100	mg/kg		<100	—	—	—	—
* >C10 - C40 Fraction (sum)	—	50	mg/kg		<50	—	—	—	—
* >C10 - C16 Fraction minus Naphthalene (F2)	—	50	mg/kg		<50	—	—	—	—
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	—	—	—	—
Toluene	108-88-3	0.5	mg/kg		<0.5	—	—	—	—
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	—	—	—	—
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	—	—	—	—
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	—	—	—	—
* Sum of BTEX	—	0.2	mg/kg		<0.2	—	—	—	—
* Total Xylenes	—	0.5	mg/kg		<0.5	—	—	—	—
Naphthalene	91-20-3	1	mg/kg		<1	—	—	—	—
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		98.2	—	—	—	—
2-Chlorophenol-D4	93951-73-6	0.5	%		91.2	—	—	—	—
2,4,6-Tribromophenol	118-79-6	0.5	%		89.0	—	—	—	—

Page : 8 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Trip Blank	—	—	—	—
				Client sampling date / time	04-Oct-2019 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit		EM1916681-006	—	—	—	—
					Result	—	—	—	—
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.6	—	—	—	—
Anthracene-d10	1719-06-8	0.5	%		110	—	—	—	—
4-Terphenyl-d14	1718-51-0	0.5	%		98.2	—	—	—	—
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		94.3	—	—	—	—
Toluene-D8	2037-26-5	0.2	%		96.5	—	—	—	—
4-Bromofluorobenzene	460-00-4	0.2	%		96.2	—	—	—	—

Environmental Site Assessment: 106 Cascade Road and 136 Wentworth Street, South Hobart. October 2019.

Page : 9 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinse Blank	—	—	—	—
			Client sampling date / time	04-Oct-2019 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit	EM1910681-007	—	—	—	—
				Result	—	—	—	—
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	—	—	—	—
Boron	7440-42-8	0.05	mg/L	<0.05	—	—	—	—
Barium	7440-39-3	0.001	mg/L	<0.001	—	—	—	—
Beryllium	7440-41-7	0.001	mg/L	<0.001	—	—	—	—
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	—	—	—	—
Cobalt	7440-48-4	0.001	mg/L	<0.001	—	—	—	—
Chromium	7440-47-3	0.001	mg/L	<0.001	—	—	—	—
Copper	7440-50-8	0.001	mg/L	<0.001	—	—	—	—
Manganese	7439-96-5	0.001	mg/L	<0.001	—	—	—	—
Nickel	7440-02-0	0.001	mg/L	<0.001	—	—	—	—
Lead	7439-92-1	0.001	mg/L	<0.001	—	—	—	—
Selenium	7782-49-2	0.01	mg/L	<0.01	—	—	—	—
Vanadium	7440-62-2	0.01	mg/L	<0.01	—	—	—	—
Zinc	7440-66-6	0.005	mg/L	<0.005	—	—	—	—
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	—	—	—	—
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	—	—	—	—
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	—	—	—	—
Acenaphthene	83-32-9	1.0	µg/L	<1.0	—	—	—	—
Fluorene	86-73-7	1.0	µg/L	<1.0	—	—	—	—
Phenanthrene	85-01-8	1.0	µg/L	<1.0	—	—	—	—
Anthracene	120-12-7	1.0	µg/L	<1.0	—	—	—	—
Fluoranthene	206-44-0	1.0	µg/L	<1.0	—	—	—	—
Pyrene	129-00-0	1.0	µg/L	<1.0	—	—	—	—
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	—	—	—	—
Chrysene	218-01-9	1.0	µg/L	<1.0	—	—	—	—
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	—	—	—	—
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	—	—	—	—
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	—	—	—	—
Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	<1.0	—	—	—	—
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	—	—	—	—
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	—	—	—	—
* Sum of polycyclic aromatic hydrocarbons	—	0.5	µg/L	<0.5	—	—	—	—

Page : 10 of 12
Work Order : EM1916681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinse Blank	—	—	—	—
			Client sampling date / time	04-Oct-2019 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit	EM1910681-007	—	—	—	—
				Result	—	—	—	—
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
* Benzo(a)pyrene TEQ (zero)	—	0.5	µg/L	<0.5	—	—	—	—
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	20	µg/L	<20	—	—	—	—
C10 - C14 Fraction	—	50	µg/L	<50	—	—	—	—
C15 - C28 Fraction	—	100	µg/L	<100	—	—	—	—
C29 - C36 Fraction	—	50	µg/L	<50	—	—	—	—
* C10 - C36 Fraction (sum)	—	50	µg/L	<50	—	—	—	—
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	—	—	—	—
* C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	—	—	—	—
>C10 - C16 Fraction	—	100	µg/L	<100	—	—	—	—
>C16 - C34 Fraction	—	100	µg/L	<100	—	—	—	—
>C34 - C40 Fraction	—	100	µg/L	<100	—	—	—	—
* >C10 - C40 Fraction (sum)	—	100	µg/L	<100	—	—	—	—
* >C10 - C16 Fraction minus Naphthalene (F2)	—	100	µg/L	<100	—	—	—	—
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	—	—	—	—
Toluene	108-88-3	2	µg/L	<2	—	—	—	—
Ethylbenzene	100-41-4	2	µg/L	<2	—	—	—	—
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	—	—	—	—
ortho-Xylene	95-47-6	2	µg/L	<2	—	—	—	—
* Total Xylenes	—	2	µg/L	<2	—	—	—	—
* Sum of BTEX	—	1	µg/L	<1	—	—	—	—
Naphthalene	91-20-3	5	µg/L	<5	—	—	—	—
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	36.9	—	—	—	—
2-Chlorophenol-D4	93951-73-6	1.0	%	69.8	—	—	—	—
2,4,6-Tribromophenol	118-79-6	1.0	%	71.6	—	—	—	—
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	81.0	—	—	—	—
Anthracene-d10	1719-06-8	1.0	%	85.2	—	—	—	—
4-Terphenyl-d14	1718-51-0	1.0	%	90.2	—	—	—	—

Page : 11 of 12
Work Order : EM1910681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinse Blank	—	—	—	—
				Client sampling date / time	04-Oct-2019 00:00	—	—	—	—
Compound	CAS Number	LOR	Unit		EM1910681-007	——	——	——	——
					Result	—	—	—	—
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		107	—	—	—	—
Toluene-D8	2037-26-5	2	%		85.6	—	—	—	—
4-Bromofluorobenzene	460-00-4	2	%		92.5	—	—	—	—

Page : 12 of 12
Work Order : EM1910681
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Cascade Road

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2,4,6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2,4,6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Department of Communities Tasmania

GPO Box 65, HOBART TAS 7001 Australia
Ph: 1300 135 513
Web: www.communities.tas.gov.au

Contact: Euan Bennett
Phone: (03) 6166 3656
E-mail: euan.bennett@communities.tas.gov.au

Tasmania

Chief Executive Officer
City of Hobart
GPO Box 503
Hobart TAS 7001

Dear Ms Grigsby,

Subject: Development Application Pursuant to S.52(1B) of the *Land Use Planning and Approvals Act 1993*

Pursuant to S.52(1B) of the *Land Use Planning and Approvals Act 1993* I, Richard Gilmour, as an authorised delegate under Section 6AB of the *Homes Act 1935*, hereby give permission for 6ty° Pty Ltd to lodge a Development Application and any associated documentation on behalf of the Department of Communities Tasmania for the property listed in the table below being land in the ownership of the Director of Housing;

PID	Title Reference	Street Address	Suburb
5567866	CT 174389/1	112 Cascade Road	South Hobart TAS 7004

If you have any questions regarding this matter, please contact Euan Bennett on 03 6166 3656 or euan.bennett@communities.tas.gov.au.

Yours sincerely

Richard Gilmour
Director, Community Infrastructure

15 March 2022

LAND USE PLANNING AND APPROVALS ACT 1993

INSTRUMENT OF DELEGATION

I, Michael Darrel Joseph Ferguson MP, being the Minister for State Development, Construction and Housing and the Minister of the Crown administering land administered or owned by the Director of Housing by or under, or for the purposes of the *Homes Act 1935* for and on behalf of the Crown, pursuant to section 52(1F) of the *Land Use Planning and Approval Act 1993* and section 23AA of the *Acts Interpretation Act 1931*, hereby:

1. Revoke the delegation made by Jacqueline Anne Petrusma of functions under section 52(1B) of the *Land Use Planning and Approvals Act 1993* on 26 October 2016, and

2. Delegate my functions under section 52(1B) of the *Land Use Planning Approval Act 1993* to the person or persons for the time being holding, occupying or acting in the offices or positions with the position number set out in Column 1 of the below Schedule and the office or position title set out in Column 2 of the below Schedule:

SCHEDULE	
Column 1	**Column 2**
	Secretary Department of Communities
	Director of Housing
500018	Deputy Secretary – Housing, Disability and Community Services
517891	Director - Portfolio and Supply
520545	General Manager Portfolio Maintenance
513352	Manager Portfolio Planning

Dated this 21st day of September 2021

Michael Darrel Joseph Ferguson MP

Minister for State Development, Construction and Housing

City of HOBART

Enquiries to: City Life
Phone: (03) 6238 2711
Email: coh@hobartcity.com.au

7 April 2022

Ashley Brook (6ty Pty Ltd)
PO Box 63, Riverside TAS 7250
RIVERSIDE TAS 7250

mailto: abrook@6ty.com.au

Dear Sir/Madam

106 CASCADE ROAD & 112 CASCADE ROAD & 136 WENTWORTH STREET, SOUTH HOBART
WORKS ON COUNCIL LAND NOTICE OF LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION - GMC-22-24

Site Address:

106 & 112 Cascade Road and 136 Wentworth Street, South Hobart

Description of Proposal:

Temporary Housing

Applicant Name:

Mr Ashley Brook
6ty Pty Ltd

PLN *(if applicable)*:

PLN-22-133

I write to advise that pursuant to Section 52 of the *Land Use Planning and Approvals Act 1993*, I grant my consent on behalf of the Hobart City Council as the owner/administrator of the above land for you to make application to the City for a planning permit for the development described above and as per the attached documents. I granted consent pursuant to delegation, a copy of which is enclosed.

Please note that the granting of the consent is only for the making of the application and in no

way should such consent be seen as prejudicing any decision the Council is required to make as the statutory planning authority.

This consent does not constitute an approval to undertake any works and does not authorise the owner, developer or their agents any right to enter or conduct works on any Council managed land whether subject to this consent or not.

If planning approval is granted by the planning authority, you will be required to seek approvals and permits from the City as both landlord, land manager, or under other statutory powers (such as other legislation or City By-Laws) that are not granted with the issue of a planning permit under a planning scheme. This includes the requirement for you to reapply for a permit to occupy a public space under the City's Public Spaces By-law if the proposal relates to such an area.

Accordingly, I encourage you to continue to engage with the City about these potential requirements.

Yours faithfully

(Glenn Doyle)
HEAD OF CITY PROJECTS

Relevant documents/plans:

Drawings: A10, A30, A40, C02, C03, C04 & C05 from 6ty Pty Ltd
Planning submission letter from Ashley Brook dated 15 March 2022

City of Hobart

INSTRUMENT OF DELEGATION

General Delegation

Head of Intergovernmental Relations and Partnerships

Section 64 of the Local Government Act 1993

I, Kelly Grigsby, Chief Executive Officer, being the General Manager as appointed by Council pursuant to Section 61 of the *Local Government Act 1993 (Tas)* ("the Act") hereby delegate pursuant to Section 64 of the Act, the following powers and functions to the Head of City Projects:

1. to sign an application; and
2. to provide written permission to make an application;

pursuant to section 52(1B) of the *Land Use Planning and Approvals Act 1993*, except where an application pursuant to that section is recommended for refusal by Council officers.

Dated this 24th day of February 2022

SIGNED
Kelly Grigsby
(Chief Executive Officer)
Being the General Manager as appointed by Council pursuant to section 61 of the *Local Government Act 1993* (Tas)

Approved - General Manager Consent Only GMC-22-24 07/04/2022

A_SITE PLAN
SCALE 1 : 200

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300

57 Best Street
Devonport Tasmania
P (03) 6424 7161

6ty Pty Ltd
ABN 27 014 609 906

Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1833

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS

CONTROLLED DOCUMENT

REVISION	DATE	ISSUED FOR	REV
1	08/11/19	ISSUE FOR INFORMATION	1
2	15/11/19	REVISED ISSUE FOR INFORMATION	1
3	26/11/19	ISSUE FOR TENDER & BUILDING APPROVAL	A
5	19/12/19	ISSUE FOR CONSTRUCTION	B
6	13/02/20	ISSUE FOR BALUSTRADE AMENDMENT	C

Tasmanian Government

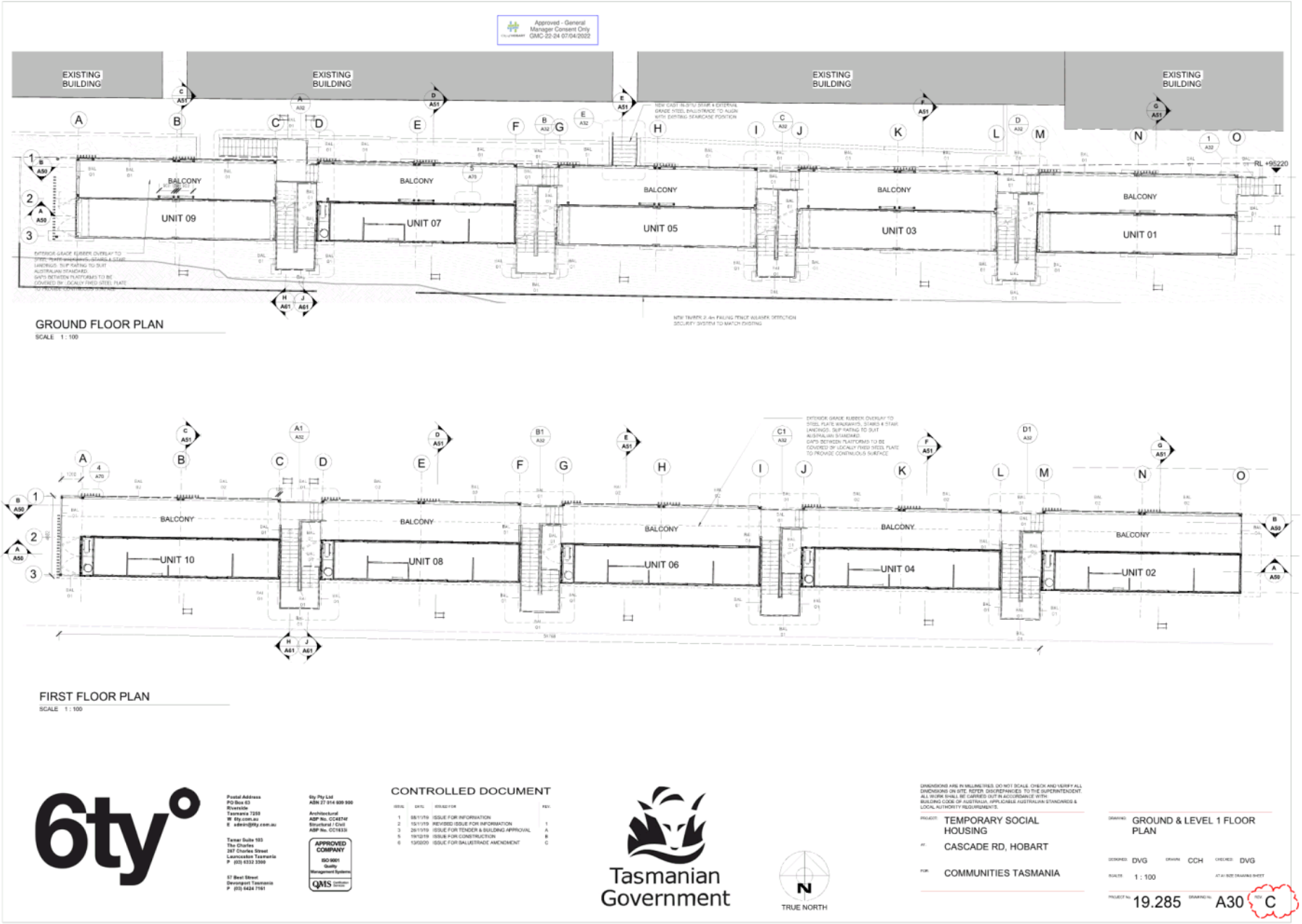
N
TRUE NORTH

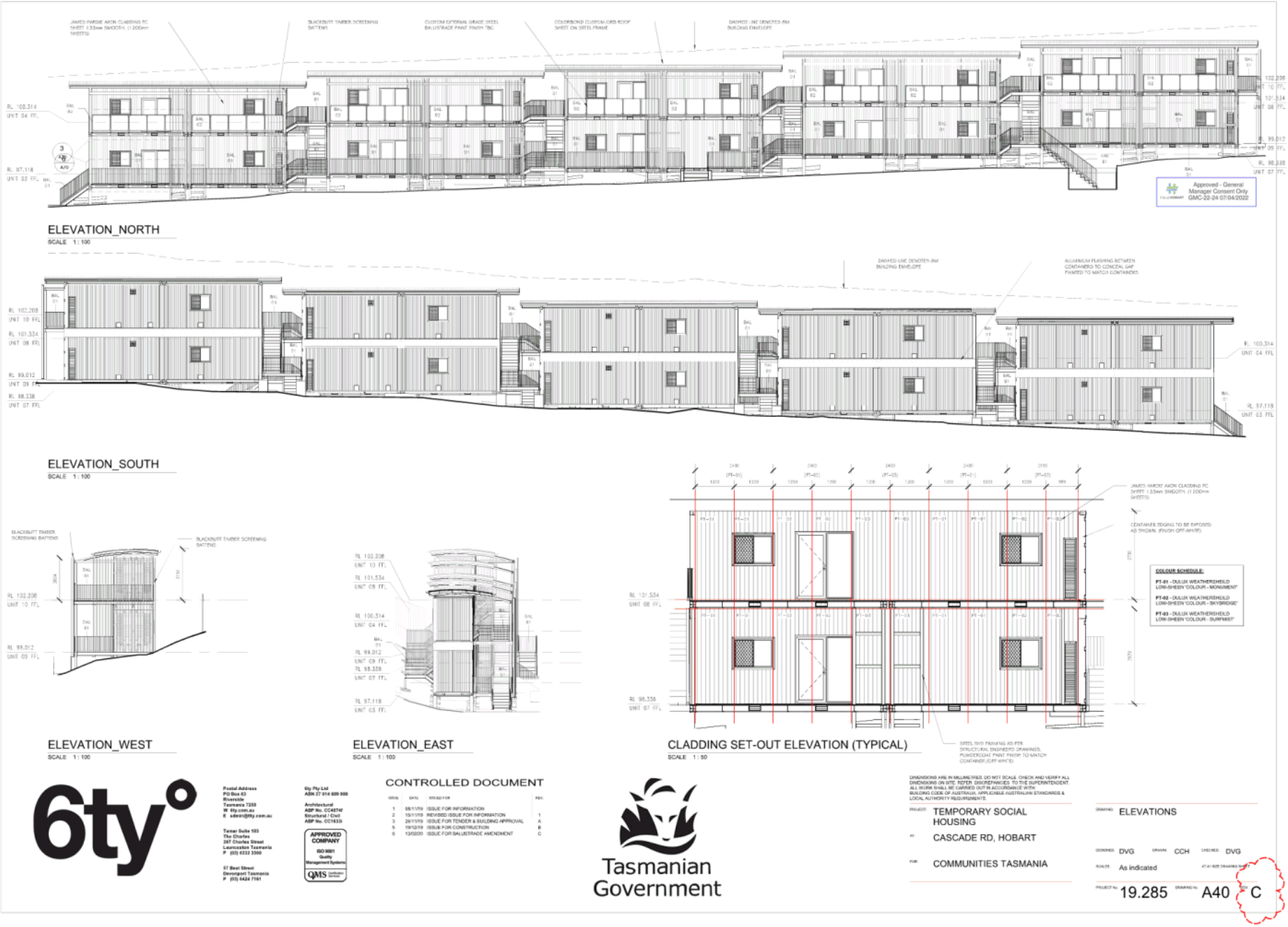
DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT TEMPORARY SOCIAL HOUSING
AT CASCADE RD, HOBART
FOR COMMUNITIES TASMANIA

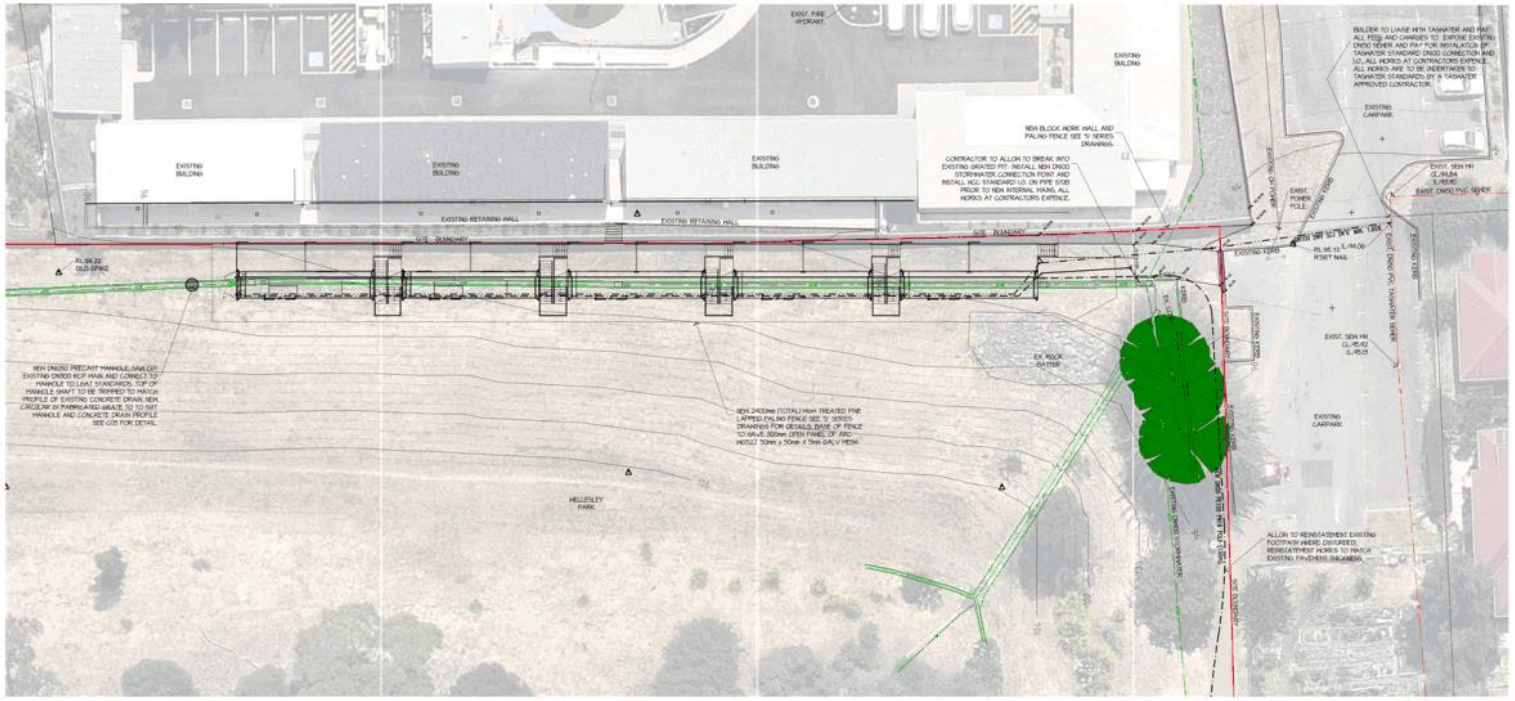
DRAWING SITE PLAN

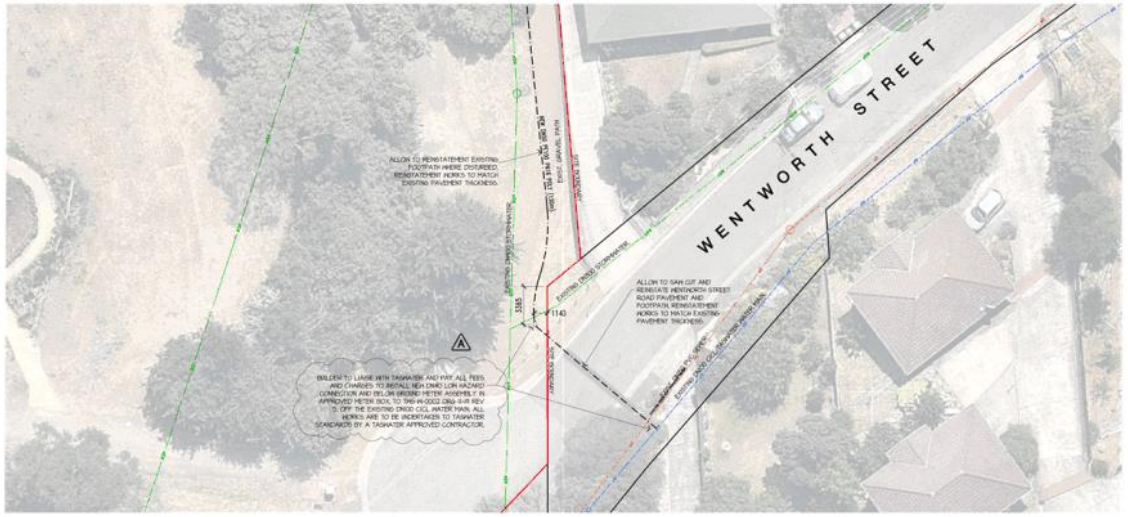
DESIGNED DVG DRAWN CCH CHECKED DVG
SCALE 1 : 200 AT A1 SIZE DRAWING SHEET
PROJECT No. 19.285 DRAWING No. A10 REV C


Approved - General Manager Consent Only GMC 22-24 07/04/2022
EXISTING BUILDING
EXISTING BUILDING
EXISTING BUILDING
EXISTING BUILDING
BALCONY
UNIT 09
UNIT 07
UNIT 05
UNIT 03
UNIT 01
RL +95220
GROUND FLOOR PLAN
SCALE 1 : 100
BALCONY
UNIT 10
UNIT 08
UNIT 06
UNIT 04
UNIT 02
FIRST FLOOR PLAN
SCALE 1 : 100
6ty°
Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au
Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300
57 Best Street
Devonport Tasmania
P (03) 6424 7161
6ty Pty Ltd
ABN 27 014 609 900
Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1633L
APPROVED COMPANY
ISO 9001
Quality
Management Systems
QMS
CONTROLLED DOCUMENT
ISSUE DATE ISSUED FOR REV.
1 08/11/19 ISSUE FOR INFORMATION
2 15/11/19 REVISED ISSUE FOR INFORMATION 1
3 26/11/19 ISSUE FOR TENDER & BUILDING APPROVAL A
5 19/12/19 ISSUE FOR CONSTRUCTION B
6 13/02/20 ISSUE FOR BALUSTRADE AMENDMENT C
Tasmanian Government
N
TRUE NORTH
DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.
PROJECT TEMPORARY SOCIAL HOUSING
AT CASCADE RD, HOBART
FOR COMMUNITIES TASMANIA
DRAWING GROUND & LEVEL 1 FLOOR PLAN
DESIGNED DVG DRAWN CCH CHECKED DVG
SCALE 1 : 100 AT A1 SIZE DRAWING SHEET
PROJECT No. 19.285 DRAWING No. A30 REV. C


ELEVATION_NORTH
SCALE 1 : 100
Approved - General Manager Consent Only GMC-22-24 07/04/2022
ELEVATION_SOUTH
SCALE 1 : 100
ELEVATION_WEST
SCALE 1 : 100
ELEVATION_EAST
SCALE 1 : 100
CLADDING SET-OUT ELEVATION (TYPICAL)
SCALE 1 : 50
COLOUR SCHEDULE:
PT-01 - DULUX WEATHERSHIELD LOW-SHEEN 'COLOUR - MONUMENT'
PT-02 - DULUX WEATHERSHIELD LOW-SHEEN 'COLOUR - SKYBRIDGE'
PT-03 - DULUX WEATHERSHIELD LOW-SHEEN 'COLOUR - SURFMIST'
6ty°
CONTROLLED DOCUMENT
Tasmanian Government
TEMPORARY SOCIAL HOUSING
CASCADE RD, HOBART
COMMUNITIES TASMANIA
ELEVATIONS
DVG
CCH
DVG
As indicated
19.285
A40
C

Approved - General Manager Consent Only
GMC-22-24 07/04/2022





SERVICES NOTE:

PRIOR TO COMMENCING DEMOLITION AND SITE WORKS, THE CONTRACTOR IS TO ARRANGE AND PAY FOR THE ON SITE MARKING AND CONFIRMATION OF DEPTH OF SERVICE LOCATIONS FOR ALL UNDERGROUND SERVICES, INCLUDING DATA, PHONE, POWER, GAS, SEWER, WATER AND STORMWATER, IN THE AREA OF NEW WORKS. LOCATION TO BE CONFIRMED USING CABLE LOCATORS AND HAND DIGGING METHODS. PRIOR TO ANY WORKS ON SITE, ANY CLASHES WITH DESIGNED SERVICES ON FOLLOWING DRAWINGS ARE TO BE REPORTED TO DESIGN ENGINEER FOR DIRECTION.

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

6ty Pty Ltd
ABN 27 014 459 930

Architectural
ABP No. CC4674F
Structural / Civil
ABP No. CC1633

Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300

57 Best Street
Devonport Tasmania
P (03) 6424 7161

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS

CONTROLLED DOCUMENT

ISSUE	DATE	ISSUED FOR	REV
01	26.11.19	TENDER AND BUILDING APPROVAL	
02	03.12.19	TASWATER WATER CONNECTION AMEND	A

Tasmanian Government

N

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE, CHECK AND VERIFY ALL DIMENSIONS ON SITE. REPORT DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: TEMPORARY SOCIAL HOUSING
AT: 106 & 112 CASCADE ROAD
SOUTH HOBART
FOR: COMMUNITIES TASMANIA

DRAWING: CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 1.

DESIGNED: CGB DRAWN: PAS CHECKED:

SCALE: 1:200 AT A1 SIZE DRAWING SHEET

PROJECT No. 19.285 DRAWING No. C02 REV. A

Approved - General Manager Consent Only
GMC-22-24 07/04/2022

SERVICES NOTE:

PRIOR TO COMMENCING DEMOLITION AND SITE WORKS, THE CONTRACTOR IS TO ARRANGE AND PAY FOR THE ON SITE MARKING AND CONFIRMATION OF DEPTH, OF SERVICE LOCATIONS FOR ALL UNDERGROUND SERVICES INCLUDING DATA, PHONE, POWER, GAS, SEWER, WATER AND STORMWATER, IN THE AREA OF NEW WORKS. LOCATION TO BE CONFIRMED USING CABLE LOCATORS AND HAND DIGGING METHODS, PRIOR TO ANY WORKS ON SITE. ANY CLASHES WITH DESIGNED SERVICES ON FOLLOWING DRAWINGS ARE TO BE REPORTED TO DESIGN ENGINEER FOR DIRECTION.

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

6ty Pty Ltd
ABN 27 014 659 800

Architectural
ABP No. CC4697F
Structural / Civil
ABP No. CC1633I

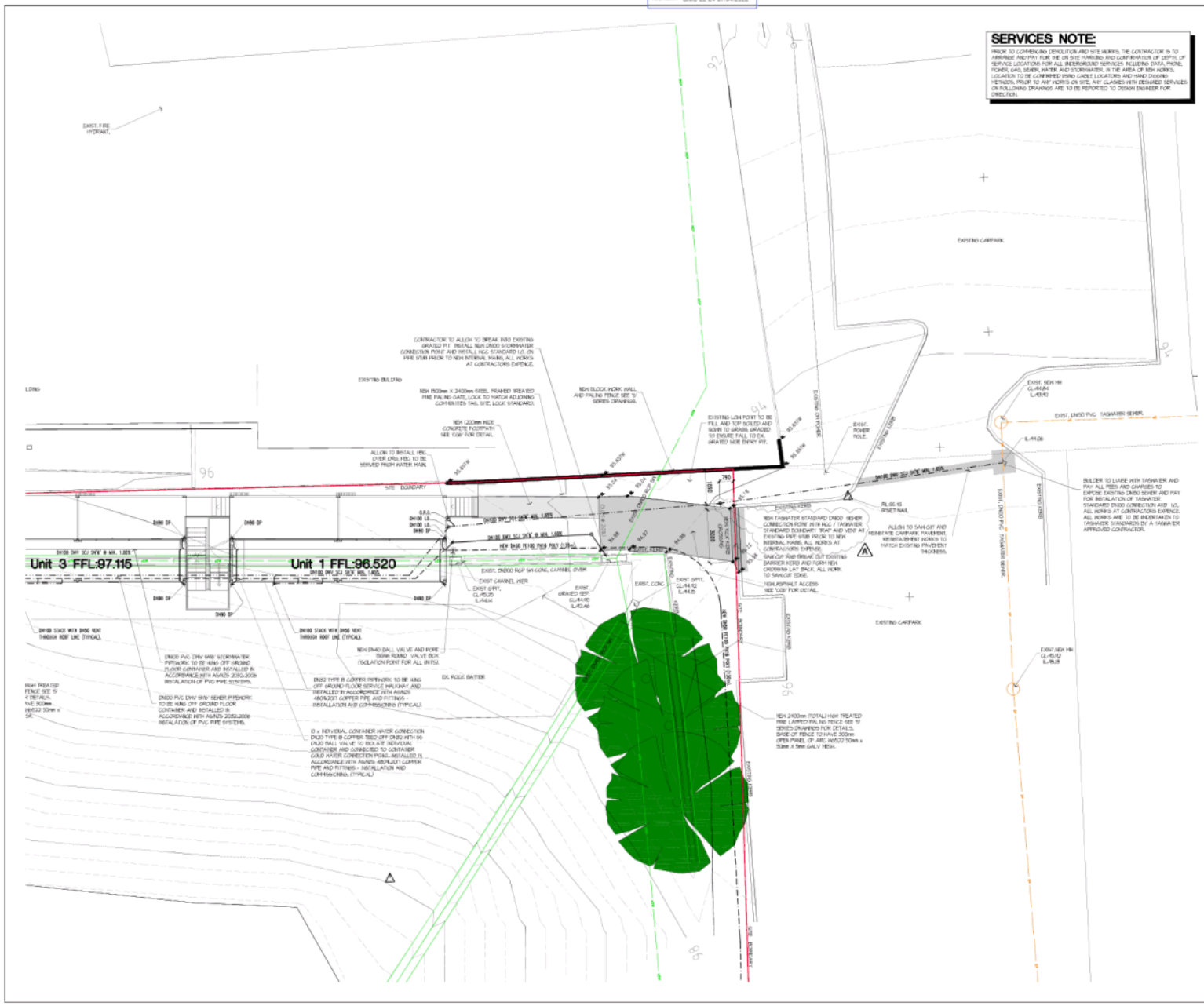
Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300

57 Best Street
Devonport Tasmania
P (03) 6424 7161

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS

CONTROLLED DOCUMENT

ISSUE	DATE	ISSUED FOR	REV
01	26.11.19	TENDER AND RUS DING APPROVAL	
02	11.12-19	SEWER CONNECTION AMENDMENT	A



Tasmanian Government

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE, CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: TEMPORARY SOCIAL HOUSING
AT: 106 & 112 CASCADE ROAD
SOUTH HOBART
FOR: COMMUNITIES TASMANIA

DRAWING: CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 2.

DESIGNED: CGB DRAWN: PAS CHECKED:
SCALES: 1:100 AT A1 SIZE DRAWING SHEET

PROJECT No. 19.285 DRAWING No. C03 REV. A

Approved - General Manager Consent Only
GMC-22-24 07/04/2022

SERVICES NOTE:

PRIOR TO COMMENCING DEMOLITION AND SITE WORKS, THE CONTRACTOR IS TO ARRANGE AND PAY FOR THE ON SITE MARKING AND CONFIRMATION OF DEPTH, OF SERVICE LOCATIONS FOR ALL UNDERGROUND SERVICES INCLUDING DATA, PHONE, POWER, GAS, SEWER, WATER AND STORMWATER, IN THE AREA OF NEW WORKS. LOCATION TO BE CONFIRMED USING CABLE LOCATORS AND HAND DIGGING METHODS, PRIOR TO ANY WORKS ON SITE. ANY CLASHES WITH DESIGNED SERVICES OR FOLLOWING DRAWINGS AND TO BE REPORTED TO DESIGN ENGINEER FOR DIRECTION.

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

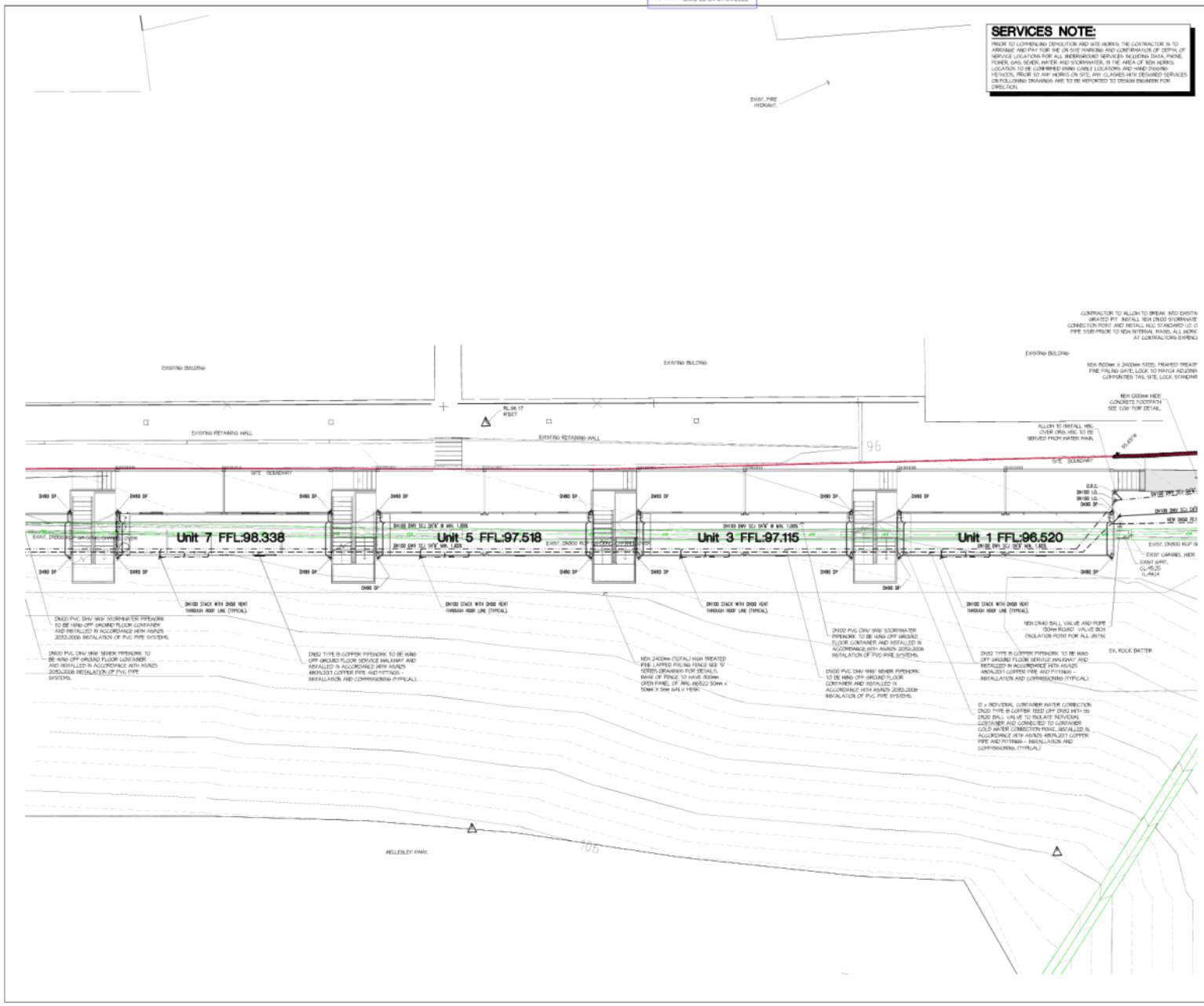
Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300

57 Best Street
Devonport Tasmania
P (03) 6424 7161

6ty Pty Ltd
ABN 27 614 609 900

Architectural
ABP No. CC4697F
Structural / Civil
ABP No. CC1633X

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS



CONTROLLED DOCUMENT

ISSUE	DATE	ISSUED FOR	REV.
01	26.11.19	TENDER AND BUILDING APPROVAL	

Tasmanian Government

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE, CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: TEMPORARY SOCIAL HOUSING
AT: 106 & 112 CASCADE ROAD
SOUTH HOBART
FOR: COMMUNITIES TASMANIA

DRAWING: CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 3.

DESIGNED: CGB DRAWN: PAS CHECKED:

SCALE: 1:100 AT A1 SIZE DRAWING SHEET

PROJECT No. 19.285 DRAWING No. C04 REV.

Approved - General Manager Consent Only
GMC-22-24 07/04/2022

SERVICES NOTE:

PRIOR TO COMMENCING DEMOLITION AND SITE WORKS, THE CONTRACTOR IS TO ARRANGE AND PAY FOR THE ON SITE MARKING AND CONFIRMATION OF DEPTH, OF SERVICE LOCATIONS FOR ALL UNDERGROUND SERVICES INCLUDING DATA, PHONE, POWER, GAS, SEWER, WATER AND STORMWATER, IN THE AREA OF NEW WORKS. LOCATION TO BE CONFIRMED USING CABLE LOCATORS AND HAND DIGGING METHODS, PRIOR TO ANY WORKS ON SITE. ANY CLASHES WITH DESIGNED SERVICES ON FOLLOWING DRAWINGS ARE TO BE REPORTED TO DESIGN ENGINEER FOR DIRECTION.

6ty°

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

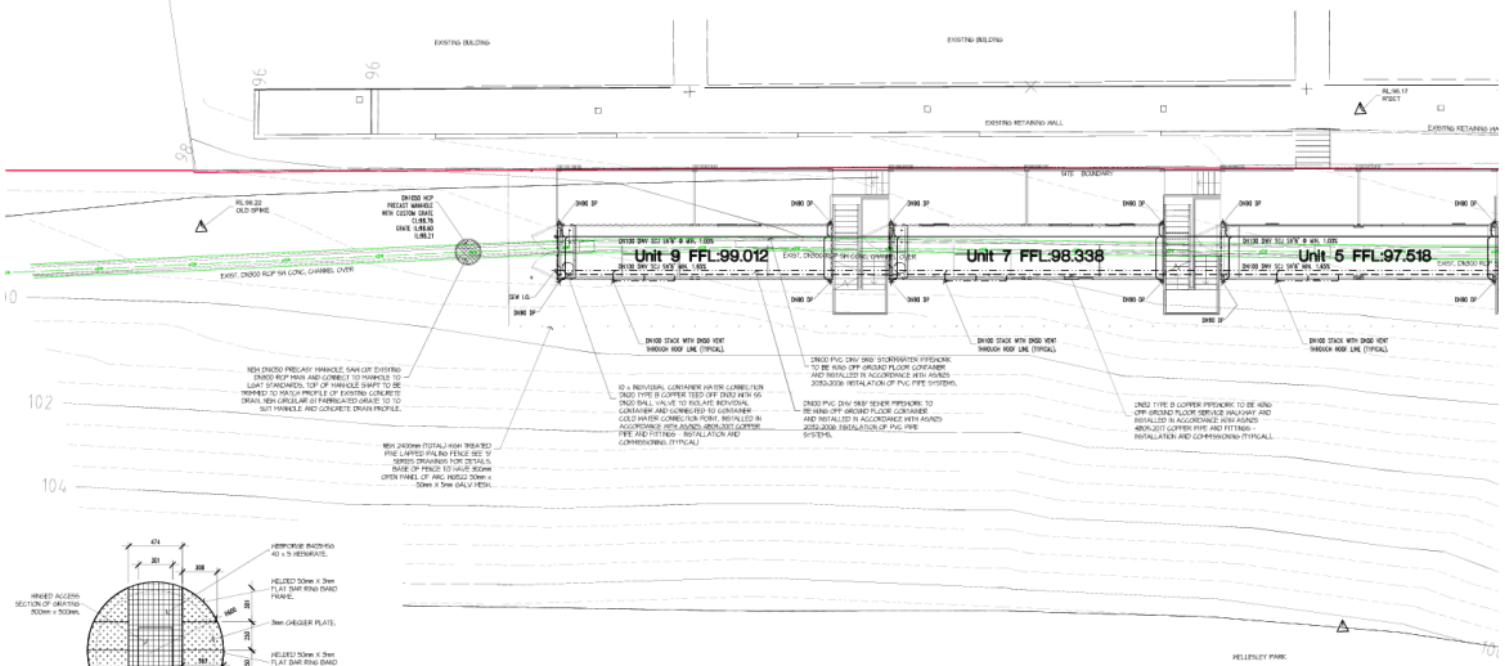
6ty Pty Ltd
ABN 27 614 609 900

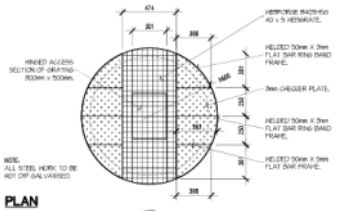
Architectural
ABP No. CC4697F
Structural / Civil
ABP No. CC1633I

Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6332 3300

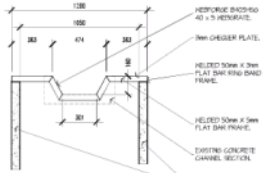
57 Best Street
Devonport Tasmania
P (03) 6424 7161

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS





PLAN



ELEVATION

NEW CUSTOM DN1050 MH GRATE DETAIL
SCALE 1:20

CONTROLLED DOCUMENT

ISSUE	DATE	ISSUED FOR	REV
01	26.11.19	TENDER AND BUILDING APPROVAL	

Tasmanian Government

N

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE, CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: TEMPORARY SOCIAL HOUSING
AT: 106 & 112 CASCADE ROAD
SOUTH HOBART
FOR: COMMUNITIES TASMANIA

DRAWING: CIVIL WORKS
SITE PLAN
NEW WORKS SHEET 4.

DESIGNED: CGB DRAWN: PAS CHECKED:

SCALE: 1:100 AT A1 SIZE DRAWING SHEET

PROJECT No. 19.285 DRAWING No. C05 REV.

Planning: #252714

Property

136 WENTWORTH STREET SOUTH HOBART TAS 7004

People

Applicant *	6ty Pty Ltd Ashley Brook PO Box 63 RIVERSIDE TAS 7250 +61400945776 abrook@6ty.com.au
Owner *	Hobart City Council GPO Box 503 HOBART TAS 7001 6238 2711 coh@hobartcity.com.au
Owner *	The Director of Housing GPO Box 65 HOBART TAS 7001 6166 3656 euan.bennett@communities.tas.gov.au
Entered By	GEORGE WALKER 6332 3300 gwalker@6ty.com.au

Use

Other

Details

Have you obtained pre application advice?

No

If YES please provide the pre application advice number eg PAE-17-xx

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodation Standards? Click on help information button for definition. If you are not the owner of the property you MUST include signed confirmation from the owner that they are aware of this application. *

No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the number of signs under Other Details below. *

No

If this application is related to an enforcement action please enter Enforcement Number

Details

What is the current approved use of the land / building(s)? *

Residential

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage) *

Continuation of temporary housing is sought in accordance with the Planning Directive No. 7 - Permits for Temporary Housing

Estimated cost of development *

0.00

Existing floor area (m2)

Proposed floor area (m2)

Site area (m2)

Carparking on Site

Total parking spaces

Existing parking spaces

N/A

Other (no selection chosen)

Other Details

Does the application include signage? *

No

How many signs, please enter 0 if there are none involved in this application? *

0

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register? No

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements) *	136 Wentworth St 106 & 112 Cascade Road, South Hobart - Certificates of Title.pdf
Plans (proposed, existing) *	19-285 - A10, A30, A40, C02, C03, C04 & C05.pdf
GM or Crown consent	DA Owner Consent Letter - 112 Cascade Rd, South Hobart.pdf
Covering Letter	136 Wentworth St 106 & 112 Cascade Road, South Hobart - Planning Submission.pdf
environmental site assessment	ESA - GES (October 2019) - 106 Cascade Road and 136 Wentworth Street, South Hobart.pdf
Advice GES 4/03/2022	Advice - GES (4 March 2022) - Clause E2.4.3 Exemption.pdf

7.1.4 32 COMMERCIAL ROAD, NORTH HOBART - PARTIAL DEMOLTION, NEW PARKING SPACE & FRONT FENCING

PLN-22-19 - FILE REF: F22/51905

Address:	32 Commercial Road, North Hobart
Proposal:	Partial Demolition, New Parking Space and Front Fencing
Expiry Date:	12 June 2022
Extension of Time:	Not applicable
Author:	Deanne Lang

RECOMMENDATION

That pursuant to the *Hobart Interim Planning Scheme 2015*, the City Planning Committee, in accordance with the delegations contained in its terms of reference, approve the application for partial demolition, new parking space and front fencing at 32 Commercial Road North Hobart 7000 for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN
The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Final Planning Documents except where modified below.

Reason for condition
To clarify the scope of the permit.

SW 3
The proposed demolition works and new fence (including footings) must be designed to ensure the protection and access to the Hobart City Council's stormwater infrastructure on Commercial Lane.

Prior to the issuing of any approval under the *Building Act 2016* or commencement of works (whichever occurs first), a detailed demolition plan and fence design must be submitted and approved as a Condition Endorsement. The detailed design must be prepared by a suitably qualified expert and must:

1. demonstrate how the design will ensure the protection of and provide access to the Hobart City Council's stormwater main.

All work required by this condition must be undertaken in accordance with the approved detailed design.

Advice:
This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

ENG 3a
The access driveway and parking area must be constructed in accordance with the following documentation which forms part of this permit: PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Detail - Additional Information - AIS-22-785 (received by the Council on the 5th of May 2022).

Any departure from that documentation and any works which are not detailed in the documentation must be either:

a) approved by the Director City Life, via a condition endorsement application; or

b) designed and constructed in accordance with Australian Standard AS/NZ 2890.1:2004.

The works required by this condition must be completed prior to first occupation.

Reason for condition
To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

The access driveway and parking module (car parking spaces, aisles and manoeuvring area) approved by this permit must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior to the first occupation / commencement of use.

Reason for condition
To ensure the safety of users of the access driveway and parking module, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5
The number of car parking spaces approved under this permit on the site is one (1).

Reason for condition
To ensure the provision of parking for the use is safe and efficient.

ENG 13

The fencing and gate at the rear of 32 Commercial Road (Commercial Lane) must allow adequate sight distance between user vehicles, cyclists and pedestrians.

To enable the fence either side of the driveway to provide adequate sight distance between user vehicles, cyclists and pedestrians, the fence and gate proposed on Commercial Lane is restricted to at a maximum height of 1.2m for a minimum 2m either side of the driveway.

Alternatively, any fence greater than 1.2m in height must have a transparency greater than 50% for the portion above 1.2m in height, such that a pedestrian, vehicle and cyclists cannot be obscured from view.

Any departure from the above restrictions must be approved via Condition Endorsement prior to the commencement of work. If so, the amended drawing must demonstrate how the fence either side of the driveway/s provides for adequate sight distance between user vehicles, cyclists and pedestrians by one of the following methods:

1. Compliance with Australian/NZ Standard, Parking facilities Part 1: Off- street car parking AS/NZS 2890.1: 2004 Fig 3.3;

2. Increasing the gate width of the driveway(s) to 5m;

3. Increasing the transparency of fencing for at least 1.5m on each side of driveway/s so that those sections of fencing are largely transparent; or

4. Setting driveway(s) gates back 1m from front fence line to achieve increased sight lines.

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

This condition only requires further information to be submitted as a Condition Endorsement if the design has any departure from the restriction. If so, refer to the Condition Endorsement advice at the end of this permit.

Reason for condition
To ensure the safety of vehicles entering and leaving the development and of pedestrians and traffic in the vicinity.

ENG r3
Prior to the commencement of use, the proposed driveway crossover on the Commercial Lane highway reservation must be designed and constructed in general accordance with:

- Urban - TSD-R09-v3 – Urban Roads Driveways and TSD R14-v3 Type KC vehicular crossing;
- Footpath - Urban Roads Footpaths TSD-R11-v3 concrete.

Design drawings must be submitted and approved as a Condition Endorsement prior to any approval under the *Building Act 2016*. The design drawings must:

1. Show the cross and long sections of the driveway crossover within the highway reservation and onto the property;

2. Show the cross section of the front boundary, the concrete strip needs to be falling towards the road.

3. Detail any services or infrastructure (ie light poles, pits, awnings) at or near the proposed driveway crossover;

4. Show swept path templates in accordance with AS/NZS 2890.1 2004(B85 or B99 depending on use, design template);

5. If the design deviates from the requirements of the TSD, then demonstrate that a B85 vehicle or a B99 depending on use (AS/NZS 2890.1 2004, section 2.6.2), can access the driveway from the road pavement into the property without scraping the vehicle's underside;

6. Show that vehicular and pedestrian sight lines are met as per AS/NZS 2890.1 2004.

7. Be prepared and certified by a suitable qualified person, to satisfy the above requirements.

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:
This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Program

Leader Road Services and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

Reason for condition

To ensure that works will comply with the Council’s standard requirements.

ADVICE
The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

A fee of 2% of the value of the works for new public assets (stormwater infrastructure, roads and related assets) will apply for the condition endorsement application.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

BUILDING PERMIT
You may need building approval in accordance with the *Building Act 2016.* Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT
You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY
You may require an occupational license for structures in the Hobart City Council highway reservation, in accordance with conditions to be established by the Council. Click here for more information.

You may require a Permit to Open Up and Temporarily Occupy a Highway (for work in the road reserve). Click here for more information.

WORK WITHIN THE HIGHWAY RESERVATION

Please note development must be in accordance with the Hobart City Council's Infrastructure by law. Click here for more information.

DRIVEWAY SURFACING OVER HIGHWAY RESERVATION

If a coloured or textured surface is used for the driveway access within the Highway Reservation, the Council or other service provider will not match this on any reinstatement of the driveway access within the Highway Reservation required in the future.

ACCESS

Designed in accordance with LGAT- IPWEA – Tasmanian standard drawings. Click here for more information.

CROSS OVER CONSTRUCTION

The construction of the crossover can be undertaken subject to Council approval of the design. Click here for more information.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

Attachment A:	PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Planning Committee or Delegated Report ⇩
Attachment B:	PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - CPC Agenda Documents ⇩
Attachment C:	PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Planning Referral Officer Cultural Heritage Report ⇩
Attachment D:	PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Planning Referral Officer Development Engineering Report ⇩

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Committee
Committee:	6 June 2022
Expiry Date:	12 June 2022
Application No:	PLN-22-19
Address:	32 COMMERCIAL ROAD , NORTH HOBART
Applicant:	Jane Monks (PDA Surveyors) 127 Bathurst st
Proposal:	Partial Demolition, New Parking Space & Front Fencing
Representations:	Nil
Performance criteria:	Inner Residential Zone Development Standards, Road and Railway Access Code, Parking and Access Code, Historic Heritage Code

1. Executive Summary

1.1 Planning approval is sought for Partial Demolition, New Parking Space and Front Fencing at 32 Commercial Road, North Hobart.

1.2 More specifically the proposal includes:

- demolition to an existing outbuilding and fence on the property's frontage to Commercial Lane;
- construction of a new crossover;
- construction of a freestanding roller door structure leading to a 6.1m x 3.6m hard standing carparking space within the property; and
- construction of a new 1.8m high paling fence and pedestrian gate.

1.3 The proposal relies on performance criteria to satisfy the following standards and codes:

1.3.1 Inner Residential Zone - Setbacks and Building Envelope, Front Fencing
1.3.2 Roads and Railway Assets Code - Sight distance at accesses, junctions and level crossings
1.3.3 Parking and Access Code - Number of Parking Spaces, Design of Vehicle Accesses, Layout of Parking Areas
1.3.4 Historic Heritage Code - Demolition, Building and Works in a Heritage Precinct

1.4 No representations were received during the statutory advertising period between 10-24 May 2022.

1.5 The proposal is recommended for approval subject to conditions.

1.6 The final decision is delegated to the City Planning Committee, because the proposal includes works in the Council's Road Reservation.

2. Site Detail

2.1 The subject site is located on the cusp of the North Hobart Shopping Precinct. The subject site has dual frontage, to Commercial Road and Commercial Lane. All works are located on the property's Commercial Lane frontage. The properties within the immediate area, with the exception of the Friends School, are residential, there are a number of retail premises within walking distance of the site.

Fig. 1 - the subject site is bordered in blue

Fig. 2 - the works are located on this frontage and require the removal of the existing outbuilding and vegetation, as well as works to the road reservation to construct a crossover.

3. Proposal

3.1 Planning approval is sought for Partial Demolition, New Parking Space and Front Fencing at 32 Commercial Road, North Hobart.

3.2 More specifically the proposal is for:

- demolition to an existing outbuilding and fence on the property's frontage to Commercial Lane;
  construction of a new crossover;
  construction of a freestanding roller door structure leading to a 6.1m x 3.6m hard standing carparking space within the property; and
  construction of a new 1.8m high paling fence and pedestrian gate.

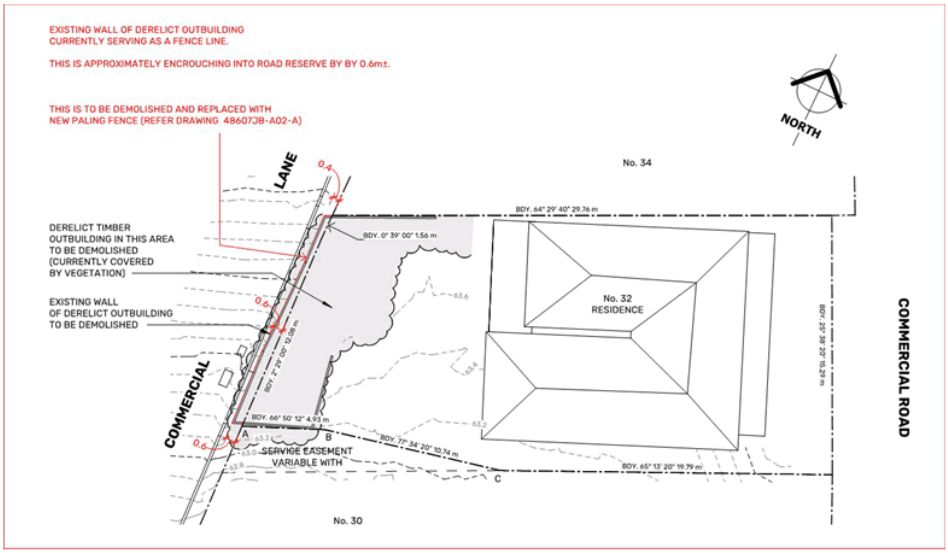


Fig. 3 - Existing Site Plan

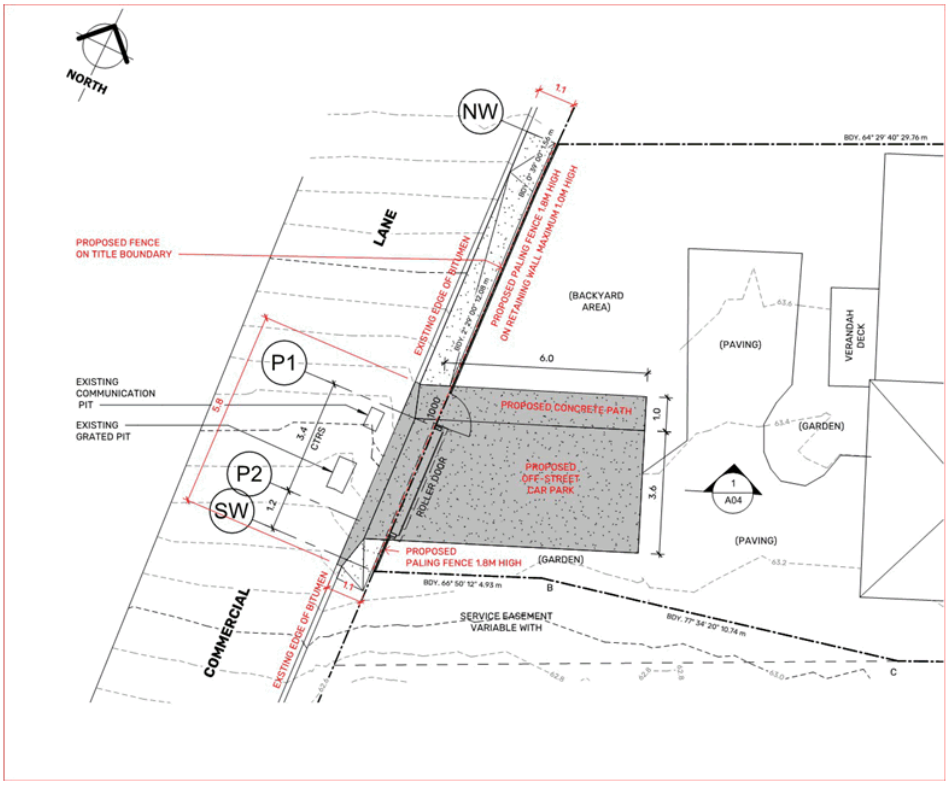


Fig. 4 - Proposed Site Plan

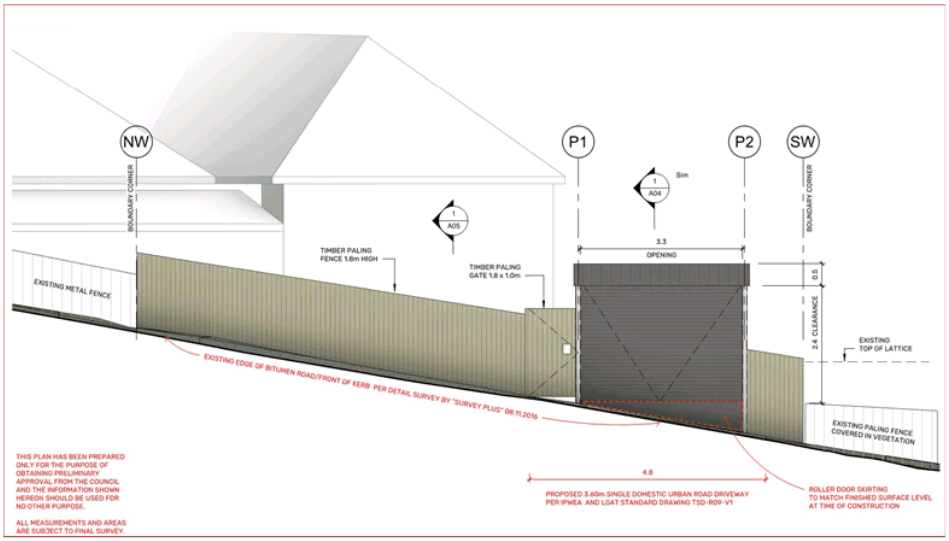


Fig. 5 - Proposed Commercial Lane elevation

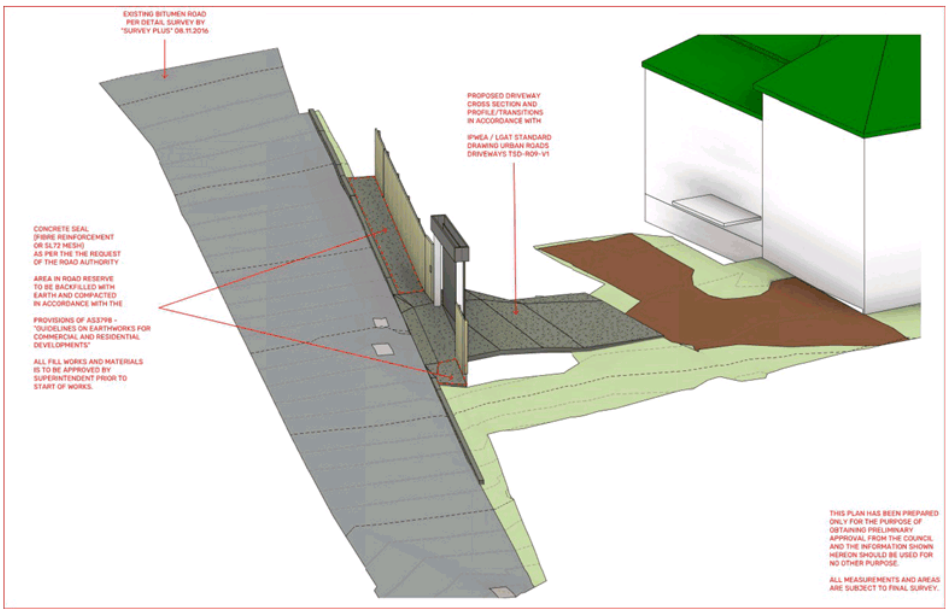


Fig. 6 - Proposed 3D image

4. Background

4.1 The applicant was required to obtain General Manager Consent (GMC-22-14) as the proposal involves works within the road reservation. General Manager's consent was issued on 29 March 2022.

5. Concerns raised by representors

5.1 No representations were received during the statutory advertising period between 10-24 May 2022.

6. Assessment

6.1 The *Hobart Interim Planning Scheme 2015* is a performance based planning scheme. To meet an applicable standard, a proposal must demonstrate compliance with either an acceptable solution or a performance criterion. Where a proposal complies with a standard by relying on one or more performance criteria, the Council may approve or refuse the proposal on that basis. The ability to approve or refuse the proposal relates only to the performance criteria relied on.

6.2 The site is located within the Inner Residential Zone of the *Hobart Interim Planning Scheme 2015*.

6.3 The existing and proposed use is residential which is a no permit required use in the zone.

6.4 The proposal has been assessed against:

6.4.1 Part D - 11.0 Inner Residential Zone

6.4.2 E5.0 Road and Railway Access Code

6.4.3 E6.0 Parking and Access Code

6.4.4 E7.0 Stormwater Management Code

6.4.5 E13.0 Historic Heritage Code

6.5 The proposal relies on the following performance criteria to comply with the applicable standards:

6.5.1 Inner Residential Zone:

Setbacks and Building Envelope - Part D11.4.2P1 and P3

Frontage Fencing – Part D 11.4.7 P1

6.5.2 Road and Railway Access Code

Sight distance at accesses, junctions and level crossings - E5.6.4P1

6.5.3 Parking and Access Code:

Number of Parking Spaces - E6.6.1 P1
Design of Vehicle Accesses - E.6.7.2P1
Layout of Parking Areas - E 6.7.5P1

6.5.4 Historic Heritage Code:

Demolition within a Heritage Precinct- E13.8.1 P1
Building and Works other than Demolition within a Heritage Precinct - E13.8.2P1, P4 and P5

6.6 Each performance criterion is assessed below.

6.7 Front Fencing Part D 11.4.7P1

6.7.1 There is no acceptable solution for front fencing in the Inner Residential Zone.

6.7.2 The proposal includes a 1.8m high solid paling fence on the property's frontage to Commercial Lane.

6.7.3 There is no acceptable solution; therefore assessment against the performance criterion is relied on.

6.7.4 The performance criterion at clause 11.4.7P1 provides as follows:

A fence (including a free-standing wall) for a dwelling within 4.5m of a frontage must:

(a) provide for security and privacy while allowing for passive surveillance of the road; and

(b) be compatible with the height and transparency of fences in the street, having regard to:

(i) the topography of the site; and
(ii) traffic volumes on the adjoining road.

6.7.5 The objective of front fencing provisions under the scheme is to provide adequate privacy and security for residents and is reasonably consistent with that on adjoining properties. It also seeks to allow the potential passive mutual surveillance between the road and the dwelling.

As stated above, the property has two road frontages, Commercial Road and Commercial Lane. Entrance to the dwelling is via Commercial Road and therefore the proposed fence will act as a rear fence. This is identical to the dwellings within 12-36 Commercial Road, who also have frontage to Commercial Lane. As a result the vast majority of the above properties either have paling fences or garages along their Commercial Lane boundary. Consequently, the proposed fence is compatible to the height and transparency of the fences in Commercial Lane and will provide security and privacy for the residents.

In terms of passive mutual surveillance, there is the potential for this to occur should the roller door be open. However, as stated above, the entrance to the dwelling is via Commercial Road. The lounge room in the dwelling faces this frontage and the proposal will not affect this passive mutual surveillance between the road and the dwelling. In addition, the floor plan of the dwelling confirms that the kitchen window faces the rear onto Commercial Lane. As the finished floor level of the dwelling within the kitchen is significantly above natural ground level, the construction of the proposed fence and roller door will not impede the current level of passive mutual surveillance between the Commercial Lane and the kitchen within the dwelling.

6.7.6 The proposal complies with the performance criterion.

Fig. 7 - the rear of the subject site. The kitchen windows will continue to have an unobstructed view of Commercial Lane once the the fence and roller door structure is complete

6.8 Setback and Building Envelope Part D 11.4.2 P1 and Part 11.4.2.P3

6.8.1 The acceptable solution at clause 11.4.2A1 requires a carport to be setback not more than 0.9m into the frontage setback.

The acceptable solution at clause 11.4.2A3 requires a dwelling, including outbuildings greater than 2.4m in height to be contained with in the building envelope prescribed under Part D11.4.2A3.

6.8.2 The proposal includes the construction of a freestanding roller door leading to a hard standing car parking space on the boundary frontage.

The 2.9m structure containing the roller door is built on the property's boundary to Commercial Lane.

6.8.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.8.4 The performance criterion at clause 11.4.2P1 and 11.4.2P3 provides as

follows:

P1

A dwelling must have a setback from a frontage that is compatible with the streetscape having regard to any topographical constraints.

P3

The siting and scale of a dwelling must:

(a) not cause an unreasonable loss of amenity to adjoining properties, having regard to:

(i) reduction in sunlight to a habitable room (other than a bedroom) of a dwelling on an adjoining property;

(ii) overshadowing the private open space of a dwelling on an adjoining property;

(iii) overshadowing of an adjoining vacant property; or

(iv) visual impacts caused by the apparent scale, bulk or proportions of the dwelling when viewed from an adjoining property; and

(b) provide separation between dwellings on adjoining properties that is consistent with that existing on established properties in the area.

6.8.5 The objectives of the setback and building envelope provisions, in this instance is provide reasonably consistent separation between dwellings on adjacent sites and a dwelling and its frontage. The objectives also aim to provide consistency in the scale, bulk and massing and proportion of dwellings.

In terms of the location of the roller door, as stated above, the structure sits and follows the line of the proposed boundary fence. As such, the location is consistent with the streetscape, as all the existing fences and garages within adjacent properties, with the exception of 429 Elizabeth Street, are located on their boundary fronting Commercial Lane.

The proposed roller door structure is a maximum height of 2.9, above the existing pavement and is approximately in the same location of the derelict outbuilding which is to be demolished. The roller door will be

incorporated into the fence and be between 870mm -1650mm higher than the proposed fence and 11m north of the closest dwelling at 30 Commercial Road. Although the carport structure is north of the property, the separation distance to the dwelling will not create an unreasonable impact, visual or in terms of overshadowing or loss of solar access to the dwelling and private open space within the adjoining property.

6.8.6 The proposal complies with the performance criterion.

Fig. 8 - the existing streetscape along Commercial Lane

Fig. 9- the existing streetscape along Commercial Lane

6.9 Road and Railway Access Code Part E5.6.4P1

6.9.1 The acceptable solution at clause E5.6.4A1 requires the sight distance at accesses or junctions to comply with the Safe Intersection Site Distance

shown on Table E5.1 of the Code.

6.9.2 The proposal does not meet the acceptable solution as the sight lines are obstructed by the nature of the site, neighbouring fencing and on street car parking adjacent to the access.

6.9.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.9.4 The performance criterion at clause E5.6.4P1 provides as follows:

The design, layout and location of an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles, having regard to:

(a) the nature and frequency of the traffic generated by the use;
(b) the frequency of use of the road or rail network;
(c) any alternative access;
(d) the need for the access, junction or level crossing;
(e) any traffic impact assessment;
(f) any measures to improve or maintain sight distance; and
(g) any written advice received from the road or rail authority.

6.9.5 The objective of the sight distance at accesses is to ensure that there is sufficient sight distance between vehicles to enable safe movement of traffic.

The proposal was referred to Council's Development Engineer, who provided the following assessment:

In this case, the required sight distance is not met due to the nature of the site. Commercial Lane does not have a change in speed limit, however a car would not be able to safely reach the maximum sign posted speed limit of 50 km/h due to the narrow nature of the lane. The lane is also for residential use only being a 'minor' road. There is no alternative access possible for the proposed development.

All traffic generated by the proposed development will be residential in nature. This is compatible with the existing traffic Commercial Lane near the subject site. The increased traffic generated by the proposed development is likely to be less than 20 vehicles per day when all units are fully developed and occupied.

Commercial Lane is a minor road that has a relatively low traffic volume near the site. It provides access to a residential catchment that is relatively stable and closed in nature. The driveway access servicing the site will operate at a high level of service based on the relatively low traffic volumes. The general urban speed limit of 50-km/h applies Commercial Lane. This speed limit is appropriate for the residential nature of the development, however this speed limit is restricted by the nature of the site.

6.9.6 The proposal complies with the performance criterion.

6.10 Parking and Access Code PartE6.6.1P1, Part E6.7.2P1 and Part E.6.7.5P1

6.10.1 The acceptable solution at Table E6.1 requires two onsite car parking spaces for a dwelling with two or more bedrooms.

The acceptable solution at Clause E6.7.2A1 requires a 2m x 2.5m sight triangle abutting the driveway are kept clear of obstructions to visibility.

The acceptable solution at Clause E6.7.5A1 allows for a maximum parking space and parking module gradient of 5%.

6.10.2 The proposal includes the construction of one onsite car parking space.

The plans submitted with the proposal indicate that the 2m x 2.5m sight triangle abutting the driveway are not kept clear of obstructions to visibility.

The plans submitted with the proposal indicate that the proposed parking space has a gradient and parking module greater than 5%.

6.10.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.10.4 The performance criterion at clause E6.6.1P1, E 6.7.2P1 and E 6.7.5P1 provides as follows:

E6.6.1P1 (number of onsite parking spaces)

The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following:

(a) car parking demand;
(b) the availability of on-street and public car parking in the locality;

(c) the availability and frequency of public transport within a 400m walking distance of the site;
(d) the availability and likely use of other modes of transport;
(e) the availability and suitability of alternative arrangements for car parking provision;
(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;
(g) any car parking deficiency or surplus associated with the existing use of the land;
(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;
(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;
(j) any verified prior payment of a financial contribution in lieu of parking for the land;
(k) any relevant parking plan for the area adopted by Council;
(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;
(m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code.

E6.7.2P1 (Design of Vehicular Accesses)

Design of vehicle access points must be safe, efficient and convenient, having regard to all of the following:

(a) avoidance of conflicts between users including vehicles, cyclists and pedestrians;
(b) avoidance of unreasonable interference with the flow of traffic on adjoining roads;
(c) suitability for the type and volume of traffic likely to be generated by the use or development;
(d) ease of accessibility and recognition for users.

E6.7.5P1 (Layout of Parking Areas)

The layout of car parking spaces, access aisles, circulation roadways

and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site.

6.10.5 The objective of the number of car parking provisions in this instance is to ensure that there is enough car parking to meet the needs of all users of the user development, while taking into account the level of parking available on or outside the land and access is afforded by other modes of transport. In additional it aims to ensure that the use/development does not detract from the amenity of users or the locality by preventing regular parking overspill.

The objective of the provisions relating to the design of vehicular accesses is to ensure that there is safe and efficient access for all users, including drivers, passengers, pedestrians and cyclists by locating, designing and constructing vehicle access points safely relative to the road network.

The objective of the provisions relating to the design and layout of parking areas is to ensure that parking areas for cars (including assessable parking spaces), motorcycles and bicycles are located, designed and constructed to enable safe, easy and efficient use.

The proposal was referred to Council's Development Engineer, who provided the following report:

The empirical parking assessment indicates that the provision of 2 on-site car parking spaces will sufficiently meet the likely demands associated with the development, with the exception of onsite visitor parking. There is a limited supply of on-street parking in the surrounding road network. Much of the available parking is in the form of time-restricted parking, with authorised residents excepted. Observations indicate that the parking that would be available to meet the potential demands of visitor and overflow parking, particularly after normal working hours.

Metro Tasmania operate regular bus services along Elizabeth Street which is within 150 metres of the subject site, which is located a convenient walking distance from shops, schools and services.

There is no significant tree on or near the site. Council's Cultural Heritage Officer has assessed the application against the E13.0 Historic Heritage Code and support the proposal..

No alternative parking provision is available or considered necessary.

This is particularly due to the actual parking demands that will be generated by the development.

As stated above, the submitted plans indicate 2m x 2.5m sight triangle areas abutting the driveway are not kept clear of obstructions to visibility due the nature of the site. Given the location of the access and driveway, and the low volume of traffic on the road from which the property gains access and based on the above assessment and submitted documentation, sight lines may be accepted under Performance Criteria P1:E6.7.2 of the Planning Scheme.

It is noted that the surrounding area exhibit the same provisions

A condition will be placed on the planning permit to address fence transparency for sight lines in order to promote a safe, efficient and convenient use of the driveway accesses.

The parking space gradient and parking module shown on the submitted plans exceeds 5% and therefore does not comply with AS/NZS 2890.1:2004 and has an apron which is less than 6m and has been assessed under performance criteria. Residential car parking space layout may utilise 'Jockey Parking' configuration in which the one car parking space is behind another car parking space provided it serves it serves the same dwelling and is not designated for visitors. Submitted documentation appears to meet these parameters and therefore the layout of parking areas may be accepted under Performance Criteria P1:E6.7.5 given the driveway configuration.

6.10.6 The proposal complies with the performance criterion.

6.11 Historic Heritage Code Part E13.8.1P1 and E13.8.2P1, P4 and P5

6.11.1 There is no acceptable solution for demolition and building and works within a heritage precinct.

6.11.2 The proposal includes demolition and building and works for a place within a heritage precinct.

6.11.3 There is no acceptable solution; therefore assessment against the performance criterion is relied on.

6.11.4 The performance criterion at clause E13.8.1P1 and E13.8.2P1, P4 and P5 provides as follows:

E13.8.1P1

Demolition must not result in the loss of any of the following:

(a) buildings or works that contribute to the historic cultural heritage significance of the precinct;
(b) fabric or landscape elements, including plants, trees, fences, paths, outbuildings and other items, that contribute to the historic cultural heritage significance of the precinct;
unless all of the following apply;

(i) there are, environmental, social, economic or safety reasons of greater value to the community than the historic cultural heritage values of the place;

(ii) there are no prudent or feasible alternatives;

(iii) opportunity is created for a replacement building that will be more complementary to the heritage values of the precinct.

E13.8.2P1

Design and siting of buildings and works must not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.

E.13.8.2P4

New front fences and gates must be sympathetic in design, (including height, form, scale and materials), and setback to the style, period and characteristics of the precinct.

E13.8.2P5

The removal of areas of landscaping between a dwelling and the street must not result in the loss of elements of landscaping that contribute to the historic cultural significance or the streetscape values and character of the precinct.

6.11.5 The objective of the heritage provisions in this instance is to ensure that demolition and development within a heritage precinct does not result in a loss of historic cultural heritage values and the works are undertaken is

sympathetic to the character of the precinct.

The application was referred to Council's Cultural Heritage Officer, who provided the following report:

The application relates to part of the rear garden setting of No.32 Commercial Road, a relatively modest single storey weatherboard cottage whose front yard faces onto Commercial Road, and its rear garden onto Commercial Lane.

The proposal seeks permission for the removal of the an existing poorly maintained single storey timber shed and timber fencing which forms the boundary treatment onto Commercial Lane, the re-enclosure of the rear yard with a new 1.8m high paling timber fence, provision of free standing roller door and supporting structure along with pedestrian gate and creation of concrete hard standing.

The site is not individually heritage listed but does form part of the McTavish Avenue and Surrounds Heritage Precinct (NH3) as set out in table E.13.2 of the Hobart Interim Planning Scheme 2015.

This precinct is significant for reasons including:

1. The fine quality and quantity of late Victorian and Federation period houses provide evidence of the original residential nature of this precinct, and the boom periods of suburban expansion.

2. Individual houses within this precinct that are intact representative examples of Old Colonial, Victorian and Federation architecture.

3. The small number of Colonial and early Victorian houses that reflect an early settlement pattern along main transport routes.

4. Substantial groups of late Victorian and Federation architecture, which create a consistent and impressive streetscape.

5. A uniformity of form and scale as well as a distinctive and consistent nineteenth/early twentieth century subdivision pattern that is reflected in the streetscape.

6. Its residential character, front and rear gardens, retaining walls, and other aesthetic features which reinforce it character.

With regard to the above, it is considered that the site, along with its nearest neighbours, clearly represent a form of streetscape associated with the mid-Victorian expansion of Hobart with the parent property itself likely to date from this period despite being older. In that respect therefore, it is considered that the property is a contributory element to the above characteristics.

With regard to the Development Standards relating to Heritage Precincts as set out in the Hobart Interim Planning Scheme, Policy E13.8.1 Demolition states as its objective:

To ensure that demolition in whole or in part of buildings or works within a heritage precinct does not result in the loss of historic cultural heritage values unless there are exceptional circumstances.

Based on the above, it is noted that the rear boundary of the site is currently largely made up of the rear facing wall of an elongated timber outbuilding that appears to date from the 1950's. Other than utilising a clearly secondary materials to a residential scale that adheres to the general height of rear boundary treatment, it is considered that in of itself, the structure and small area of additional fencing does not make a positive contribution to the character of the precinct. As such, subject to a suitable replacement, the demolition proposed is considered acceptable in this instance and the subsequent loss of planting to the rear garden is considered so limited that it makes no contribution to the historic cultural significance of the precinct.

Policy E13.8.2 - Buildings and Works other than Demolition stipulates that its overall objective is to ensure that development undertaken within a heritage precinct is sympathetic to the character of the precinct.

As such,

P1 - Design and siting of buildings and works must not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.

P4 - New front fences and gates must be sympathetic in design, (including height, form, scale and materials), and setback to the style, period and characteristics of the precinct.

P5 - The removal of areas of landscaping between a dwelling and the street must not result in the loss of elements of landscaping that

contribute to the historic cultural significance or the streetscape values and character of the precinct.

The proposed new timber fencing would not extend above 1.8m high and whilst the proposed roller-door and its supporting structure would extend in height above this, it would very much match the scale and form of existing rear garages facing onto the Lane. Its impact would appear like that of a secondary building and largely in keeping with the back-lane character of Commercial Lane. The choice to utilise timber as cladding is considered entire appropriate and overall its visual impact would be relatively small within the townscape. Although the reduction in soft landscaping to accommodate the proposed development is considered unfortunate, it would not reduce the residential appearance of the immediate area. Importantly, of the characteristics defined above, it is considered that the proposal would not detract from any of the identified characteristics or detract from the historical and cultural importance of the Heritage Precinct.

It is therefore considered that the proposed works would neither detract nor be detrimental to the character of the Heritage Precinct, and as such would not run contrary to the Heritage Performance Criteria's set out in the HIPS.

6.11.6 The proposal complies with the performance criterion.

7. Discussion

7.1 Planning approval is sought for Partial Demolition, New Parking Space and Front Fencing at 32 Commercial Road North Hobart.

7.2 The application was advertised and no representations were received.

7.3 The proposal has been assessed against the relevant provisions of the planning scheme and is considered to perform well.

7.4 The proposal has been assessed by other Council officers, including the Council's Development Engineer, Roads Engineer, Stormwater Services Engineer and Cultural Heritage Officer. The officers have raised no objection to the proposal, subject to conditions.

7.5 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Partial Demolition, New Parking Space and Front Fencing at 32 Commercial Road North Hobart satisfies the relevant provisions of the *Hobart Interim Planning Scheme 2015*, and as such is recommended for approval.

9. Recommendations

That: Pursuant to the *Hobart Interim Planning Scheme 2015*, the City Planning Committee, in accordance with the delegations contained in its terms of reference, approve the application for Partial Demolition, New Parking Space and Front Fencing at 32 Commercial Road North Hobart for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

SW 3

The proposed demolition works and new fence (including footings) must be designed to ensure the protection and access to the Hobart City Council's Stormwater Infrastructure on Commercial Lane.

Prior to the issuing of any approval under the Building Act 2016 or commencement of works (whichever occurs first), a detailed demolition plan and fence design must be submitted and approved as a Condition Endorsement. The detailed design must be prepared by a suitably qualified expert and must:

1. demonstrate how the design will ensure the protection of and provide access to the Hobart City Council's stormwater main.

All work required by this condition must be undertaken in accordance with the approved detailed design.

Advice: This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

ENG 3a

The access driveway and parking area must be constructed in accordance with the following documentation which forms part of this permit: PLN-22-19 - 32 COMMERCIAL ROAD NORTH HOBART TAS 7000 - Detail - Additional Information - AIS-22-785 (received by the Council on the 5th of May 2022).

Any departure from that documentation and any works which are not detailed in the documentation must be either:

(a) approved by the Director City Life, via a condition endorsement application; or
(b) designed and constructed in accordance with Australian Standard AS/NZ 2890.1:2004.

The works required by this condition must be completed prior to first occupation.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

The access driveway and parking module (car parking spaces, aisles and manoeuvring area) approved by this permit must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior to the first occupation / commencement of use.

Reason for condition

To ensure the safety of users of the access driveway and parking module, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

The number of car parking spaces approved under this permit on the site is one (1).

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 13

The fencing and gate at the rear of 32 Commercial Road (Commercial Lane) must allow adequate sight distance between user vehicles, cyclists and pedestrians.

To enable the fence either side of the driveway to provide adequate sight distance between user vehicles, cyclists and pedestrians, the fence and gate proposed on Commercial Lane is restricted to at a maximum height of 1.2m for a minimum 2m either side of the driveway.

Alternatively, any fence greater than 1.2m in height must have a transparency greater than 50% for the portion above 1.2m in height, such that a pedestrian, vehicle and cyclists cannot be obscured from view.

Any departure from the above restrictions must be approved via Condition Endorsement prior to the commencement of work. If so, the amended drawing must demonstrate how the fence either side of the driveway/s provides for adequate sight distance between user vehicles, cyclists and pedestrians by one of the following methods:

1. **Compliance with Australian/NZ Standard, Parking facilities Part 1: Off-street car parking AS/NZS 2890.1: 2004 Fig 3.3;**
2. **Increasing the gate width of the driveway(s) to 5m;**
3. **Increasing the transparency of fencing for at least 1.5m on each side of driveway/s so that those sections of fencing are largely transparent; or**
4. **Setting driveway(s) gates back 1m from front fence line to achieve increased sight lines.**

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

This condition only requires further information to be submitted as a Condition Endorsement if the design has any departure from the restriction. If so, refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure the safety of vehicles entering and leaving the development and of pedestrians and traffic in the vicinity.

ENG r3

Prior to the commencement of use, the proposed driveway crossover on the Commercial Lane highway reservation must be designed and constructed in general accordance with:

- **Urban - TSD-R09-v3 – Urban Roads Driveways and TSD R14-v3 Type KC vehicular crossing;**
- **Footpath - Urban Roads Footpaths TSD-R11-v3 concrete.**

Design drawings must be submitted and approved as a Condition Endorsement prior to any approval under the Building Act 2016. The design drawings must:

1. **Show the cross and long sections of the driveway crossover within the highway reservation and onto the property;**
2. **Show the cross section of the front boundary, the concrete strip needs to be falling towards the road.**
3. **Detail any services or infrastructure (ie light poles, pits, awnings) at or near the proposed driveway crossover;**
4. **Show swept path templates in accordance with AS/NZS 2890.1 2004(B85 or B99 depending on use, design template);**
5. **If the design deviates from the requirements of the TSD, then demonstrate that a B85 vehicle or a B99 depending on use (AS/NZS 2890.1 2004, section 2.6.2), can access the driveway from the road pavement into the property without scraping the vehicle's underside;**
6. **Show that vehicular and pedestrian sight lines are met as per AS/NZS 2890.1 2004.**
7. **Be prepared and certified by a suitable qualified person, to satisfy the above requirements.**

All work required by this condition must be undertaken in accordance with the approved drawings.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Please note that your proposal does not include adjustment of footpath levels. Any adjustment to footpath levels necessary to suit the design of proposed floor, parking module or driveway levels will require separate agreement from Council's Program

Leader Road Services and may require further planning approvals. It is advised to place a note to this affect on construction drawings for the site and/or other relevant engineering drawings to ensure that contractors are made aware of this requirement.

Reason for condition

To ensure that works will comply with the Council's standard requirements.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

A fee of 2% of the value of the works for new public assets (stormwater infrastructure, roads and related assets) will apply for the condition endorsement application.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016.* Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of

the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require an cccupational license for structures in the Hobart City Council highway reservation, in accordance with conditions to be established by the Council. Click here for more information.

You may require a Permit to Open Up and Temporarily Occupy a Highway (for work in the road reserve). Click here for more information.

WORK WITHIN THE HIGHWAY RESERVATION

Please note development must be in accordance with the Hobart City Council's Infrastructure by law. Click here for more information.

DRIVEWAY SURFACING OVER HIGHWAY RESERVATION

If a coloured or textured surface is used for the driveway access within the Highway Reservation, the Council or other service provider will not match this on any reinstatement of the driveway access within the Highway Reservation required in the future.

ACCESS

Designed in accordance with LGAT- IPWEA – Tasmanian standard drawings. Click here for more information.

CROSS OVER CONSTRUCTION

The construction of the crossover can be undertaken subject to Council approval of the design. Click here for more information.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

(Deanne Lang)
Development Appraisal Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

(Ben Ikin)
Senior Statutory Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Date of Report: 25 May 2022

Attachment(s):

Attachment B - CPC Agenda Documents

Attachment C - Planning Referral Officer Cultural Heritage Report

Attachment D - Planning Referral Officer Development Engineering Report

PDA
SURVEYORS, ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania 7000
Phone (03) 6234 3217

ABN 71 217 806 325
pda.hbt@pda.com.au
www.pda.com.au

Our Ref: 48607JB

17th March 2022

Hobart City Council
Planning Department
GPO Box 503, Hobart

Via: Development Portal

Dear Ci Yan,

RE: General Managers Consent -22-14

32 Commercial Road, North Hobart

Thank you for your email dated 10th March 2022. I write to provide the additional information you have requested to finalise the assessment of the application.

Response:

Please find revised plans attached as per your request. We have included further notation of the width and proposed finish of the strip between the proposed fence and kerb. Whilst also notating and highlighting that there is to be no changes made to the nature of the road gradient, including further clarification there is no hump/step on the lower side of the driveway, it is simply the roller door skirting to match the finished surface level.

The information provided satisfies your request for additional information adequately and our application can progress to the next stage of the process.

Yours faithfully,
PDA Surveyors, Engineers & Planners
Per:

Jane Monks

HOBART:
C.M. Terry, BSurv (Tas.), M.SSSI (Director)
H. Clement, BSurv (Tas.), M.SSSI (Director)
M.S.G. Denholm, BGeom (Tas.), M.SSSI (Director)
T.W. Walter, Dip. Surv & Map (Director)
M. Westerberg, M.E.M., M.I.E. AUST., C.P.ENG. (Director)
D. Panton, B.E. F.I.E. AUST., C.P.ENG. (Consultant)
A. Collins, Ad. Dip. Surv & Map, (Senior Associate)
L.H. Kiely, Ad. Dip. Civil Eng, Cert IV I.T., (Associate)

KINGSTON:
A.P. (Lex) McIndoe, BSurv (Tas.), M.SSSI (Director)
M.M. Stratton, BSurvSpSc, GradDipLandSurv (Tas.) (Associate)

LAUNCESTON:
J.W. Dent, OAM, B. Surv (Tas.), M.SSSI (Director)
M.B. Reid, BGeom (Hons) (Tas.), M.SSSI (Director)
J.M. Brooks, MEnvPlg, M.PIA (Director)

BURNIE/DEVONPORT:
A.W. Eberhardt, BGeom (Tas.), M.SSSI (Director)
A.J. Hudson, B. SURV. (Tas.), M.SSSI. (Consultant)

OFFICES ALSO AT:
- 6 Freeman St, Kingston, TAS 7050 (03) 6229 2131
- 10/16 Main Rd, Huonville, TAS 7109 (03) 6264 1277
- 3 Franklin St, Swansea, TAS 7190 (03) 6130 9099
- 3/23 Brisbane St, Launceston, TAS 7250 (03) 6331 4099
- 16 Emu Bay Rd, Deloraine, TAS 7304 (03) 6362 2993
- 6 Queen Street, Burnie, TAS 7320 (03) 6431 4400
- 77 Gunn St, Devonport, TAS 7310 (03) 6423 6875

City of HOBART
Approved - General Manager Consent Only
GMC-22-14 29/03/2022

PDA
SURVEYORS, ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania 7000
Phone (03) 6234 3217

ABN 71 217 806 325
pda.hbt@pda.com.au
www.pda.com.au

5Our Ref: 48607JB

5th May 2022

Hobart City Council
Planning Department
GPO Box 503, Hobart

Via: Development Portal

Dear Deanne,

RE: Development Application PLN-22-19
Partial Demolition, New parking space & Front Fence
32 Commercial Road, North Hobart

Thank you for your letter and phone conversation with Tony Yan on 4th May 2022. I write to provide the additional information you have requested to finalise the assessment of the application. Pease see our response to each section of your request provided below:

Roads

Response:

1. As per the phone discussion with Mr Yan, the long section was provided on 17th of March 2022. When the derelict outbuilding is demolished, the access will be constructed to comply with the Road Authority standard. It was agreed during the phone conversation with Mr Yan, that it will be conditioned on the permit.

2. Please find attached the revised Section Detail B, clarifying that the back of kerb and proposed front fence will be reinstated with concrete as per the request of the Road Authority.

HOBART:
C.M. Terry, BSurv (Tas.), M.SSSI (Director)
H. Clement, BSurv (Tas.), M.SSSI (Director)
M.S.G. Denholm, BGeom (Tas.), M.SSSI (Director)
T.W. Walter, Dip. Surv & Map (Director)
M. Westerberg, M.E.M., M.I.E. AUST., C.P.ENG. (Director)
D. Panton, B.E. F.I.E. AUST., C.P.ENG. (Consultant)
A. Collins, Ad. Dip. Surv & Map, (Senior Associate)
L.H. Kiely, Ad. Dip. Civil Eng, Cert IV I.T., (Associate)

KINGSTON:
A.P. (Lex) McIndoe, BSurv (Tas.), M.SSSI (Director)
M.M. Stratton, BSurvSpSc, GradDipLandSurv (Tas.) (Associate)

LAUNCESTON:
J.W. Dent, OAM, B. Surv (Tas.), M.SSSI (Director)
M.B. Reid, BGeom (Hons) (Tas.), M.SSSI (Director)
J.M. Brooks, MEnvPlg, M.PIA (Director)

BURNIE/DEVONPORT:
A.W. Eberhardt, BGeom (Tas.), M.SSSI (Director)
A.J. Hudson, B. SURV. (Tas.), M.SSSI. (Consultant)

OFFICES ALSO AT:
- 6 Freeman St, Kingston, TAS 7050 (03) 6229 2131
- 10/16 Main Rd, Huonville, TAS 7109 (03) 6264 1277
- 3 Franklin St, Swansea, TAS 7190 (03) 6130 9099
- 3/23 Brisbane St, Launceston, TAS 7250 (03) 6331 4099
- 16 Emu Bay Rd, Deloraine, TAS 7304 (03) 6362 2993
- 6 Queen Street, Burnie, TAS 7320 (03) 6431 4400
- 77 Gunn St, Devonport, TAS 7310 (03) 6423 6875

We believe that the information provided adequately satisfies your request for additional information and our application will now progress to the next stage of the planning assessment process.

Yours faithfully,
PDA Surveyors, Engineers & Planners
Per:

Jane Monks

DRAWING INDEX

DWG No.	DRAWING	ISSUE
A01	DEMOLITION AND SITE PLAN	B
A02	PROPOSED FENCE AND OFF-STREET CAR PARK	B
A03	FENCE ELEVATION (COMMERCIAL LANE)	B
A04	DRIVEWAY LONG SECTION	B
A05	PROPOSED FENCE DETAIL	A
A06	3D VIEW	A

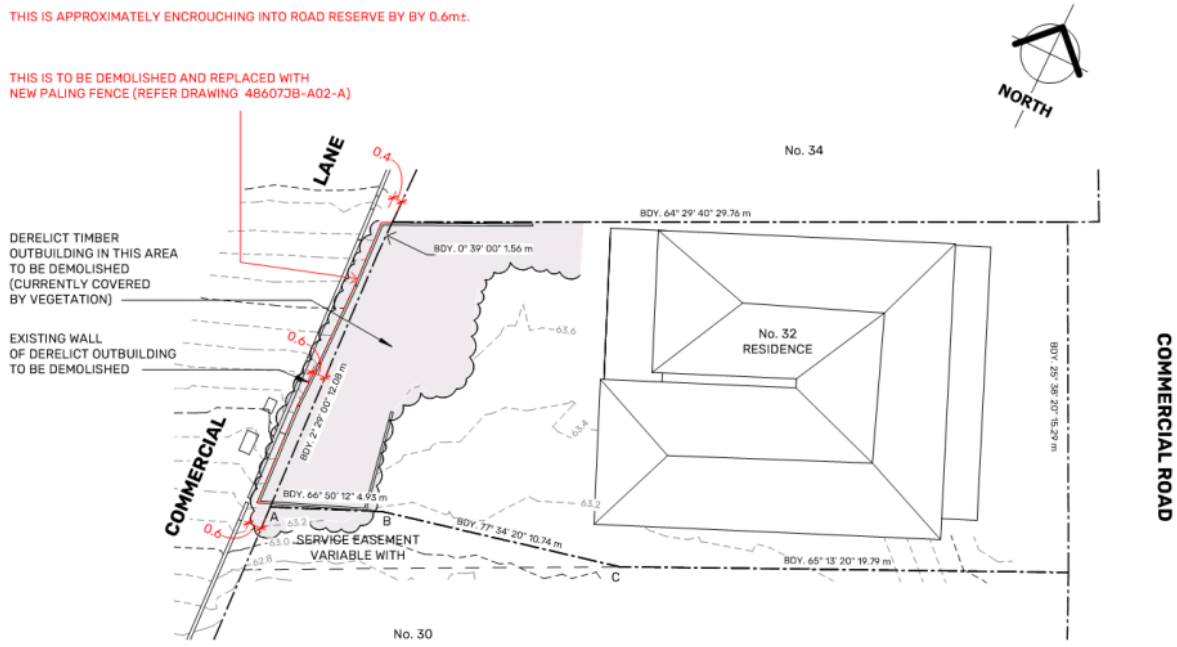
GENERAL INFORMATION

Property Address:	32 Commercial Road North Hobart, Tas 7000
Property ID:	96811278
Title reference :	FR 181669/1
Owner name(s):	Cameron John Donovan Jessica Ann Scurry
Site area:	473m²

EXISTING WALL OF DERELICT OUTBUILDING
CURRENTLY SERVING AS A FENCE LINE.

THIS IS APPROXIMATELY ENCROUCHING INTO ROAD RESERVE BY BY 0.6m±.

THIS IS TO BE DEMOLISHED AND REPLACED WITH
NEW PALING FENCE (REFER DRAWING 48607JB-A02-A)



DERELICT TIMBER
OUTBUILDING IN THIS AREA
TO BE DEMOLISHED
(CURRENTLY COVERED
BY VEGETATION)

EXISTING WALL
OF DERELICT OUTBUILDING
TO BE DEMOLISHED

DEMOLITION NOTES:

ALL DEMOLITION WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE DEMOLITION WORK CODE OF PRACTICE.

ALL EXISTING STRUCTURES SHALL BE MAINTAINED IN A STABLE MANNER AND ALL TEMPORARY PROPPING SHALL BE DESIGNED AND CHECKED BY A QUALIFIED STRUCTURAL ENGINEER.

PROVIDE ADEQUATE TEMPORARY HOARDING OR PROTECTIVE BARRIERS TO EXISTING STRUCTURE LEFT IN SITU TO PREVENT UNAUTHORISED ACCESS OR WEATHER INTRUSION.

TAKE MEASURES TO MINIMISE NOISE AND DUST DURING DEMOLITION WORK. PROVIDE ADEQUATE BARRIERS WHERE REQUIRED.

THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

REV	AMENDMENTS	DRAWN	DATE	APPR.
B	Concrete strip topping back fill	MK	04.05.22	JM
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

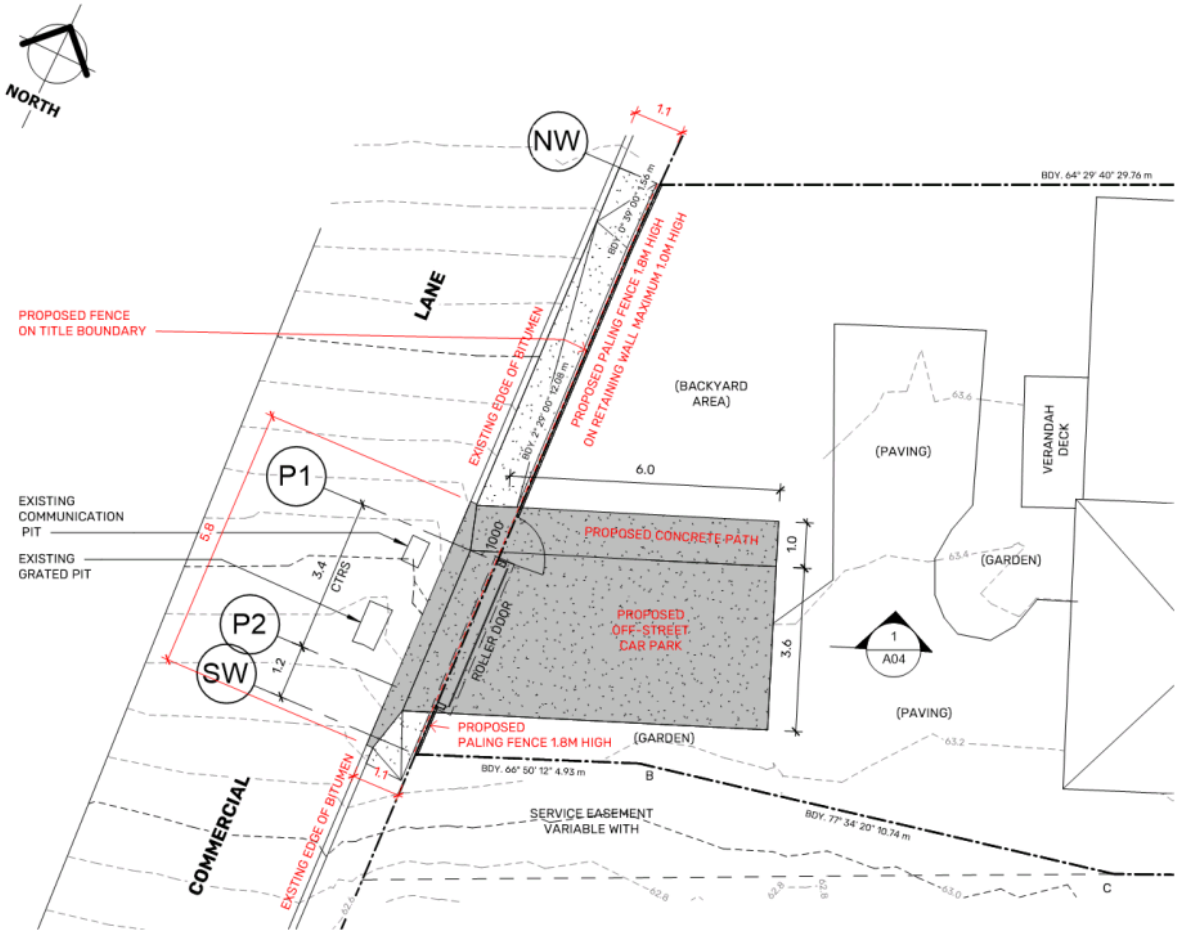
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 4 MAY 2022

DEMOLITION AND SITE PLAN
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 200
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: A01
REV: -B



THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

REV	AMENDMENTS	DRAWN	DATE	APPR.
B	Concrete strip topping back fill	MK	04.05.22	JM
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

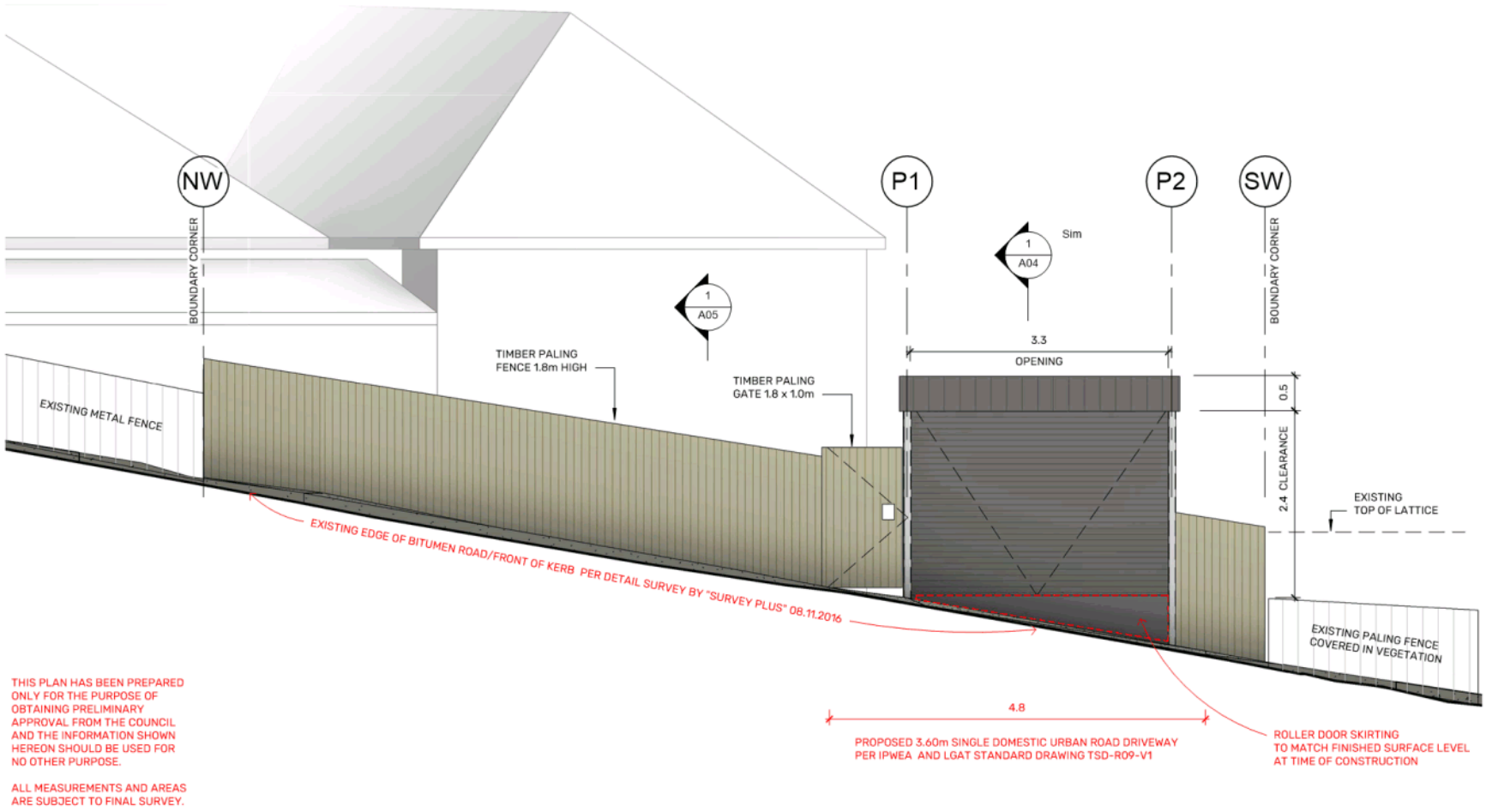
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 4 MAY 2022

PROPOSED FENCE AND OFF-STREET CAR PARK
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 100
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: - A02
REV: -B



THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

REV	AMENDMENTS	DRAWN	DATE	APPR.
B	Concrete strip topping back fill	MK	04.05.22	JM
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

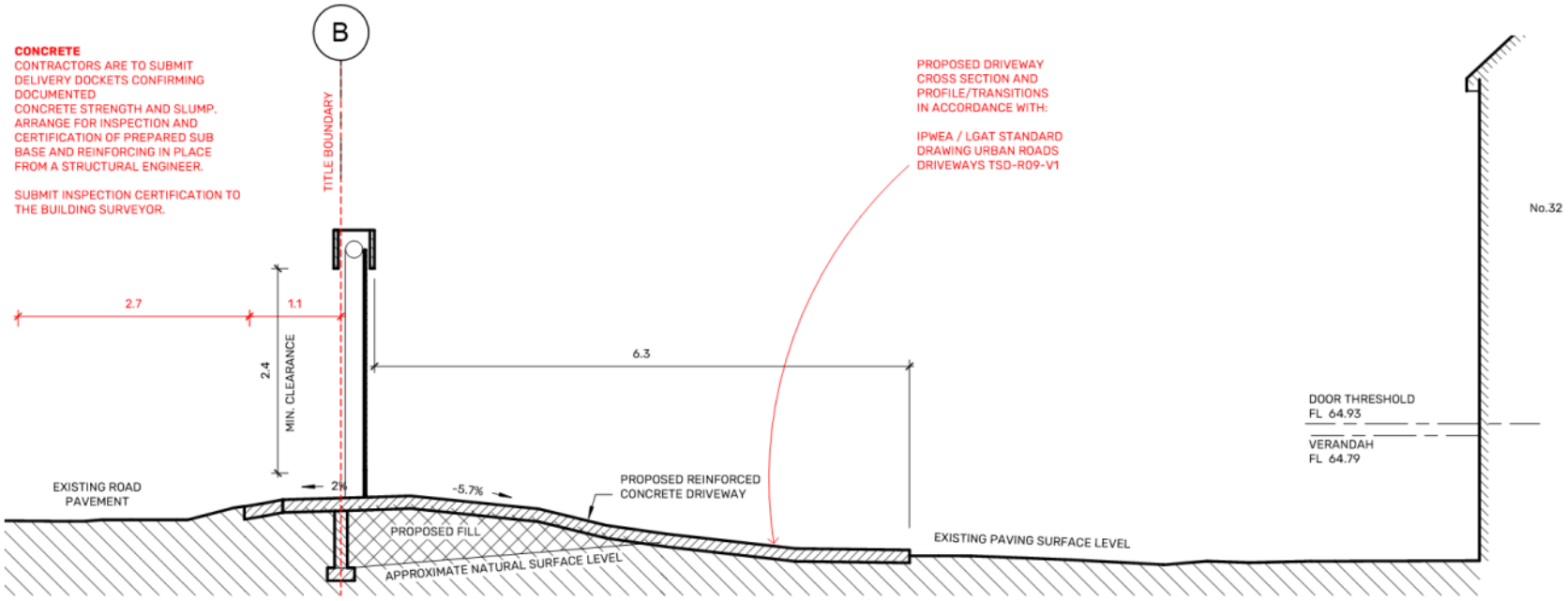
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 4 MAY 2022

FENCE ELEVATION (COMMERCIAL LANE)
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 50
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: A03
REV: B



1 PROPOSED DRIVEWAY PROFILE

1 : 50

THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

REV	AMENDMENTS	DRAWN	DATE	APPR.
B	Concrete strip topping back fill	MK	04.05.22	JM
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

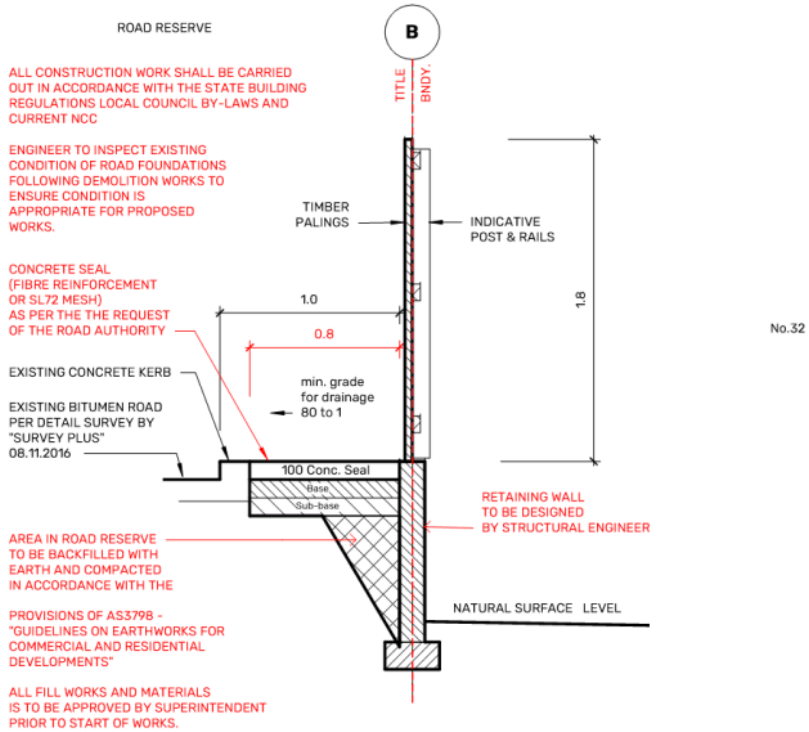
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 4 MAY 2022

DRIVEWAY LONG SECTION
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 50
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: - A04
REV: -B



REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Concrete strip topping back fill	MK	04.05.22	JM
0	Additional information	MK	16.03.22	JG

SCALE:

SURVEYOR	PROJECT
MK	48607JB
DRAWN: MK	CHECKED: JM
DATE: 4 MAY 2022	

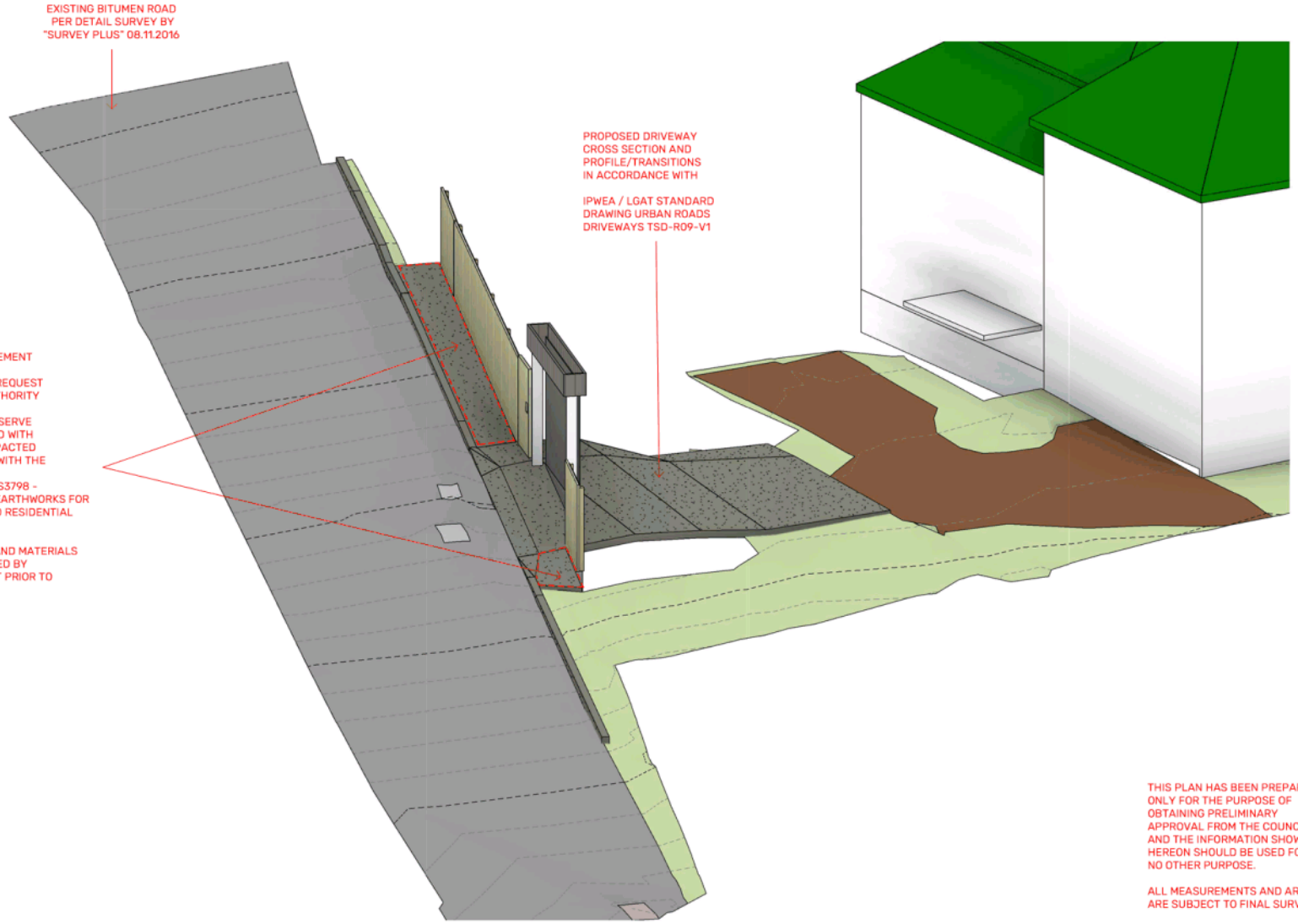
PROPOSED FENCE DETAIL
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE	PAPER
1 : 25	A3

DRAWING NUMBER	SHEET	REV
48607JB	- A05	-A



THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Concrete strip topping back fill	MK	04.05.22	JM
0	Additional information	MK	16.03.22	JG

SCALE:

SURVEYOR: MK | PROJECT: 48607JB
DRAWN: MK | CHECKED: JM
DATE: 4 MAY 2022

3D VIEW
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: | PAPER: A3
DRAWING NUMBER: 48607JB | SHEET: - A06 | REV: -A

DRAWING INDEX

DWG No.	DRAWING	ISSUE
A01	DEMOLITION AND SITE PLAN	A
A02	PROPOSED FENCE AND OFF-STREET CAR PARK	A
A03	FENCE ELEVATION (COMMERCIAL LANE)	A
A04	DRIVEWAY LONG SECTION	A
A05	PROPOSED FENCE DETAIL	A
A06	3D VIEW	A

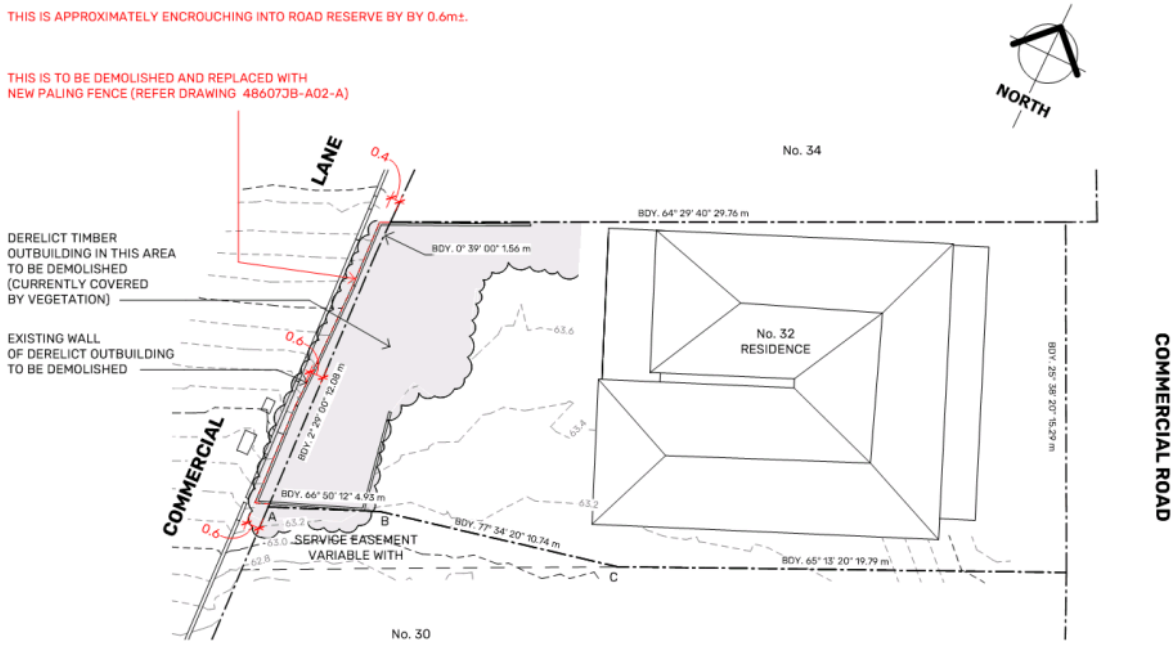
GENERAL INFORMATION

Property Address:	32 Commercial Road North Hobart, Tas 7000
Property ID:	96811278
Title reference :	FR 181669/1
Owner name(s):	Cameron John Donovan Jessica Ann Scurry
Site area:	473m²

EXISTING WALL OF DERELICT OUTBUILDING
CURRENTLY SERVING AS A FENCE LINE.

THIS IS APPROXIMATELY ENCROUCHING INTO ROAD RESERVE BY BY 0.6m±.

THIS IS TO BE DEMOLISHED AND REPLACED WITH
NEW PALING FENCE (REFER DRAWING 48607JB-A02-A)



DERELICT TIMBER
OUTBUILDING IN THIS AREA
TO BE DEMOLISHED
(CURRENTLY COVERED
BY VEGETATION)

EXISTING WALL
OF DERELICT OUTBUILDING
TO BE DEMOLISHED

DEMOLITION NOTES:

ALL DEMOLITION WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE DEMOLITION WORK CODE OF PRACTICE.

ALL EXISTING STRUCTURES SHALL BE MAINTAINED IN A STABLE MANNER AND ALL TEMPORARY PROPPING SHALL BE DESIGNED AND CHECKED BY A QUALIFIED STRUCTURAL ENGINEER.

PROVIDE ADEQUATE TEMPORARY HOARDING OR PROTECTIVE BARRIERS TO EXISTING STRUCTURE LEFT IN SITU TO PREVENT UNAUTHORISED ACCESS OR WEATHER INTRUSION.

TAKE MEASURES TO MINIMISE NOISE AND DUST DURING DEMOLITION WORK. PROVIDE ADEQUATE BARRIERS WHERE REQUIRED.

THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

City of HOBART
Approved - General Manager Consent Only
GMC-22-14 29/03/2022

REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

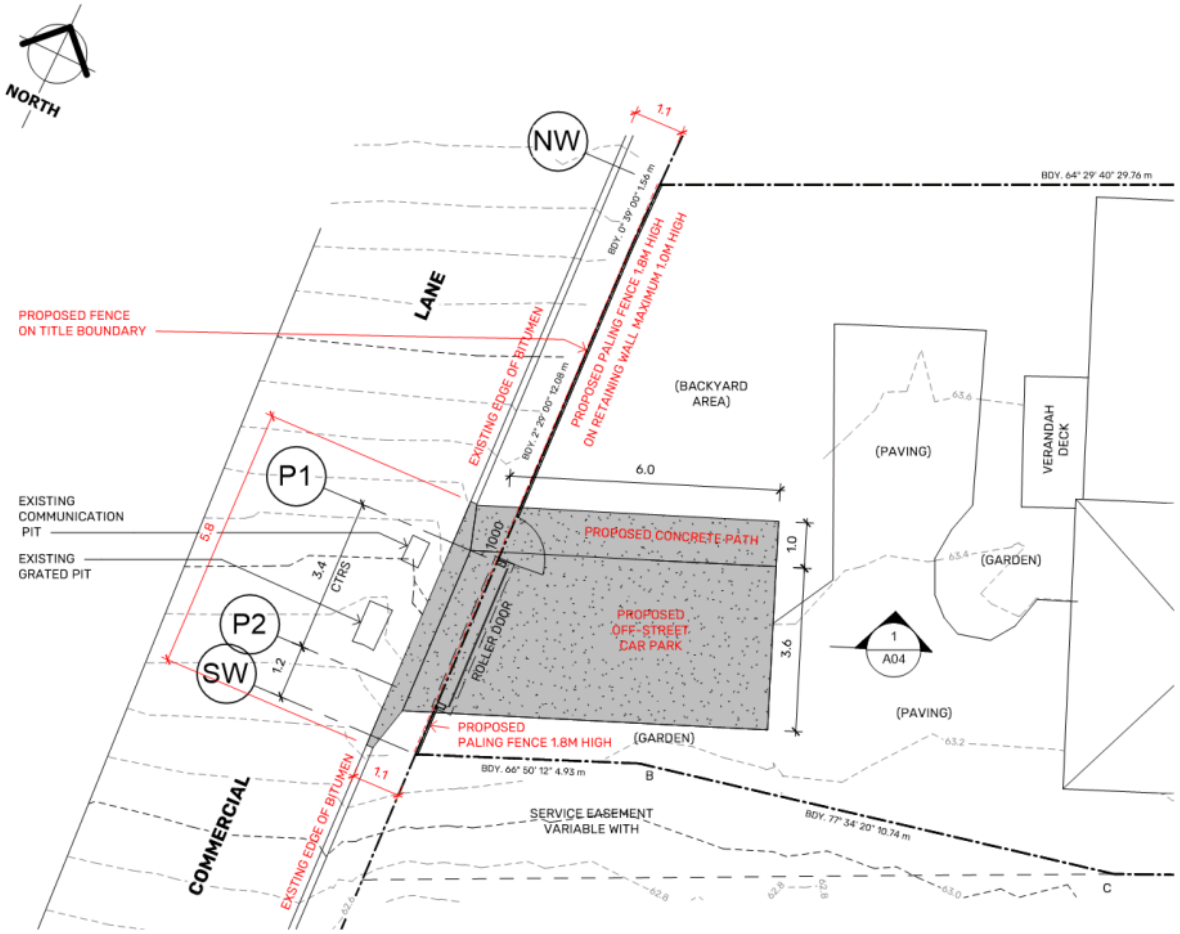
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 16 MARCH 2022

DEMOLITION AND SITE PLAN
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 200
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: - A01
REV: -A



THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

City of HOBART
Approved - General Manager Consent Only
GMC-22-14 29/03/2022

REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

SURVEYOR MK	PROJECT 48607JB
DRAWN MK	CHECKED JM
DATE 16 MARCH 2022	

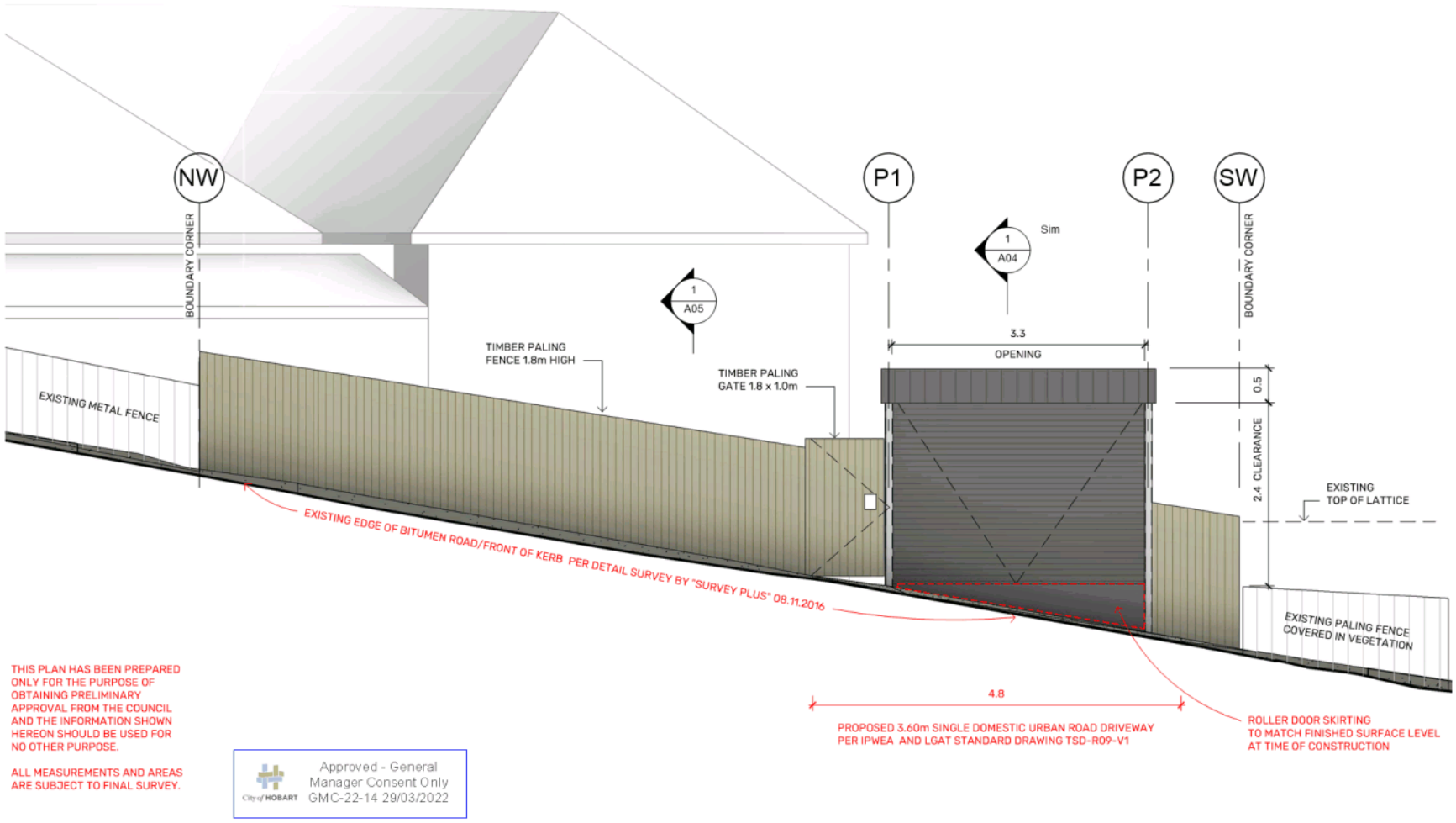
PROPOSED FENCE AND OFF-STREET CAR PARK
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE	PAPER
1 : 100	A3

DRAWING NUMBER	SHEET	REV
48607JB	- A02	-A



THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

City of HOBART
Approved - General Manager Consent Only
GMC-22-14 29/03/2022

REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

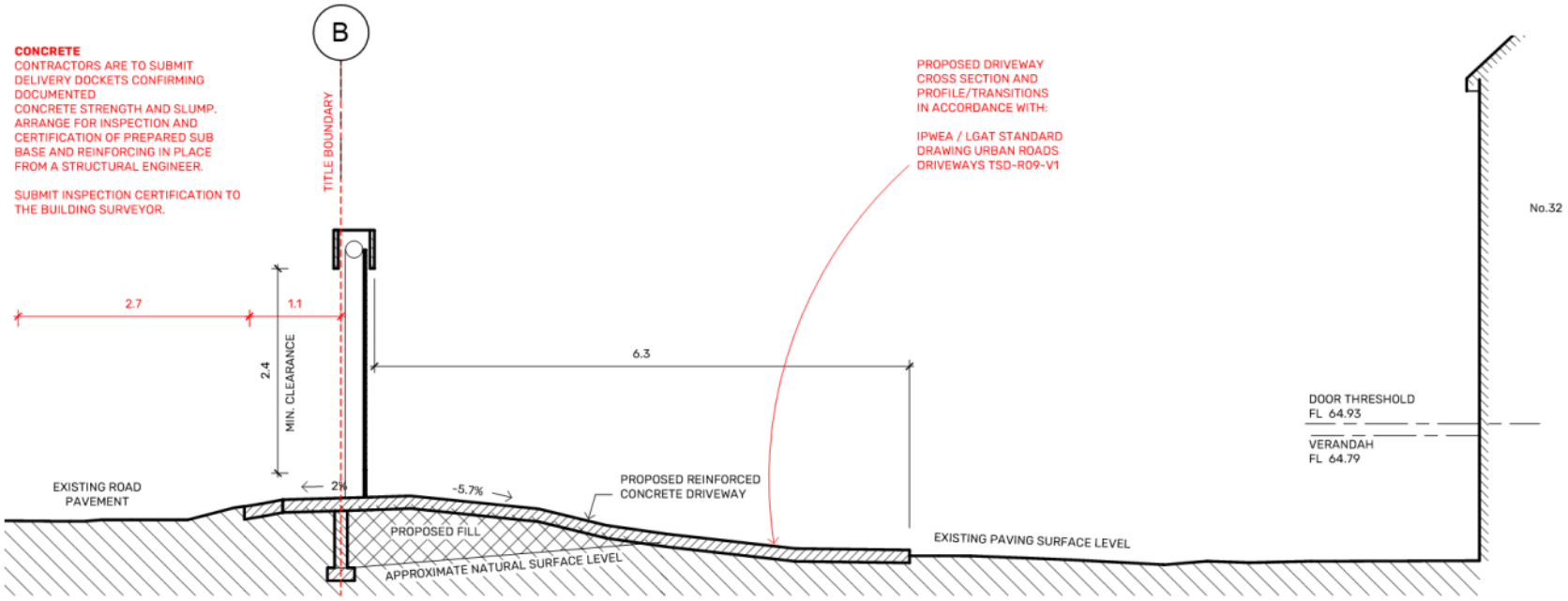
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 16 MARCH 2022

FENCE ELEVATION (COMMERCIAL LANE)
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 50
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: A03
REV: A



1 PROPOSED DRIVEWAY PROFILE

1 : 50

THIS PLAN HAS BEEN PREPARED ONLY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVAL FROM THE COUNCIL AND THE INFORMATION SHOWN HEREON SHOULD BE USED FOR NO OTHER PURPOSE.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO FINAL SURVEY.

City of HOBART
Approved - General Manager Consent Only
GMC-22-14 29/03/2022

REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Additional information	MK	16.03.22	JG
0	FIRST ISSUE	MK	10.02.22	JG

SCALE:

SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 16 MARCH 2022

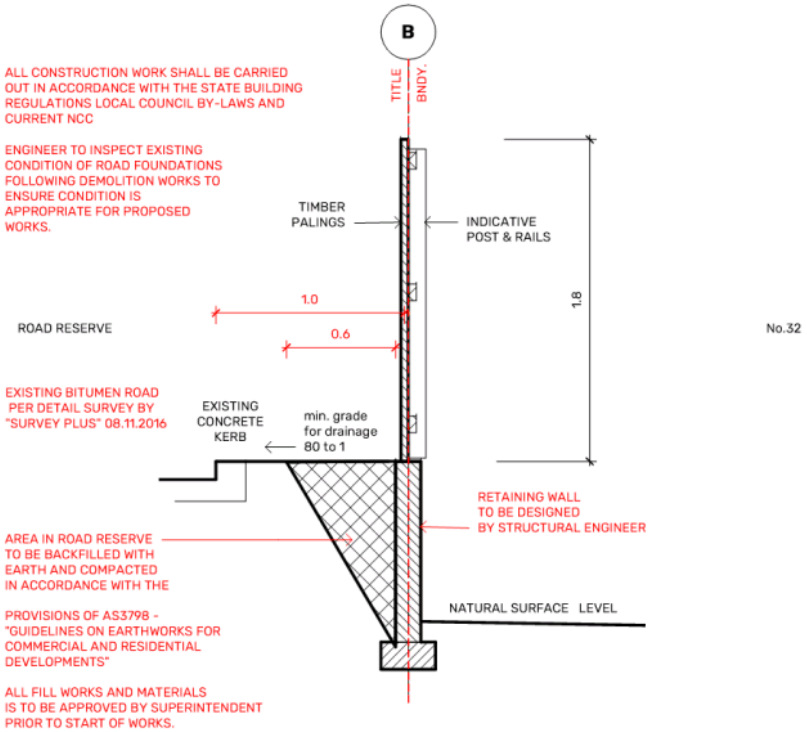
DRIVEWAY LONG SECTION
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE	PAPER
1 : 50	A3

DRAWING NUMBER	SHEET	REV
48607JB	- A04 -	A



Approved - General Manager Consent Only
City of HOBART GMC-22-14 29/03/2022

REV	AMENDMENTS	DRAWN	DATE	APPR.
A	Additional information	MK	16.03.22	JG

SCALE:

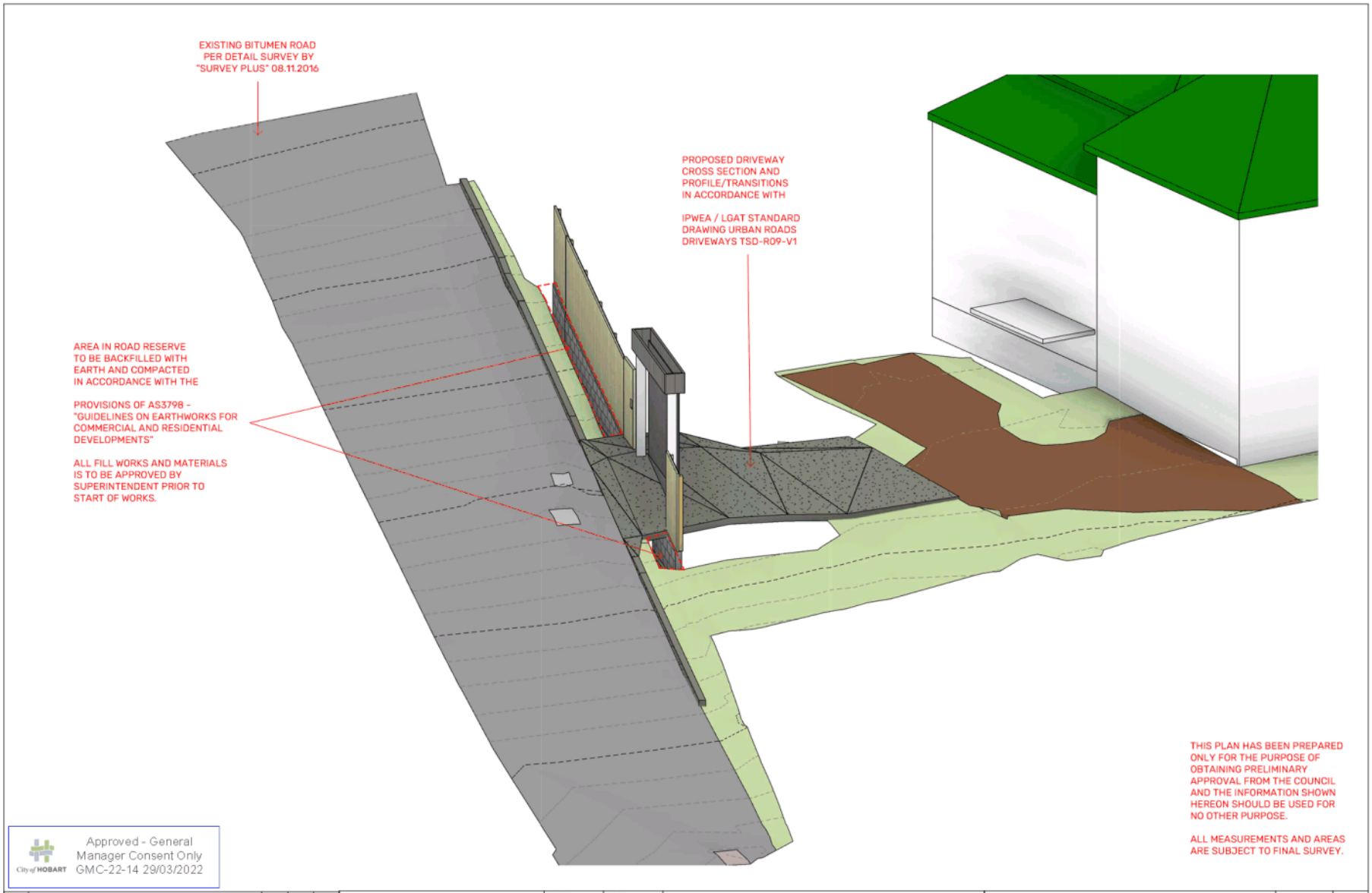
SURVEYOR: MK
PROJECT: 48607JB
DRAWN: MK
CHECKED: JM
DATE: 16 MARCH 2022

PROPOSED FENCE DETAIL
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN

PDA
SURVEYORS. ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston, Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au

SCALE: 1 : 25
PAPER: A3
DRAWING NUMBER: 48607JB
SHEET: - A05 -
REV: A


EXISTING BITUMEN ROAD
PER DETAIL SURVEY BY
"SURVEY PLUS" 08.11.2016
PROPOSED DRIVEWAY
CROSS SECTION AND
PROFILE/TRANSITIONS
IN ACCORDANCE WITH
IPWEA / LGAT STANDARD
DRAWING URBAN ROADS
DRIVEWAYS TSD-R09-V1
AREA IN ROAD RESERVE
TO BE BACKFILLED WITH
EARTH AND COMPACTED
IN ACCORDANCE WITH THE
PROVISIONS OF AS3798 -
"GUIDELINES ON EARTHWORKS FOR
COMMERCIAL AND RESIDENTIAL
DEVELOPMENTS"
ALL FILL WORKS AND MATERIALS
IS TO BE APPROVED BY
SUPERINTENDENT PRIOR TO
START OF WORKS.
THIS PLAN HAS BEEN PREPARED
ONLY FOR THE PURPOSE OF
OBTAINING PRELIMINARY
APPROVAL FROM THE COUNCIL
AND THE INFORMATION SHOWN
HEREON SHOULD BE USED FOR
NO OTHER PURPOSE.
ALL MEASUREMENTS AND AREAS
ARE SUBJECT TO FINAL SURVEY.
Approved - General
Manager Consent Only
City of HOBART GMC-22-14 29/03/2022
A Additional information MK 16.03.22 JG
REV AMENDMENTS DRAWN DATE APPR.
SCALE:
SURVEYOR MK
PROJECT 48607JB
DRAWN MK
CHECKED JM
DATE 16 MARCH 2022
3D VIEW
PROPOSED FENCE AND OUTBUILDING DEMOLITION
32 COMMERCIAL LANE, NORTH HOBART
for CAMERON DONOVAN
PDA
SURVEYORS. ENGINEERS & PLANNERS
127 Bathurst Street
Hobart, Tasmania, 7000
www.pda.com.au
Also at: Kingston,
Launceston & Burnie
PHONE: +61 03 6234 3217
FAX: +61 03 6234 5085
EMAIL: pda.hbt@pda.com.au
SCALE
PAPER
A3
DRAWING NUMBER
SHEET
REV
48607JB - A06 -A

PDA
SURVEYORS, ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania 7000
Phone (03) 6234 3217

ABN 71 217 806 325
pda.hbt@pda.com.au
www.pda.com.au

Our Ref: 48607JB

14th January 2022

Hobart City Council
Planning Department
GPO Box 503, Hobart

Via: Development Portal

Dear Planning Department,

RE: Development Application – Demolition & Fence
32 Commercial Road, North Hobart

This application for planning approval for demolition of an outbuilding within a Heritage precinct and construction of a new fence is submitted on behalf of our client, Mr Cameron Donovan, who has been notified of lodgement in accordance with Section 52(i)(c) of the *Land Use and Approvals Act 1993*.

The following application documentation consists of:

- The Title Plan and Folio – FR 181669/2
- A cover letter inclusive of planning assessment overview of the Hobart Interim Planning Scheme 2015

Please do not hesitate to contact me at your earliest convenience should you require additional information or further clarification.

Yours faithfully,
PDA Surveyors, Engineers & Planners
Per:

Jane Monks

HOBART:
C.M. Terry, BSurv (Tas.), M.SSSI (Director)
H. Clement, BSurv (Tas.), M.SSSI (Director)
M.S.G. Denholm, BGeom (Tas.), M.SSSI (Director)
T.W. Walter, Dip. Surv & Map (Director)
M. Westerberg, M.E.M., M.I.E. AUST., C.P.ENG. (Director)
D. Panton, B.E. F.I.E. AUST., C.P.ENG. (Consultant)
A. Collins, Ad. Dip. Surv & Map, (Senior Associate)
L.H. Kiely, Ad. Dip. Civil Eng, Cert IV I.T., (Associate)

KINGSTON:
A.P. (Lex) McIndoe, BSurv (Tas.), M.SSSI (Director)
M.M. Stratton, BSurvSpSc, GradDipLandSurv (Tas.) (Associate)

LAUNCESTON:
J.W. Dent, OAM, B. Surv (Tas.), M.SSSI (Director)
M.B. Reid, BGeom (Hons) (Tas.), M.SSSI (Director)
J.M. Brooks, MEnvPlg, M.PIA (Director)

BURNIE/DEVONPORT:
A.W. Eberhardt, BGeom (Tas.), M.SSSI (Director)
A.J. Hudson, B. SURV. (Tas.), M.SSSI. (Consultant)

OFFICES ALSO AT:
- 6 Freeman St, Kingston, TAS 7050 (03) 6229 2131
- 10/16 Main Rd, Huonville, TAS 7109 (03) 6264 1277
- 3 Franklin St, Swansea, TAS 7190 (03) 6130 9099
- 3/23 Brisbane St, Launceston, TAS 7250 (03) 6331 4099
- 16 Emu Bay Rd, Deloraine, TAS 7304 (03) 6362 2993
- 6 Queen Street, Burnie, TAS 7320 (03) 6431 4400
- 77 Gunn St, Devonport, TAS 7310 (03) 6423 6875

PDA
SURVEYORS, ENGINEERS & PLANNERS

127 Bathurst Street
Hobart, Tasmania 7000
Phone (03) 6234 3217

ABN 71 217 806 325
pda.hbt@pda.com.au
www.pda.com.au

Our Ref: 48607JB

Planning Assessment Overview

The Land

Figure 1. Aerial image of 32 Commercial Road, North Hobart, with yellow shading indicating the proposed demolition area (LISTmap 6/12/21)

The subject land is located at 32 Commercial Road, North Hobart and is a rectangular shaped block measuring 473m^2, as highlighted in Figure 1. The lot has been developed with a single residential dwelling and derelict outbuilding at the rear. The outbuilding is built to the rear boundary and acts as an unstable fence line, which is overgrown with vegetation as illustrated in the images in Figure 2. The primary frontage of the property is located on the eastern boundary at Commercial Road, whilst also having rear frontage to Commercial Lane at the western boundary. The subject land is situated across from The Friends School Commercial Road entrance and is also part of the North Hobart Heritage precinct (NH3).

Figure 2. Images taken of the subject outbuilding from Commercial Lane *(left)* and from the residence after vegetation was trimmed – Images taken 26 Nov 2021

The Proposal

It is proposed that the outbuilding at the rear of the property be demolished and replaced with a 1.8m high standard timber paling fence and a new vehicle entrance with roller door. The fence is to be constructed of vertical timber palings and to follow natural ground to the end of the boundary. The new fencing will not only assist in helping to reduce the scale and bulk of the current outhouse structure - over 2m at its highest point, but will also increase laneway security, function and flow. The image in Figure 3 is an example of the desired finished of new fencing and boundary, subject to the demolition outcome of the of the derelict outbuilding.

Figure 3. Example of desired finish of the proposed new boundary fencing and roller door, subject to the derelict outbuilding demolition

The style of fencing has been selected to ensure that is in keeping with the surrounding Lane way fencing and character, whilst also increasing the usability and safety of the Laneway users. Figure 4 encapsulates the aesthetic of the surrounding fences and boundaries within Commercial Lane, illustrating the suitability of the proposal within the area.

Figure 4. Images of Commercial Land, illustrating laneway qualities and aesthetics – Images taken 7 January 2022

The Ordinance

This proposal for demolition of an outbuilding within a heritage precinct and construction of new fence has been developed in accordance with the Hobart Interim Planning Scheme 2015.

The relevant assessment clauses with the Scheme are shown as follows:

11.0 Inner Residential Zone

11.4 Development standards for Dwellings

11.4.7 Frontage fences for all dwellings

A1 is unable to meet: There is no acceptable solution, therefore the we need to address the performance criteria of A1.

P1 is met: The proposed fence satisfies all of the performance criteria as follows:

(a) At 1.8m, the height of the proposed fence is lower than the existing rear wall which is proposed to be removed as part of this application. As a result, there will be increased passive surveillance between the road and the dwelling, whilst also maintaining adequate privacy and security for residents;

(b) Commercial Lane is a narrow service lane that has low traffic volumes and is predominantly used for rear access to residences. The proposed fence is in keeping with the neighbouring properties and sympathetic to the topography and slope of the land. The height and transparency of the proposed fence, is also equal to and consistent with adjoining properties.

E13.0 Historic Heritage Code – Heritage precinct

E13.8 Development standards for Heritage precincts

E13.8.1 Demolition

A1 is unable to meet: There is no acceptable solution, therefore the we need to address the performance criteria of A1.

P1 is met: The proposed outbuilding demolition satisfies all of the performance criteria as follows:

(a) Demolition of the subject outbuilding will not result in a loss of historic cultural heritage of the precinct. The outbuilding is not a heritage listed building and is not identified by Heritage Tasmania as having significant historical value or contribution to the heritage of the laneway. The outbuilding is dilapidated and potentially a fire hazard.

(b) The fabric or landscape elements of the North Hobart Heritage Precinct will not be impacted in any way by the demolition of the subject outbuilding. Discussions with the Hobart City Council Heritage Officer Megan Baynes recognised that the outbuilding does not contribute to the historic cultural heritage significant to the North Hobart Precinct. It was further identified that it was more beneficial to the laneway to have the outbuilding demolished as its dilapidated and derelict state poses risks on public and private user safety. As seen previously in Figure 2, there is no prudent or feasible alternative to demolition.

E13.8.2 Buildings and works other than demolition

A1 is unable to meet: There is no acceptable solution, therefore the we need to address the performance criteria of A1.

P1 is met: *Not applicable* – no building development is part of this application

A2 is unable to meet: There is no acceptable solution, therefore the we need to address the performance criteria of A1.

P2 is met: *Not applicable* – no building development is part of this application

A3 is unable to meet: There is no acceptable solution, therefore the we need to address the performance criteria of A1.

P3 is met: *Not applicable* – no building development is part of this application

A4 is unable to meet: The new fence cannot meet the acceptable solution it is not in accord with the original design based on photographic, archaeological or historical evidence, therefore the we need to address the performance criteria of A4.

P4 is met: This application is not proposed for a front fence, but as it is proposed for a rear frontage it has been designed to be sympatric to the character of the laneway and in keeping with the height, form, scale, material use and topography of the neighbouring properties within the laneway.

A5 is met: No areas of landscaping between the dwelling and the street have changes proposed as part of this application other than vegetation that is part of the outbuilding that is proposed to be demolished.

Conclusion

The information provided here is to illustrate that this application meets all of the requirements of the Hobart Interim Planning Scheme 2015 for the proposed demolition of an outbuilding in a Heritage Precinct and construction of a new fence at 32 Commercial Road, North Hobart, and thus the application should be approved.

Thank you for your consideration of this application.

Kind regards

Jane Monks
PDA Surveyors, Engineers & Planners

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
181669	2
EDITION	DATE OF ISSUE
2	09-Nov-2021

SEARCH DATE : 14-Jan-2022
SEARCH TIME : 08.37 AM

DESCRIPTION OF LAND

City of HOBART
Lot 2 on Sealed Plan 181669
Derivation : Part of 4A-2R-15P Gtd. to J.Dunn
Prior CT 172397/10

SCHEDULE 1

M922091 TRANSFER to CAMERON JOHN DONOVAN and JESSICA ANN SCURRY Registered 09-Nov-2021 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP181669 EASEMENTS in Schedule of Easements
SP181669 COVENANTS in Schedule of Easements
SP181669 FENCING PROVISION in Schedule of Easements

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

OWNER: R.M Webb
H. Gouldthorpe

FOLIO REFERENCE: 172397/9&10

GRANTEE: Part of 4A-2R-15P Gtd to J. Dunn

NEW PLAN OF SURVEY

BY SURVEYOR:

LOCATION: City of HOBART

SCALE 1:200 LENGTHS IN METRES

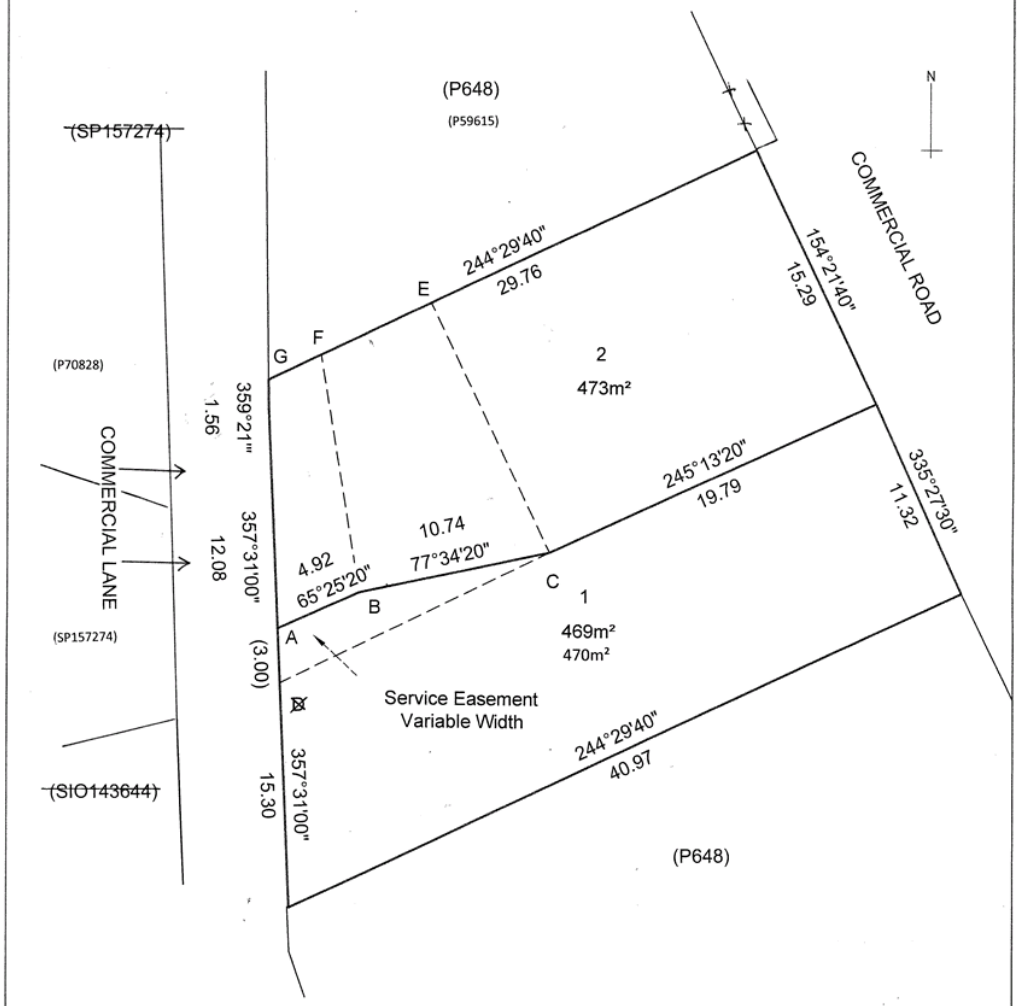
Registered Number

SP 181669

APPROVED
EFFECTIVE FROM 17 SEP 2021

Recorder of Titles

ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN



Registered Land Surveyor Date

See Plan Related Docs.
Council Delegate Date

City of HOBART

Enquiries to: City Life
Phone: (03) 6238 2711
Email: coh@hobartcity.com.au

29 March 2022

Jane Monks (PDA Surveyors)
127 Bathurst st
HOBART TAS 7000

mailto: jane.monks@pda.com.au

Dear Sir/Madam

32 COMMERCIAL ROAD, NORTH HOBART - WORKS IN ROAD RESERVE NOTICE OF LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION - GMC-22-14

Site Address:

32 Commercial Road, North Hobart

Description of Proposal:

New crossover

Applicant Name:

Jane Monks
PDA Surveyors

PLN *(if applicable)*:

PLN-22-19

I write to advise that pursuant to Section 52 of the *Land Use Planning and Approvals Act 1993*, I grant my consent on behalf of the Hobart City Council as the owner/administrator of the above land for you to make application to the City for a planning permit for the development described above and as per the attached documents. I granted consent pursuant to delegation, a copy of which is enclosed.

Please note that the granting of the consent is only for the making of the application and in no way should such consent be seen as prejudicing any decision the Council is required to make as the statutory planning authority.

This consent does not constitute an approval to undertake any works and does not authorise the owner, developer or their agents any right to enter or conduct works on any Council managed land whether subject to this consent or not.

If planning approval is granted by the planning authority, you will be required to seek approvals and permits from the City as both landlord, land manager, or under other statutory powers (such as other legislation or City By-Laws) that are not granted with the issue of a planning permit under a planning scheme. This includes the requirement for you to reapply for a permit to occupy a public space under the City's Public Spaces By-law if the proposal relates to such an area.

Accordingly, I encourage you to continue to engage with the City about these potential requirements.

Yours faithfully

(Glenn Doyle)
HEAD OF CITY PROJECTS

Relevant documents/plans:

DA-22-12461 - Additional information response letter dated 17/03/2022 and drawings A01 to A06, from PDA surveyors

Planning: #249048

Property

32 COMMERCIAL ROAD NORTH HOBART TAS 7000

People

Applicant *	PDA Surveyors Jane Monks 127 Bathurst st HOBART TAS 7000 62343217 jane.monks@pda.com.au
Owner *	Cameron Donovan 32 Commercial Road NORTH HOBART TAS 7000 0408662007 cameron@theinkbureau.com.au
Entered By	JANE MONKS 127 BATHURST STREET HOBART TAS 7000 62343217 jane.monks@pda.com.au

Use

Single dwelling

Details

Have you obtained pre application advice?

Yes

If YES please provide the pre application advice number eg PAE-17-xx

Megan Baynes

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodation Standards? Click on help information button for definition. If you are not the owner of the property you MUST include signed confirmation from the owner that they are aware of this application. *

No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the number of signs under Other Details below. *

No

If this application is related to an enforcement action please enter Enforcement Number

Details

What is the current approved use of the land / building(s)? *

residential

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage) *

demolition of an outbuilding within a Heritage precinct and construction of a new fence

Estimated cost of development *

8000.00

Existing floor area (m2)

Proposed floor area (m2)

Site area (m2)

Carparking on Site

Total parking spaces: 0

Existing parking spaces: 0

N/A: ☒ Other (no selection chosen)

Other Details

Does the application include signage? *

◉ No

How many signs, please enter 0 if there are none involved in this application? *

0

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register? ◉ No

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements) *	FolioText-181669-2 (1).pdf
Plans (proposed, existing) *	FolioPlan-181669-2 (1).pdf
Covering Letter	48607JB - Donovan - Cover Letter.pdf

Supporting Documents

Planning Report	48607JB - Donovan - Planning Assessment.pdf

Application Referral Cultural Heritage - Response

From:	Nick Booth
Recommendation:	Proposal is acceptable without conditions.
Date Completed:	
Address:	32 COMMERCIAL ROAD, NORTH HOBART
Proposal:	Partial Demolition, New Parking Space & Front Fencing
Application No:	PLN-22-19
Assessment Officer:	Deanne Lang,

Referral Officer comments:

The application relates to part of the rear garden setting of No.32 Commercial Road, a relatively modest single storey weatherboard cottage whose front yard faces onto Commercial Road, and its rear garden onto Commercial Lane.

The proposal seeks permission for the removal of the an existing poorly maintained single storey timber shed and timber fencing which forms the boundary treatment onto Commercial Lane, the re-enclosure of the rear yard with a new 1.8m high paling timber fence, provision of free standing roller door and supporting structure along with pedestrian gate and creation of concrete hard standing.

The site is not individually heritage listed but does form part of the McTavish Avenue and Surrounds Heritage Precinct (NH3) as set out in table E.13.2 of the Hobart Interim Planning Scheme 2015.

This precinct is significant for reasons including:

1. The fine quality and quantity of late Victorian and Federation period houses provide evidence of the original residential nature of this precinct, and the boom periods of suburban expansion.
2. Individual houses within this precinct that are intact representative examples of Old Colonial, Victorian and Federation architecture.
3. The small number of Colonial and early Victorian houses that reflect an early settlement pattern along main transport routes.
4. Substantial groups of late Victorian and Federation architecture, which create a consistent and impressive streetscape.
5. A uniformity of form and scale as well as a distinctive and consistent nineteenth/early twentieth century subdivision pattern that is reflected in the streetscape.
6. Its residential character, front and rear gardens, retaining walls, and other aesthetic features which reinforce it character.

With regard to the above, it is considered that the site, along with its nearest neighbours, clearly represent a form of streetscape associated with the mid-Victorian expansion of Hobart with the parent property itself likely to date from this period despite being older. In that respect therefore, it is considered that the property is a contributory element to the above characteristics.

With regard to the Development Standards relating to Heritage Precincts as set

out in the Hobart Interim Planning Scheme, Policy E13.8.1 Demolition states as its objective:

> **To ensure that demolition in whole or in part of buildings or works within a heritage precinct does not result in the loss of historic cultural heritage values unless there are exceptional circumstances.**

Based on the above, it is noted that the rear boundary of the site is currently largely made up of the rear facing wall of an elongated timber outbuilding that appears to date from the 1950's. Other than utilising a clearly secondary materials to a residential scale that adheres to the general height of rear boundary treatment, it is considered that in of itself, the structure and small area of additional fencing does not make a positive contribution to the character of the precinct. As such, subject to a suitable replacement, the demolition proposed is considered acceptable in this instance and the subsequent loss of planting to the rear garden is considered so limited that it makes no contribution to the historic cultural significance of the precinct.

Policy E13.8.2 - Buildings and Works other than Demolition stipulates that its overall objective is to ensure that development undertaken within a heritage precinct **is sympathetic to the character of the precinct.**

As such,

> P1 - Design and siting of buildings and works must not result in detriment to the historic cultural heritage significance of the precinct, as listed in Table E13.2.
>
> P4 - New front fences and gates must be sympathetic in design, (including height, form, scale and materials), and setback to the style, period and characteristics of the precinct.
>
> P5 - The removal of areas of landscaping between a dwelling and the street must not result in the loss of elements of landscaping that contribute to the historic cultural significance or the streetscape values and character of the precinct.

The proposed new timber fencing would not extend above 1.8m high and whilst the proposed roller-door and its supporting structure would extend in height above this, it would very much match the scale and form of existing rear garages facing onto the Lane. Its impact would appear like that of a secondary building and largely in keeping with the back-lane character of Commercial Lane. The choice to utilise timber as cladding is considered entire appropriate and overall its visual impact would be relatively small within the townscape. Although the reduction in soft landscaping to accommodate the proposed development is considered unfortunate, it would not reduce the residential appearance of the immediate area. Importantly, of the characteristics defined above, it is considered that the proposal would not detract from any of the identified characteristics or detract from the historical and cultural importance of the Heritage Precinct.

It is therefore considered that the proposed works would neither detract nor be detrimental to the character of the Heritage Precinct, and as such would not run contrary to the Heritage Performance Criteria's set out in the HIPS.

Nick Booth
Heritage Officer
20 May 2022

ATTACHMENT C

Application Referral Development Engineering - Response

From:	DM reallocated to KB
Recommendation:	Proposal is acceptable subject to conditions.
Date Completed:	
Address:	32 COMMERCIAL ROAD, NORTH HOBART
Proposal:	Partial Demolition, New Parking Space & Front Fencing
Application No:	PLN-22-19
Assessment Officer:	Deanne Lang,

Referral Officer comments:

OVERVIEW:
PLN-22-19 - 32 COMMERCIAL ROAD
New Parking Space and Front Fencing

ASSESSMENT SUMMARY:

• E5.0 Road and railway access code - DOES APPLY
- Clause E5.6.4: Sight distance at accesses, junctions and level crossings - Performance Criteria
Council is of the opinion that the Acceptable Solution for clause E5.6.4 is not met due to sight lines being obstructed the nature of the site, by neighbouring fencing and on-street car parking adjacent to the access however, given the submitted plans and documentation the development may therefore be accepted under *Performance Criteria P1:E5.6.4* of the Planning Scheme.

• E6.0 Parking and Access Code - DOES APPLY
- Clause(s) E6.6's: Are all to do with parking number assessment - Performance Criteria
Submitted documentation does not satisfy this requirement, a deficiency of *one (1)* car parking spaces proposed.

- Clause E6.7.2: Design of vehicle accesses - Performance Criteria
Submitted plans indicate 2m x 2.5m sight triangle areas abutting the driveway are <u>not</u> kept clear of obstructions to visibility due the nature of the site. Based on the above assessment and given the submitted documentation, sight lines that may be accepted under *Performance Criteria P1:E6.7.2* of the Planning Scheme. Given the location of the access and driveway, and the low volume of traffic on the road from which the property gains access. Surrounding area exert same provisions.

- Clause E6.7.5: Layout of parking areas - Performance Criteria
Submitted plans indicate a parking space gradient greater than 5%, and a parking module greater than 5%. Based on the below assessment and given the submitted documentation, the layout of car parking areas may be accepted under Performance Criteria.

• E7.0 Stormwater - DOES APPLY

COMMENTS:
In a council related engineering context, the proposal can be supported in principal subject to the following conditions and advice.

GENERAL CONDITIONS:
ENG1: Pay Costs
ENG 3a: The access driveway and parking area must be constructed in accordance with the following documentation which forms part of this permit: PDA documentation received by the Council on the 5th *of May* 2022
ENG 4: Surface treatment
ENG 5: The number of car parking spaces approved on the site, for use is *[ONE]* (1)

ADVICE:
- Dial before you dig
- Fees and charges
- Occupation of the Public Highway
- Driveway surfacing over highway reservation
- Work in the highway reservation

REPRESENTATIONS:

DETAILED ASSESSMENT:

E5.0 Road and railway access code

E5.1 Purpose			E5.1.1 The purpose of this provision is to: (a) protect the safety and efficiency of the road and railway networks; and (b) reduce conflicts between sensitive uses and major roads and the rail network.
E5.2 Application of this Code	**YES**		
			This Code applies to use or development of land:
	Yes		(a) that will require a new vehicle crossing, junction or level crossing; or
		No	(b) that intensifies the use of an existing access; or
		No	(c) that involves a sensitive use, a building, works or subdivision within 50m metres of a Utilities zone that is part of:
		No	(i) a rail network;

		No	(ii) a category 1 - Trunk Road or a category 2 - Regional Freight Road, that is subject to a speed limit of more than 60km/h kilometres per hour.
Clause for Assessment			**Comments / Discussion (in bold)**
Clause E5.5.1: Existing road accesses and junctions **ACCEPTABLE SOLUTION**			The existing road access must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E5.5.1 (A3)** Acceptable Solution A3: - **COMPLIANT** The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.
Clause E5.5.2: Existing level crossings **NOT APPLICABLE**			**Documentation submitted to date appears not to invoke clause E5.5.2.** **No intensification of an existing level crossings proposed.**
Clause E5.6.1: Development adjacent to roads and railways **NOT APPLICABLE**			**Documentation submitted to date appears not to invoke clause E5.6.1.** **No development adjacent to category 1 or category 2 road proposed.**
Clause E5.6.2: Road accesses and junctions **ACCEPTABLE SOLUTION**			The road and access junctions must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E5.6.2.** Acceptable solution - A1 No new access or junction to roads in an area subject to a speed limit of more than 60km/h. - **N/A** Acceptable solution - A2 - **COMPLIANT** No more than one access providing both entry and exit, or two accesses providing separate entry and exit, to roads in an area subject to a speed limit of 60km/h or less.

Clause E5.6.3: New level crossings NOT APPLICABLE			Documentation submitted to date appears not to invoke clause E5.6.3. No new level crossings proposed.
Clause E5.6.4: Sight distance at accesses, junctions and level crossings **PERFORMANCE CRITERIA**			The sight distance at access and junctions must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does not satisfy the Acceptable Solution for clause E5.6.4 and as such, shall be assessed under Performance Criteria.** Acceptable solution - A1: - **NON COMPLIANT** Sight distances at: (a) an access or junction must comply with the Safe Intersection Sight Distance shown in Table E5.1; and (b) rail level crossings must comply with AS1742.7 Manual of uniform traffic control devices - Railway crossings, Standards Association of Australia. - **N/A** **In this case, the required SISD is not met due to the nature of the site. Commercial Lane does not have a change in speed limit, however a car would not be able to safely reach the maximum sign posted speed limit of 50 km/h due to the narrow nature of the lane. The lane is also for residential use only being a 'minor' road.** Performance Criteria – P1: The design, layout and location of an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles, having regard to: (a) the nature and frequency of the traffic generated by the use; **- All traffic generated by the proposed development will be residential in nature. This is compatible with the existing traffic Commercial Lane near the subject site. The increased traffic generated by the proposed development is likely to be less than 20 vehicles per day when all units are fully developed and occupied.** (b) the frequency of use of the road or rail network; **- *Commercial Lane* is a minor road that has a relatively low traffic volume near the site. It provides access to a residential catchment that is relatively stable and closed in nature. The driveway access servicing the site will operate at a high level of service based on the relatively low traffic volumes. The general urban speed limit of 50-km/h applies Commercial Lane. This speed limit is appropriate for the residential nature of the development, however**

			this speed limit is restricted by the nature of the site. (c) any alternative access; **- No alternative access is possible for the proposed development.** (d) the need for the access, junction or level crossing; **- Necessary.** (e) any traffic impact assessment; **- No Traffic Impact Statement was submitted.** (f) any measures to improve or maintain sight distance; and -Fencing Requirement. (g) any written advice received from the road or rail authority. **- No written advice was requested by the road authority (Council) relating to the access.** **Council is of the opinion that the Acceptable Solution for clause E5.6.4 is not met due to sight lines being obstructed the nature of the site, by fencing and on-street car parking adjacent to the access however, given the submitted plans and documentation the development may therefore be accepted under *Performance Criteria P1:E5.6.4* of the Planning Scheme.**

E 6.0 Parking and Access Code

E6.1 Purpose			E6.1.1 The purpose of this provision is to:
	Yes		(a) ensure safe and efficient access to the road network for all users, including drivers, passengers, pedestrians and cyclists;
	Yes		(b) ensure enough parking is provided for a use or development to meet the reasonable requirements of users, including people with disabilities;
	Yes		(c) ensure sufficient parking is provided on site to minimise on-street parking and maximise the efficiency of the road network;
	Yes		(d) ensure parking areas are designed and located in conformity with recognised standards to enable safe, easy and efficient use and contribute to the creation of vibrant and liveable places;

	Yes		(e) ensure access and parking areas are designed and located to be safe for users by minimising the potential for conflicts involving pedestrians, cyclists and vehicles; and by reducing opportunities for crime or anti-social behaviour;
	Yes		(f) ensure that vehicle access and parking areas do not adversely impact on amenity, site characteristics or hazards;
	Yes		(g) recognise the complementary use and benefit of public transport and non-motorised modes of transport such as bicycles and walking;
		N/A	(h) provide for safe servicing of use or development by commercial vehicles.
E6.2 Application of this Code	**YES**	**—**	**This code applies to all use and development.**
Clause for Assessment			**Comments / Discussion (in bold)**
Clause(s) 6.6's are all to do with parking number assessment. These will be assessed by planner based on DE assessment of the following relevant clauses. **PERFORMANCE CRITERIA**			The parking number assessment must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.6.1 (a) and as such, shall be assessed under Performance Criteria.** Acceptable solution - A1: - **NON COMPLIANT** The number of on-site car parking spaces must be: (a) no less than and no greater than the number specified in Table E6.1; **- Submitted documentation does not satisfy this requirement, a deficiency of *one (1)* car parking spaces proposed.** Performance Criteria - P1: The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following: (a) car parking demand; **- The empirical parking assessment indicates that the provision of 2 on-site car parking spaces will sufficiently meet the likely demands associated with the development, with the exception of onsite visitor parking.** (b) the availability of on-street and public car parking in the locality; **- There is a limited supply of on-street parking in the surrounding road network. Much of the available parking is in the form of time-restricted parking, with authorised residents excepted. Observations indicate that the parking that would be available to meet the potential demands of**

visitor and overflow parking, particularly after normal working hours.

(c) the availability and frequency of public transport within a 150m walking distance of the site;
- Metro Tasmania operate regular bus services along *Elizabeth* Street which is within 150 metres of the subject site.

(d) the availability and likely use of other modes of transport;
- The site is located a convenient walking distance from shops, schools and services.

(e) the availability and suitability of alternative arrangements for car parking provision;
- No alternative parking provision is available or considered necessary.

(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;
- **Not applicable.**

(g) any car parking deficiency or surplus associated with the existing use of the land;
- **Not applicable.**

(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;
- **Not applicable.**

(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;
- **Not applicable.**

(j) any verified prior payment of a financial contribution in lieu of parking for the land;
- **Not applicable.**

(k) any relevant parking plan for the area adopted by Council;
- **Not applicable.**

(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code; and
- **Not applicable.**

			(m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code. - **No impact.** **Based on the above assessment and given the submitted documentation, the parking provision may be accepted under *Performance Criteria P1:E6.6.1* of the Planning Scheme. This is particularly due to the actual parking demands that will be generated by the development**.
Clause E6.7.1: Number of vehicle accesses **ACCEPTABLE SOLUTION**			The number of vehicle accesses must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date appears to be able to satisfy the Acceptable Solution for clause E6.7.1**. Acceptable solution: - **COMPLIANT** The number of vehicle access points provided for each road frontage must be no more than 1 or the existing number of vehicle access points, whichever is the greater. **One (1x) crossover (Commercial Lane frontage, 32 Commercial Road) - Existing, no additional crossover(s) proposed.**
Clause E6.7.2: Design of vehicle accesses **PERFORMANCE CRITERIA**			The design of the vehicle access must satisfy either Acceptable Solutions or Performance Criteria for each clause of the *Hobart Interim Planning Scheme 2015 (HIPS 2015).* **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.2 (a) *[sight distance: 2m x 2.5m sight triangles - These areas to be kept clear of obstructions to visibility]* and as such, shall be assessed under Performance Criteria.** **Submitted plans indicate 2m x 2.5m sight triangle areas abutting the driveway are not kept clear of obstructions to visibility due to proposed 1.8m high front fence.** Acceptable Solution - A1: - **NON COMPLIANT** Design of vehicle access points must comply with all of the following: (a) in the case of non-commercial vehicle access; the location, sight distance, width and gradient of an access must be designed and constructed to comply with section 3 – "Access Facilities to Off-street Parking Areas and Queuing Areas" of AS/NZS 2890.1:2004

			Parking Facilities Part 1: Off-street car parking. Performance Criteria - P1: Design of vehicle access points must be safe, efficient and convenient, having regard to all of the following: (a) avoidance of conflicts between users including vehicles, cyclists and pedestrians; **- Acceptable, submitted documentation appears to satisfy this requirement.** (b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; **- Acceptable, submitted documentation appears to satisfy this requirement** (c) suitability for the type and volume of traffic likely to be generated by the use or development; and **- Acceptable, submitted documentation appears to satisfy this requirement** (d) ease of accessibility and recognition for users. **- Acceptable, submitted documentation appears to satisfy this requirement** **Condition on planning permit to address fence transparency for sight lines in order to promote a safe, efficient and convenient use of the driveway accesses.** **Based on the above assessment and given the submitted documentation, sight lines that may be accepted under *Performance Criteria P1:E6.7.2* of the Planning Scheme. Given the location of the access and driveway, and the low volume of traffic on the road from which the property gains access.** **Surrounding properties exhibit similar access provisions.**

Clause E6.7.3: Vehicle passing area along an access NOT APPLICABLE			Vehicle passing must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.4.** **Submitted documentation appears to indicate no facility / requirement for vehicle passing.** Acceptable solution - A1: Vehicular passing areas must: (a) be provided if any of the following applies to an access: (i) it serves more than 5 car parking spaces; - **No** (ii) is more than 30 m long; - **No** (iii) it meets a road serving more than 6000 vehicles per day; - **No** (b) be 6 m long, 5.5 m wide, and taper to the width of the driveway; - **N/A** (c) have the first passing area constructed at the kerb; - **N/A** (d) be at intervals of no more than 30 m along the access. - **N/A**
Clause E6.7.4: On-site turning NOT APPLICABLE			On-site turning must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.4.** Acceptable solution - A1: On-site turning must be provided to enable vehicles to exit a site in a forward direction, except where the access complies with any of the following: (a) it serves no more than two dwelling units; - **COMPLIES** (b) it meets a road carrying less than 6000 vehicles per day. - **COMPLIES** **Submitted documentation appears to indicate no facility / requirement for on-site turning.**
Clause E6.7.5: Layout of parking areas **PERFORMANCE CRITERIA**			The layout of the parking area must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does not satisfy the Acceptable Solution for clause E6.7.5 and as such, shall be assessed under Performance Criteria.** Acceptable Solution A1: - **NON COMPLIANT** The layout of car parking spaces, access aisles, circulation roadways and ramps must be designed and

constructed to comply with section 2 “Design of Parking Modules, Circulation Roadways and Ramps” of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking and must have sufficient headroom to comply with clause 5.3 “Headroom” of the same Standard.

• Car Parking Space Dimensions (AS2890.1 Fig 2.2 = 2.4x5.4m Class 1A):
- Submitted documentation appears able to satisfy this requirement

• Car Parking Space Design Envelope (AS2890.1 Fig 5.2 300mm clearance on side):
- Submitted documentation appears able to satisfy this requirement

• Headroom: (AS2890.1 Fig 5.3 = 2.2m clearance):
- Submitted documentation appears able to satisfy this requirement

• Parking Space Gradient (5%):
- Submitted documentation does not satisfy this requirement.

• Aisle Width (AS2890.1 Fig 2.2 = 5.8m Class 1A):
- Submitted documentation appears able to satisfy this requirement

• Garage Door Width & Apron (AS2890.1 Fig 5.4 = 2.4m wide => 7m wide apron):
- Submitted documentation appears able to satisfy this requirement

• Parking Module Gradient (manoeuvring area 5% Acceptable Soln, 10% Performance):
- Submitted documentation appears to satisfy this requirement but assessed under Performance Criteria

• Driveway Gradient & Width (AS2890.1 Section 2.6 = 25% and 3m):
- Submitted documentation appears able to satisfy this requirement

• Transitions (AS2890.1 Section 2.5.3 = 12.5% summit, 15% sag => 2m transition):
- Submitted documentation appears able to satisfy this requirement

• Vehicular Barriers (AS2890.1 Section 2.4.5.3 = 600mm drop, 1:4 slope):
- Submitted documentation appears able to satisfy this requirement

• Blind Aisle End Widening (AS2890.1 Fig 2.3 = 1m extra):

			- N/A • "Jockey Parking" (Performance Assessment): - **YES but assessed under Performance Criteria** Performance Criteria - P1: The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site. **- Acceptable, submitted documentation appears to satisfy this requirement** **Residential car parking space layout may utilise 'Jockey Parking' configuration in which the one car parking space is behind another car parking space provided it serves it serves the same dwelling and is not designated for visitors. Submitted documentation appears to meet these parameters and therefore may be accepted under *Performance Criteria P1:E6.7.5* given the driveway configuration.**
Clause E6.7.6: Surface treatment of parking areas **ACCEPTABLE SOLUTION**			The surface treatment must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does satisfy the Acceptable Solution for clause E6.7.6**. Acceptable Solution - A1: - **COMPLIANT** Parking spaces and vehicle circulation roadways must be in accordance with all of the following; (a) paved or treated with a durable all-weather pavement where within 75m of a property boundary or a sealed roadway; and (b) drained to an approved stormwater system, unless the road from which access is provided to the property is unsealed. **Submitted plans indicate a concrete surface treatment and able to be drained to an approved stormwater system. Condition on Planning Permit to ratify timing.**
Clause E6.7.7: Lighting of parking areas *(Planner and health unit to assess)*	—	—	Planner to assess
Clause E6.7.8: Landscaping of parking areas *(Planner to assess)*	—	—	Planner to assess

Clause E6.7.9: Design of motorcycle parking areas **NOT APPLICABLE**			The motor bike parking must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.9.** Acceptable Solution A1 (E6.6.3): The number of on-site motorcycle parking spaces provided must be at a rate of 1 space to each 20 car parking spaces after the first 19 car parking spaces except if bulky goods sales, (rounded to the nearest whole number). Where an existing use or development is extended or intensified, the additional number of motorcycle parking spaces provided must be calculated on the amount of extension or intensification, provided the existing number of motorcycle parking spaces is not reduced. **NO REQUIREMENT** (<19 car parking spaces).
Clause E6.7.10: Design of bicycle parking areas **NOT APPLICABLE**			The bicycle parking must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.10.** Acceptable Solution A1: The number of on-site bicycle parking spaces provided must be no less than the number specified in Table E6.2. Acceptable Solution A2: The design of bicycle parking spaces must be to the class specified in table 1.1 of AS2890.3-1993 Parking facilities Part 3: Bicycle parking facilities in compliance with section 2 “Design of Parking Facilities” and clauses 3.1 “Security” and 3.3 “Ease of Use” of the same Standard. User Class: **Residential** Table E6.2 sets out the number of bicycle parking spaces required. The requirement for spaces for a use or development listed in the first column of the table is set out in the second and forth columns of the table with the corresponding class set out in the third and fifth columns. If the result is not a whole number, the required number of (spaces) is the nearest whole number. If the fraction is one-half, the requirement is the next whole number. **NO REQUIREMENT**

Clause E6.7.11: Bicycle end trip facilities *(Planner to assess)*	—	—	Planner to assess
Clause 6.7.12: Siting of car parking *(Planner to assess based on DE assessment of Clause 6.7.5 layout of parking area)*	—	—	Planner to assess
Clause E6.7.13: Facilities for commercial vehicles **NOT APPLICABLE**			The facilities for commercial vehicles must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.13.** **Submitted documentation appears to indicate no commercial vehicles loading, unloading or manoeuvring.**
Clause E6.7.14: Access to a road **ACCEPTABLE SOLUTION**			The access to a road must satisfy the Acceptable Solutions of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E6.7.14.** Acceptable Solution A1: - **COMPLIANT** Access to a road must be in accordance with the requirements of the road authority. Performance Criteria - P1: **No Performance Criteria** **Submitted plans appear to indicate access to a road in accordance with relevant LGAT drawings.**
Clause E6.7.15: Access to Niree Lane Sandy Bay **NOT APPLICABLE**			The access to Niree Lane must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E6.7.15.** **No development proposed within Niree Lane.**

E 7.0 Stormwater

E7.1.1 Purpose			E7.1.1 The purpose of this provision is to ensure that stormwater disposal is managed in a way that furthers the objectives of the State Stormwater Strategy.
E7.2 Application of this Code	**YES**		**This code applies to development requiring management of stormwater. This code does not apply to use.**
Clause for Assessment			**Comments / Discussion (in bold)**
Clause E7.7.1: Stormwater drainage and disposal **ACCEPTABLE SOLUTION - A1**			The stormwater drainage and disposal must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date does appear to satisfy the Acceptable Solution for clause E7.7.1 (A1).** Acceptable Solution A1: - **COMPLIANT** Stormwater from new impervious surfaces must be disposed of by gravity to public stormwater infrastructure. **Submitted plans appear to indicate stormwater from new impervious surfaces being able to be disposed of by gravity to public stormwater infrastructure.** **To be verified at Plumbing Permit stage.**
Clause E7.7.1: Stormwater drainage and disposal **NOT APPLICABLE**			The stormwater drainage and disposal must satisfy either Acceptable Solutions or Performance Criteria for each clause of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E7.7.1 (A2).** Acceptable Solution A2: A stormwater system for a new development must incorporate water sensitive urban design principles R1 for the treatment and disposal of stormwater if any of the following apply: (a) the size of new impervious area is more than 600 m2; - **No** (b) new car parking is provided for more than 6 cars; - **No** (c) a subdivision is for more than 5 lots - **No** **Submitted documentation appears to indicate no requirement for stormwater treatment.**

Clause E7.7.1: Stormwater drainage and disposal NOT APPLICABLE			The stormwater drainage and disposal must satisfy the Acceptable Solutions of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E7.7.1 (A3).** **Submitted documentation appears to indicate no requirement for a minor stormwater system.**
Clause E7.7.1: Stormwater drainage and disposal NOT APPLICABLE			The stormwater drainage and disposal must satisfy the Acceptable Solution of the Hobart Interim Planning Scheme 2015 (HIPS 2015). **Documentation submitted to date appears not to invoke clause E7.7.1 (A4).** **Submitted documentation does not appear to show any proposal for construction of major stormwater drainage.**

PROTECTION OF COUNCIL INFRASTRUCTURE

Council infrastructure at risk	Why?
Stormwater pipes	Not required
Council road network	Yes - During construction

7.1.5 1 BELL STREET, NEW TOWN - UPGRADING OF EXISTING TELECOMMUNICATIONS FACILITY AND ASSOCIATED WORKS PLN-21-823 - FILE REF: F22/52191

Address:	1 Bell Street, New Town
Proposal:	Upgrading of Existing Telecommunications Facility and Associated Works
Expiry Date:	18 July 2002
Extension of Time:	
Author:	Liz Wilson

RECOMMENDATION

That pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for upgrading of existing telecommunications facility and associated works at 1 Bell Street New Town 7008 for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2022/00045-HCC dated 2/5/2022 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

ENG sw1

All stormwater from the proposed development (including but not limited to: roofed areas, ag drains, retaining wall ag drains and impervious surfaces such as driveways and paved areas) must be drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

Advice:

Under section 23 of the Urban Drainage Act 2013 *it is an offence for a property owner to direct stormwater onto a neighbouring property.*

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

ENG sw2.1

A pre-construction CCTV recording of the Council's stormwater main within/adjacent to the proposed development, along with photos of any drainage structures to be connected to or modified, must be submitted to Council prior to the commencement of work.

The pre-construction CCTV recording and photos will be relied upon to establish the extent of any damage caused to Council's stormwater infrastructure during construction. If the owner/developer fails to provide Council with pre-construction CCTV recording then any damage to Council's infrastructure identified in the post-construction CCTV recording will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG sw2.2

A post-construction CCTV recording of the Council's stormwater main within/adjacent to the proposed development, along with photos of any existing drainage structures connected to or modified as part of the development, must be submitted to Council upon completion of work.

The post-construction CCTV recording and photos will be relied upon to

establish the extent of any damage caused to Council's stormwater infrastructure during construction. If the owner/developer fails to provide Council with pre-construction CCTV then any damage to Council's infrastructure identified in the post-construction CCTV will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG sw3

The proposed works must be designed to ensure the protection and access to the Council's stormwater main.

A detailed design must be submitted and approved as a Condition Endorsement prior to the issuing of any approval under the *Building Act 2016* or commencement of works (whichever occurs first). The detailed design must:

1. Demonstrate how the design will ensure the protection and provide access to the Council's stormwater main.

All work required by this condition must be undertaken in accordance with the approved detailed design.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure the protection of the Council's hydraulic infrastructure.

SW 13

All structures within the flood zone including buildings and flood mitigation measures must be inspected by a suitably qualified and accredited engineer.

Certification from a suitably qualified and accredited engineer that the installation has been constructed in accordance with the approved design

must be provided to the City of Hobart prior to occupancy or commencement of use (whichever occurs first).

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or

2. Be repaired and reinstated by the owner to the satisfaction of the Council.

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council’s infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council’s infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council’s infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner’s full cost.

ENV 1

Sediment and erosion control measures sufficient to prevent sediment from leaving the site must be installed prior to any disturbance of the site, and maintained until all areas of disturbance have been stabilized or re-vegetated.

Advice:

For further guidance in preparing a Soil and Water Management Plan – in accordance with Fact sheet 3 Derwent Estuary Program click here.

Reason for condition

To avoid the sedimentation of roads, drains, natural watercourses, Council land that could be caused by erosion and runoff from the development, and to comply with relevant State legislation.

ENVHE 2

A contamination Environmental Site Assessment report prepared by a suitably qualified and experienced person in accordance with the procedures and practices detailed in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM) as amended 2013 must be submitted prior to commencement of work. The report must conclude:

- Whether any site contamination presents a risk to workers involved in redevelopment of the site, or future users of the site, as a result of proposed excavation of the site.
- Whether any site contamination presents an environmental risk from excavation conducted during redevelopment of the site.
- Whether any specific remediation and/or protection measures are required to ensure proposed excavation does not adversely impact human health or the environment before excavation commences.
- Based on the results of the Environmental Site Assessment that the excavation as part of the planned works will not adversely impact on human health or the environment (subject to implementation of any identified remediation and/or protection measures as required).

If the Environmental Site Assessment report concludes that remediation and/or protection measures are necessary to avoid risks to human health or the environment, a proposed remediation and/or management plan must be submitted prior to commencement of work. Any remediation or management plan involving soil disturbance must include a detailed soil and water management plan to prevent off-site transfer of potentially-contaminated soil or stormwater.

Advice:

The Environmental Site Assessment Report prepared by Greencap, dated February 2022 (J176373) and submitted by the applicant on 23 March 2022, meets this condition, and no further report is required to be

submitted.

Reason for condition

To determine the level of site contamination, and to identify any recommended remediation/management practices/safeguards which need to be followed/put in place during any excavations/ground disturbance on, or for use of the site, to provide for a safe living environment.

OPS s1

The developer must have a build schedule in place to ensure that the removal of the flood light panels do not disrupt any hockey games. Prior to the removal of the flood lights the developer must prepare a build schedule in consultation with Hockey Tasmania and Council. The removal of the flood lights must be undertaken in accordance with the build schedule.

Advice:

Please contact the Council's Parks and Recreation Program Leader on 6238 2956 in relation to this condition.

Reason for condition

To maintain the functionality of the adjacent sports fields.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy

the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

A fee of 2% of the value of the works for new public assets (stormwater infrastructure, roads and related assets) will apply for the condition endorsement application.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016.* Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

BUILDING OVER AN EASEMENT

In order to build over the service easement, you will require the written consent of the person on whose behalf the easement was created, in accordance with section 74 of the *Building Act 2016.*

STORMWATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council’s Infrastructure By law. Click here for more information.

STRUCTURES CLOSE TO COUNCILS' STORMWATER MAIN

The design of structures (including footings) must provide protection for the Council’s infrastructure. For information regarding appropriate

designs please contact the Council's City LIfe Division. You may need the General Manager's consent under section 13 of the *Urban Drainage Act 2013* and consent under section 73 or 74 of the *Building Act 2016*.

STREET LIGHTING

The relocation of a light pole must be in accordance with TasNetworks and Hobart City Council requirements. Click here for more information.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's City Resilience Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

Attachment A:	PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - Planning Committee or Delegated Report ⇩
Attachment B:	PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - CPC Agenda Documents ⇩
Attachment C:	PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - Planning Referral Officer Environmental Development Planner Report ⇩
Attachment D:	PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - Applicant Response to Representor #1 ⇩
Attachment E:	PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - Response to representation - Hockey Tasmania ⇩

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Committee
Council:	14 June 2022
Expiry Date:	18 July 2022
Application No:	PLN-21-823
Address:	1 BELL STREET , NEW TOWN
Applicant:	(Servicestream on behalf of Telstra Corporation) PO Box 14570
Proposal:	Upgrading of Existing Telecommunications Facility and Associated Works
Representations:	Two (2)
Performance criteria:	Development Standards, Potentially Contaminated Land Code, Telecommunications Code

1. Executive Summary

1.1 Planning approval is sought for Upgrading of Existing Telecommunications Facility and Associated Works, at 1 Bell Street New Town.

1.2 More specifically the proposal includes:

- Modifications to the existing Telstra telecommunications facility at 1 Bell Street.
- Removal of the floodlights and platform to enable strengthening of the floodlight pole.
- Upgrading the pole footing.
- A new floodlight steel frame, platform and ladder.
- Remove six (6) redundant panel antennas and replace with nine (9) new panel antennas. These will be in a new headframe at the top of the pole.
- Increase in the height of the pole from 36.12m to 36.4m (28cm higher).
- Upgrade of other equipment including remote radio units, cabling, feeders, mounts, junction boxes and conduits.
- Internal works within the existing equipment shelter.
- All new equipment will match the existing colour of the structure.
- The applicant has stated that the work is needed to: allow for increasing demands in the New Town area and surrounds; ensure that users can connect with optimal data speeds at all times of the day; improve mobile phone coverage to local businesses; and comply with safety requirements.

1.3 The proposal relies on performance criteria to satisfy the following standards and codes:

1.3.1 Recreation Zone Standards - Height
1.3.2 Potentially Contaminated Land Code - Excavation
1.3.3 Telecommunications Code - Visual Impact & Height

1.4 Two (2) representations objecting to the proposal were received within the statutory advertising period between 5 and 19 May 2022.

1.5 The proposal is recommended for approval subject to conditions.

1.6 The final decision is delegated to the Council, because the work is proposed on Council owned land.

2. Site Detail

2.1 The subject site is 1 Bell Street, which is also known as the Bell Street Hockey Grounds, and which contains the Tasmanian Hockey Centre. The site is owned by the City of Hobart.

2.2 The Development Appraisal Planner has visited the site.

Fig. 2. Subject site. Source: HCC GIS.

3. Proposal

3.1 Planning approval is sought for Upgrading of Existing Telecommunications Facility and Associated Works, at 1 Bell Street New Town.

3.2 More specifically the proposal includes:

- Modifications to the existing Telstra telecommunications facility at 1 Bell Street.
- Removal of the floodlights and platform on the existing pole to enable strengthening of the floodlight pole.
- Upgrading the pole footing.
- A new floodlight steel frame, platform and ladder.
- Remove six (6) redundant panel antennas and replace with nine (9) new panel antennas. These will be in a new headframe at the top of the pole.
- Increase in the height of the pole from 36.12m to 36.4m (28cm higher).
- Upgrade of other equipment including remote radio units, cabling, feeders, mounts, junction boxes and conduits.
- Internal works within the existing equipment shelter.
- All new equipment will match the existing colour of the structure.
- The applicant has stated that the work is needed to: allow for increasing demands in the New Town area and surrounds; ensure that users can connect with optimal data speeds at all times of the day; improve mobile phone coverage to local businesses; and comply with safety requirements.

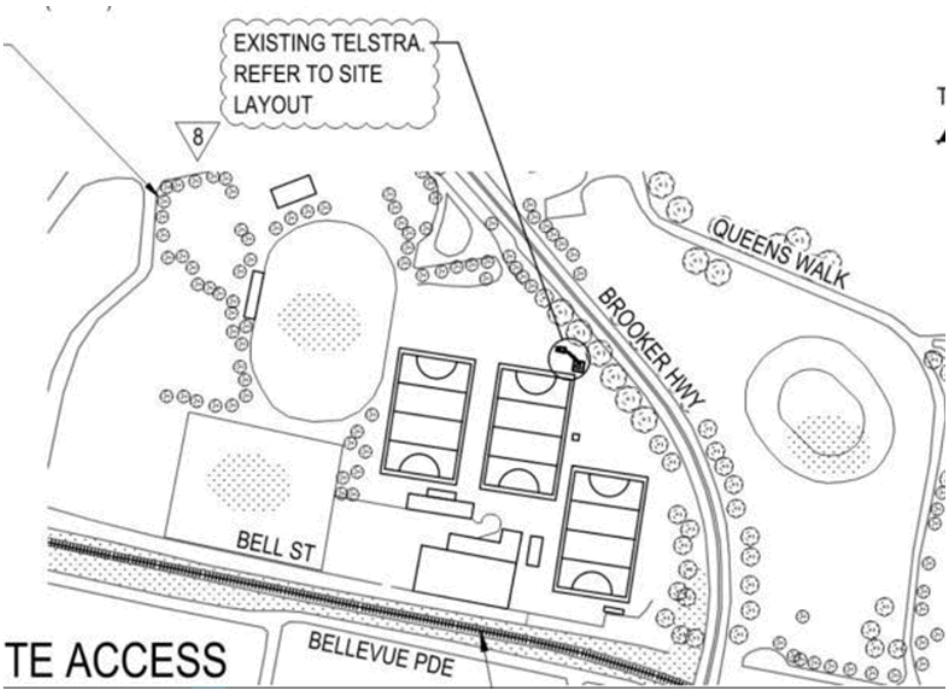


Fig. 2. Site plan showing the location of the tower. Source: Application documents.

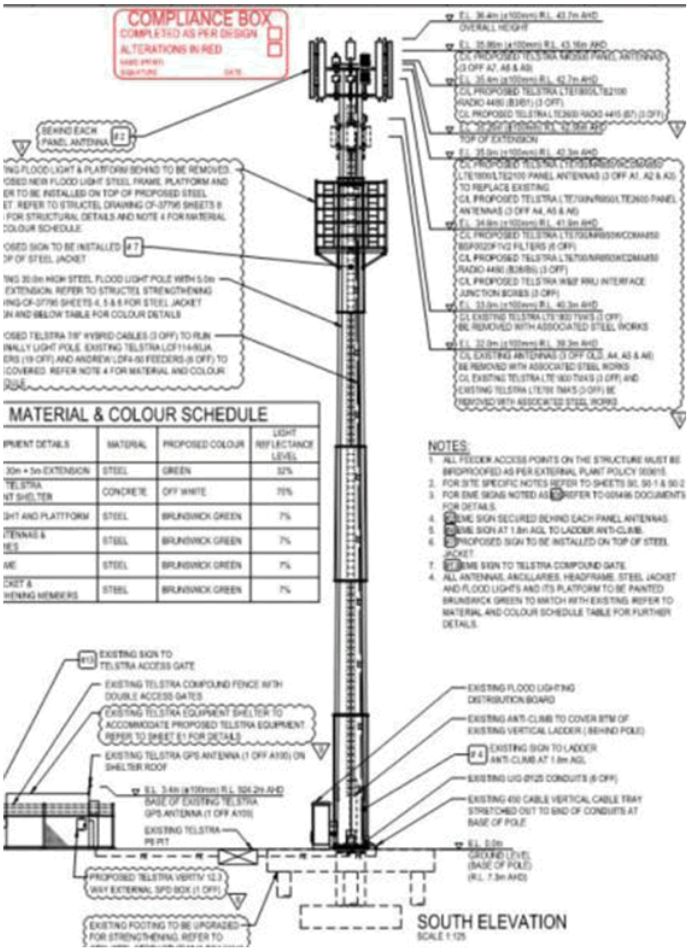


Fig. 3. The proposed tower (south elevation). Source: Application documents.

Fig. 4. The existing tower adjacent to the hockey ground. Photo looking north. Source: Application documents.

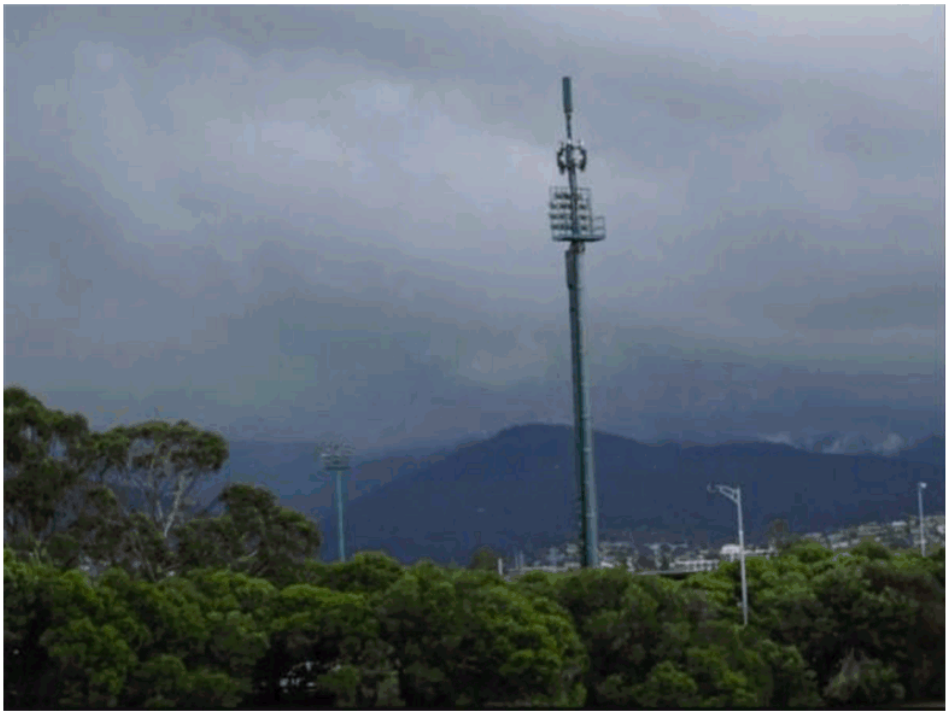


Fig. 5. The existing tower. Photo taken from near Brooker Avenue. Source: Application documents.

Fig. 6. The existing Telstra shelter box. Source: Application documents.

4. Background

4.1 General Manager consent to the making of the planning application was granted under GMC-21-86.

4.2 Due to an administrative error, the Environmental Site Assessment (ESA) submitted with the application was not included in the package of advertised documents. The ESA was favourably reviewed by the Council's Environmental Health Officer against the provisions in the Potentially Contaminated Land Code, and the officer has recommended approval of the development. Because the report was not included in the advertised documents, a condition relating to the ESA will be placed on the planning permit. The ESA already submitted by the applicant will meet this permit condition. The ESA has been included in Attachment B (CPC Documents).

5. Concerns raised by representors

5.1 Two (2) representations objecting to the proposal were received within the statutory advertising period between 5 and 19 May 2022.

5.2 The following table outlines the concerns raised in the representations received. Those concerns which relate to a discretion invoked by the proposal are addressed in Section 6 of this report.

Rep #1

I have serious concerns around the information provided on your Council's Online Services Development portal. If I am to understand correctly the electromagnetic energy (EME) around the wireless base station at Tasmanian Hockey Centre, 1 Bell Street, NEW TOWN TAS 7008 will increase by 545% (0.40% to 2.18%).

I have not had time to read all relevant material before putting this email together but I would see this as a serious health risk to our family. Our family home sits in direct line with Tas Hockey light pole/ Telstra Mobile Tower and falls on the edge of the maximum EME levels at the 200 metre zone.

This Environmental EME Report was created back in 2021 anywhere between 8 - 15 months ago (is this even still current??) and does not seem to indicate what the safe general public exposure limits are for RF transmissions. Compliance certificate for this site was dated Feb 2017 some 5 years 3 months ago (is this still current)???.

I also note another Mobile Tower also exists on this site at 1 Bell Street New Town, so the EME levels would actually be much higher and these are not even reported as part of this application.

I do understand we all live in a Tech Savy world but if the Telstra Mobile panels are going to be revamped to the extent that they document why not suggest that Telstra Corp/ Service Stream look outside the box for a different opportunity?

• share services that currently exist onsite.
• build the new upgraded Mobile Tower in an area more suitable with ample green space and height like Queens Domain with less chance of RF EME levels affecting the public.

I would like to lodge a protest to this application until ALL available information is provided, including local EME level testing to ALL neighbouring properties.

I see this as a very serious health risk!!!

- Rep # 2:

  Hockey Tasmania require advance notice of any works on site at the Tasmanian Hockey Centre, and work is only to be done between 7am and 3pm weekdays.

  There must be no disruption to any hockey activity or disruption to any services (e.g. water/power).

  There is no liability to Hockey Tasmania to any part of the upgrade.

  Telstra remediate any areas at their cost that may be affected by the upgrade.

  Hockey Tasmania require compensation for any lost earnings if any of the above is not met.

5.3 To reduce any potential impact on Hockey Tasmania, the Council's Park Planner has required that the following condition be placed on the permit:

As the flood lighting panels attached to the tower need to be removed for a period of 3-5 hours while the tower is upgraded, the works contractor must develop a build schedule in consultation with Council and Hockey Tasmania, to ensure that this is done at a time that does not disrupt hockey games. The contractor should contact the Sports and Recreation unit of Council on 0427 557 254 or averys@hobartcity.com.au.

5.4 The applicant has advised that they will respond to the issues raised in the representations. The applicant's response will be attached to the agenda as a separate document (Attachment D and E).

6. Assessment

6.1 The *Hobart Interim Planning Scheme 2015* is a performance based planning scheme. To meet an applicable standard, a proposal must demonstrate compliance with either an acceptable solution or a performance criterion. Where a proposal complies with a standard by relying on one or more performance criteria, the Council may approve or refuse the proposal on that basis. The ability to approve or refuse the proposal relates only to the performance criteria relied on.

6.2 The site is located within the Recreation Zone of the *Hobart Interim Planning*

Scheme 2015.

6.3 The existing and proposed use is

6.4 The proposal has been assessed against:

6.4.1 Part D - 18.0 Recreation Zone Standards

6.4.2 Part E - 2.0 Potentially Contaminated Land Code

6.4.3 Part E - 15.0 Inundation Prone Areas Code:

6.4.4 Part E - 19.0 Telecommunications Code

6.5 The proposal relies on the following performance criteria to comply with the applicable standards:

6.5.1 Recreation Zone Standards:

Building Height – Part D 18.4.1 P1

6.5.2 Potentially Contaminated Land Code:

Excavation - Part E 2.6.2 P1

6.5.3 Telecommunications Code

Visual Amenity & Height - Part E 19.7.2 P1 & P2

6.6 Each performance criterion is assessed below.

6.7 Building Height - Part D 18.4.1 P1

6.7.1 The acceptable solution at clause 18.4.1 A1 requires a maximum building height of 10m in the Recreation Zone.

6.7.2 The proposal includes an increase in the height of the tower from 36.12m to 36.4m (a 28cm increase).

6.7.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.7.4 The performance criterion at clause 18.4.1 P1 provides as follows:

Building height must satisfy all of the following:

(a) be consistent with any Desired Future Character Statements provided for the area;
(b) not unreasonably overshadow adjacent public space;

6.7.5 There is no Desired Future Character Statement for the zone so (a) is met. The tower will not unreasonably overshadow adjacent public space and so (b) is met.

6.7.6 The proposal complies with the performance criterion.

6.8 Potentially Contaminated Land Code - Part E 2.6.2 P1

6.8.1 There is no acceptable solution for excavation on potentially contaminated land.

6.8.2 The proposal includes excavation for footing strengthening.

6.8.3 There is no acceptable solution; therefore assessment against the performance criterion is relied on.

6.8.4 The performance criterion at clause provides as follows:

Excavation does not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or
(b) a plan to manage contamination and associated risk to human health and the environment that includes:
(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before excavation commences; and
(iii) a statement that the excavation does not adversely impact on human health or the environment.

6.8.5 The Environmental Site Assessment report lodged with the application concluded that:

"Contaminant concentrations recorded in soils at the site were less than

the adopted human health and ecological investigation levels for recreational and commercial/industrial land use. Based on the results of the assessment, soils at the site were considered unlikely to pose an unacceptable risk to future occupiers of the site for a commercial/industrial and the wider sites recreational land use. Based on the results of the assessment, the site is fit for use as a communications tower within a wider recreational space (hockey centre), and is considered a low risk to human health and the local environment"

The Council's Environmental Health Officer has advised that they accept the ESA conclusion, and that there are no further requirements due to low site contamination.

6.8.6 The proposal complies with the performance criterion.

6.9 Telecommunications Code - Part E 19.7.2 P1

6.9.1 The acceptable solution at clause E.19.7.2 A1 requires that telecommunications infrastructure be designed to reduce its prominence and visual impact on the locality.

6.9.2 The proposal includes a new antenna painted green to match the existing tower, rather than a neutral colour.

6.9.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.9.4 The performance criterion at clause E.19.7.2 P1 provides as follows:

The location of telecommunications infrastructure not complying with A1 must ensure any detrimental impact upon visual amenity is minimised by reducing the prominence of telecommunications infrastructure, and important public views such as vistas to significant public buildings, streetscapes and heritage areas are protected.

6.9.5 The Council's Environmental Development Planner has advised as follows:

Approval is sought to upgrade an existing mobile phone tower near the Bell Street hockey grounds. The proposed upgrade would involve the upgrade of mobile antennas, headframe and ancillary equipment on a flood light pole and associated pole foundation strengthening works.

The proposed development is not exempt under general exemption 5.2.6, and in particular exemption clause 5.2.6(a), as the proposal does not meet the definition of a low-impact facility under the Telecommunications (Low-Impact Facilities) Determination 2018.

The Telecommunications Code applies because development for telecommunications facilities is proposed. There are no exemptions from the Code standards.

The proposal complies with E.19.7.1 A1 because the new antenna would be located on an existing tower. A2 is not applicable as a new tower is not proposed.

With regard to E.19.7.2, the application does not comply with acceptable solution A1 because the new infrastructure would be painted green to match the existing tower, rather than a neutral colour. Performance criterion P1 states the following:

The location of telecommunications infrastructure not complying with A1 must ensure any detrimental impact upon visual amenity is minimised by reducing the prominence of telecommunications infrastructure, and important public views such as vistas to significant public buildings, streetscapes and heritage areas are protected.

This is an upgrade of an existing tower so the location is pre-determined. The tower is one of a group of towers supporting floodlights for the sports fields. The additional height (0.28m) and infrastructure would have no significant additional visual impact compared with the existing tower. The green colour is not unreasonably prominent in the landscape.

The application is considered consistent with E.19.7.2 P1.

With regard to E19.7.3, the application complies with A1 as the infrastructure would not be located in an area of environmental significance.

With regard to E19.7.4, the application complies with acceptable solution A1 because the infrastructure would not impede vehicular traffic or other modes of transport (excluding helicopter medical transport which is addressed under the SAP provisions).

With regard to E19.7.5, acceptable solution A1 is not applicable as it would not be located within a Significant Agriculture Zone.

The proposed development complies with the Telecommunications Code.

Recommended Conditions: N/A
Recommended Advice: N/A

6.9.6 The proposal complies with the performance criterion.

6.10 Telecommunications Code - Part E 19.7.2 P2

6.10.1 The acceptable solution at clause E.19.7.2 A2 (d) requires that telecommunications infrastructure not exceed 20m in height in the Recreation Zone.

6.10.2 The proposal includes a tower with a total height of 36.4m

6.10.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.10.4 The performance criterion at clause E.19.7.2 P2 provides as follows:

Height above natural ground level not complying with A2 must satisfy all of the following:

(a) the predominant height of existing infrastructure or vegetation in the immediate vicinity is above the specified height limit;
(b) there is no adverse impact on heritage or ecological values, or visual amenity of the locality;
(c) it is critical for the role of the facility within the telecommunications network.

6.10.5 The Council's Environmental Development Planner has advised as follows:

The application does not comply with E19.7.2 A2 because the height of the tower would increase slightly and the total height would exceed 20m (36.4m).

Performance criterion P2 states the following:

Height above natural ground level not complying with A2 must satisfy all of the following:
(a) the predominant height of existing infrastructure or vegetation in the immediate vicinity is above the specified height limit;

(b) there is no adverse impact on heritage or ecological values, or visual amenity of the locality;
(c) it is critical for the role of the facility within the telecommunications network.

There are 6 existing floodlight towers and a historical chimney stack around the sportsgrounds that exceed 20m in height. The additional 0.28m in height would have no impact on ecological, heritage or visual amenity values. The application has adequately demonstrated that the upgrade is critical for the long-term role of the facility.

The application is considered consistent with E.19.7.2 P2.

6.10.6 The proposal complies with the performance criterion.

7. Discussion

7.1 Planning approval is sought for Upgrading of Existing Telecommunications Facility and Associated Works, at 1 Bell Street New Town.

7.2 The application was advertised and received two (2) representations. The representations raised concerns including impact of the works on the operation of Hockey Tasmania, and the health and safety risks associated with electromagnetic energy from the facility.

7.3 The proposal has been assessed against the relevant provisions of the planning scheme and is considered to perform well.

7.4 The proposal has been assessed by other Council officers, including the Council's Development Engineer, Environmental Development Planner, Park Planner, Stormwater Services Engineer and Environmental Health Officer. The officers have raised no objection to the proposal, subject to conditions.

7.5 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Upgrading of Existing Telecommunications Facility and Associated Works at 1 Bell Street New Town satisfies the relevant provisions of the *Hobart Interim Planning Scheme 2015*, and as such is recommended for approval.

9. Recommendations

That: Pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for Upgrading of Existing Telecommunications Facility and Associated Works at 1 Bell Street New Town for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-21-823 - 1 BELL STREET NEW TOWN TAS 7008 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2022/00045-HCC dated 2/5/2022 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

ENG sw1

All stormwater from the proposed development (including but not limited to: roofed areas, ag drains, retaining wall ag drains and impervious surfaces such as driveways and paved areas) must be drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

Advice:

Under section 23 of the Urban Drainage Act 2013 it is an offence for a property owner to direct stormwater onto a neighbouring property.

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

ENG sw2.1

A pre-construction CCTV recording of the Council's stormwater main within/adjacent to the proposed development, along with photos of any drainage structures to be connected to or modified, must be submitted to Council prior to the commencement of work.

The pre-construction CCTV recording and photos will be relied upon to establish the extent of any damage caused to Council's stormwater infrastructure during construction. If the owner/developer fails to provide Council with pre-construction CCTV recording then any damage to Council's infrastructure identified in the post-construction CCTV recording will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG sw2.2

A post-construction CCTV recording of the Council's stormwater main within/adjacent to the proposed development, along with photos of any existing drainage structures connected to or modified as part of the development, must be submitted to Council upon completion of work.

The post-construction CCTV recording and photos will be relied upon to establish the extent of any damage caused to Council's stormwater infrastructure during construction. If the owner/developer fails to provide Council with pre-construction CCTV then any damage to Council's infrastructure identified in the post-construction CCTV will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG sw3

The proposed works must be designed to ensure the protection and access to the Council's stormwater main.

A detailed design must be submitted and approved as a Condition Endorsement prior to the issuing of any approval under the *Building Act 2016* or commencement of works (whichever occurs first). The detailed design must:

1. **Demonstrate how the design will ensure the protection and provide access to the Council's stormwater main.**

All work required by this condition must be undertaken in accordance with the approved detailed design.

Advice:

This condition requires further information to be submitted as a Condition Endorsement. Refer to the Condition Endorsement advice at the end of this permit.

Reason for condition

To ensure the protection of the Council's hydraulic infrastructure.

SW 13

All structures within the flood zone including buildings and flood mitigation measures must be inspected by a suitably qualified and accredited engineer.

Certification from a suitably qualified and accredited engineer that the installation has been constructed in accordance with the approved design must be provided to the City of Hobart prior to occupancy or commencement of use (whichever occurs first).

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. **Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or**
2. **Be repaired and reinstated by the owner to the satisfaction of the Council.**

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council's infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council's infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council's infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENV 1

Sediment and erosion control measures sufficient to prevent sediment from leaving the site must be installed prior to any disturbance of the site, and maintained until all areas of disturbance have been stabilized or re-vegetated.

Advice:

For further guidance in preparing a Soil and Water Management Plan – in accordance with Fact sheet 3 Derwent Estuary Program click here.

Reason for condition

To avoid the sedimentation of roads, drains, natural watercourses, Council land that could be caused by erosion and runoff from the development, and to comply with relevant State legislation.

ENVHE 2

A contamination Environmental Site Assessment report prepared by a suitably qualified and experienced person in accordance with the procedures and practices detailed in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM) as amended 2013 must be submitted prior to commencement of work. The report must conclude:

- **Whether any site contamination presents a risk to workers involved in redevelopment of the site, or future users of the site, as a result of proposed excavation of the site.**
- **Whether any site contamination presents an environmental risk from excavation conducted during redevelopment of the site.**
- **Whether any specific remediation and/or protection measures are required to ensure proposed excavation does not adversely impact human health or the environment before excavation commences.**
- **Based on the results of the Environmental Site Assessment that the excavation as part of the planned works will not adversely impact on human health or the environment (subject to implementation of any identified remediation and/or protection measures as required).**

If the Environmental Site Assessment report concludes that remediation and/or protection measures are necessary to avoid risks to human health or the environment, a proposed remediation and/or management plan must be submitted prior to commencement of work. Any remediation or management plan involving soil disturbance must include a detailed soil and water management plan to prevent off-site transfer of potentially-contaminated soil or stormwater.

Advice:

The Environmental Site Assessment Report prepared by Greencap, dated February 2022 (J176373) and submitted by the applicant on 23 March 2022, meets this condition, and no further report is required to be submitted.

Reason for condition

To determine the level of site contamination, and to identify any recommended remediation/management practices/safeguards which need to be followed/put in place during any excavations/ground disturbance on, or for use of the site, to provide for a safe living environment.

OPS s1

The developer must have a build schedule in place to ensure that the removal of the flood light panels do not disrupt any hockey games. Prior to the removal of the flood lights the developer must prepare a build schedule in consultation with Hockey Tasmania and Council. The removal of the flood lights must be undertaken in accordance with the build schedule.

Advice: Please contact the Council's Parks and Recreation Program Leader on

6238 2956 in relation to this condition.

Reason for condition

To maintain the functionality of the adjacent sports fields.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT

If any condition requires that further documents are submitted and approved, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal. Detailed instructions can be found here.

A fee of 2% of the value of the works for new public assets (stormwater infrastructure, roads and related assets) will apply for the condition endorsement application.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016*. Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

BUILDING OVER AN EASEMENT

In order to build over the service easement, you will require the written consent of the person on whose behalf the easement was created, in accordance with section 74 of the *Building Act 2016.*

STORM WATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Infrastructure By law. Click here for more information.

STRUCTURES CLOSE TO COUNCILS' STORMWATER MAIN

The design of structures (including footings) must provide protection for the Council's infrastructure. For information regarding appropriate designs please contact the Council's City Amenity Division. You may need the General Manager's consent under section 13 of the *Urban Drainage Ace 2013* and consent under section 73 or 74 of the *Building Act 2016*.

STREET LIGHTING

The relocation of a light pole must be in accordance with TasNetworks and Hobart City Council requirements. Click here for more information.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

(Liz Wilson)
Development Appraisal Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

(Ben Ikin)
Senior Statutory Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Date of Report: Date Missing

Attachment(s):

Attachment B - CPC Agenda Documents

Attachment C - Environmental Development Planner Referral Officer Report

Attachment D - Applicant Response to Representor #1

Attachment E - Applicant Response to Representor #2

Submission to Planning Authority Notice

Council Planning Permit No.	PLN-21-823	**Council notice date**	14/01/2022
TasWater details			
TasWater Reference No.	TWDA 2022/00045-HCC	**Date of response**	2/05/2022
TasWater Contact	Robert Stapleton	**Phone No.**	0417279866
Response issued to			
Council name	CITY OF HOBART		
Contact details	coh@hobartcity.com.au		
Development details			
Address	1 BELL ST, NEW TOWN	**Property ID (PID)**	2891281
Description of development	Upgrading of Existing Telecommunications Infrastructure and Associated Works		

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Date of Issue
Service Stream Essential Network Services	"Site Layout - Site Access" / Dwg: TX660 – Sheet: S1	9	20/04/2022
Service Stream Essential Network Services	"Detail" / Dwg: TX660 – Sheet: S3-1	2	20/04/2022

Conditions

SUBMISSION TO PLANNING AUTHORITY NOTICE OF PLANNING APPLICATION REFERRAL

Pursuant to the *Water and Sewerage Industry Act* 2008 (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:

ASSET CREATION & INFRASTRUCTURE WORKS

1. Plans submitted with the application for Certificate(s) for Certifiable Work (Building and/or Plumbing) / Engineering Design Approval must, to the satisfaction of TasWater show, all existing, redundant and/or proposed property services and mains.
2. Prior to applying for a Permit to Construct/the issue of a Certificate for Certifiable Work (Building and/or Plumbing to construct new infrastructure the developer must obtain from TasWater Engineering Design Approval for new TasWater infrastructure. The application for Engineering Design Approval must include engineering design plans prepared by a suitably qualified person showing the hydraulic servicing requirements for water and sewerage to TasWater's satisfaction.
3. Prior to works commencing, a Permit to Construct must be applied for and issued by TasWater. All infrastructure works must be inspected by TasWater and be to TasWater's satisfaction.
4. In addition to any other conditions in this permit, all works must be constructed under the supervision of a suitably qualified person in accordance with TasWater's requirements.
5. Prior to the issue of a Certificate for Certifiable Work (Building and/or Plumbing) / Certificate of Water and sewerage Compliance (Building and/or Plumbing) all additions, extensions, alterations or upgrades to TasWater's water and sewerage infrastructure required to service the development, are to be completed generally as shown on, and in accordance with, the plans listed in the schedule of drawings and are to be constructed at the expense of the developer to the satisfaction of TasWater, with live

connections performed by TasWater.

6. After testing/disinfection, to TasWater's requirements, of newly created works, the developer must apply to TasWater for connection of these works to existing TasWater infrastructure, at the developer's cost.

7. At practical completion of the water and sewerage works and prior to TasWater issuing a Consent to a Register Legal Document / applying to TasWater for a Certificate of Water and Sewerage Compliance (Building and/or Plumbing), the developer must obtain a Certificate of Practical Completion from TasWater for the works that will be transferred to TasWater. To obtain a Certificate of Practical Completion:

   a. Written confirmation from the supervising suitably qualified person certifying that the works have been constructed in accordance with the TasWater approved plans and specifications and that the appropriate level of workmanship has been achieved.

   b. A request for a joint on-site inspection with TasWater's authorised representative must be made.

   c. Work As Constructed drawings and documentation must be prepared by a suitably qualified person to TasWater's satisfaction and forwarded to TasWater.

   Upon TasWater issuing a Certificate of Practical Completion, the newly constructed infrastructure is deemed to have transferred to TasWater.

8. After the Certificate of Practical Completion has been issued, a 12-month defects liability period applies to this infrastructure. During this period all defects must be rectified at the developer's cost and to the satisfaction of TasWater. A further 12-month defects liability period may be applied to defects after rectification. TasWater may, at its discretion, undertake rectification of any defects at the developer's cost. Upon completion, of the defects liability period the developer must request TasWater to issue a "Certificate of Final Acceptance". TasWater will release any security held for the defect's liability period.

9. The developer must take all precautions to protect existing TasWater infrastructure. Any damage caused to existing TasWater infrastructure during the construction period must be promptly reported to TasWater and repaired by TasWater at the developer's cost.

10. Ground levels over the TasWater assets and/or easements must not be altered without the written approval of TasWater.

11. A construction management plan must be submitted with the application for TasWater Engineering Design Approval. The construction management plan must detail how the new TasWater infrastructure will be constructed while maintaining current levels of services provided by TasWater to the community. The construction plan must also include a risk assessment and contingency plans covering major risks to TasWater during any works. The construction plan must be to the satisfaction of TasWater prior to TasWater's Engineering Design Approval being issued.

56W CONSENT

12. Prior to the issue of the Certificate for Certifiable Work (Building) and/or (Plumbing) by TasWater the applicant or landowner as the case may be must make application to TasWater pursuant to section 56W of the Water and Sewerage Industry Act 2008 for its consent in respect of that part of the development which is built over or within two metres of TasWater infrastructure.

DEVELOPMENT ASSESSMENT FEES

13. The applicant or landowner as the case may be, must pay a development assessment fee of $219.04, toTasWater, as approved by the Economic Regulator and the fee will be indexed, until the date paid to TasWater.

    The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit https://www.taswater.com.au/building-and-development/technical-standards

For application forms please visit https://www.taswater.com.au/building-and-development/development-application-form

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.

(a) A permit is required to work within TasWater's easements or in the vicinity of its infrastructure. Further information can be obtained from TasWater

(b) TasWater has listed a number of service providers who can provide asset detection and location services should you require it. Visit www.taswater.com.au/Development/Service-location for a list of companies

(c) TasWater will locate residential water stop taps free of charge

(d) Sewer drainage plans or Inspection Openings (IO) for residential properties are available from your local council.

56W Consent

The plans submitted with the application for the Certificate for Certifiable Work (Building) and/or (Plumbing) will need to show footings of proposed buildings located over or within 2.0m from TasWater pipes and will need to be designed by a suitably qualified person to adequately protect the integrity of TasWater's infrastructure, and to TasWater's satisfaction, be in accordance with AS3500 Part 2.2 Section 3.8 to ensure that no loads are transferred to TasWater's pipes. These plans will need to also include a cross sectional view through the footings which clearly shows;

(a) Existing pipe depth and proposed finished surface levels over the pipe;

(b) The line of influence from the base of the footing must pass below the invert of the pipe and be clear of the pipe trench and;

(c) A note on the plan indicating how the pipe location and depth were ascertained.

(d) The location of the property service connection and sewer inspection opening (IO).

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

Authorised by

Jason Taylor
Development Assessment Manager

TasWater Contact Details

Phone	13 6992	Email	development@taswater.com.au
Mail	GPO Box 1393 Hobart TAS 7001	Web	www.taswater.com.au

2 December 2021

Planning Department
Hobart City Council
GPO Box 503,
Hobart Tas 7001

Dear Sir/Madam

Planning Permit Application – Proposed Upgrade to Existing Telecommunications Facility

Tasmanian Hockey Centre, 1 Bell Street, New Town Tas 7008

Service Stream Mobile Communications has been engaged by Telstra to assist in the deployment of its mobile telephone network.

We refer to the enclosed Planning Permit Application for a the upgrade of an existing Telecommunications Facility. The proposal will comprise the upgrade of mobile antennas, headframe and ancillary equipment on a flood light pole and associated strengthening works.

Please find enclosed the following information to satisfy Application Requirements of the Hobart Interim Planning Scheme:

- A copy of the Certificate of Title;
- Plans to scale, including site locality and proposed layout, site set out, site elevation and site analysis diagram;
- Photographs of the existing telecommunications facility and surrounding area;
- An EME (emissions) predictive report demonstrating compliance with the Australian Standard; and
- An accompanying written submission detailing all aspects of the proposal and assessment against relevant Commonwealth legislation and Hobart Interim Planning Scheme requirements.

Payment for the appropriate fee will be submitted to Council on confirmation of amount payable.

This application has had regard to the relevant Hobart Interim Planning Scheme requirements, as outlined in the accompanying submission.

As a Licensed Carrier under the Commonwealth Telecommunications Act 1997, Telstra is also obliged to comply with the Industry Code on the Deployment of Mobile Telephone Network Infrastructure, (the Code), in relation to this proposal. Sections 4.1 and 4.2 of the Code are relevant to the preparation of this Planning Application. We confirm that Telstra has applied the Precautionary Approach in selecting the proposed site in accordance with Section 4.1 of the Code. Further, the Precautionary Approach has also been applied to the design of this proposed installation in accordance with Section 4.2 of the Code.

Further Information

Further information on a range of issues relevant to the placement of mobile phone towers (including industry codes of practice and legislation) is available at http://emr.acma.gov.au. This web portal takes you directly to the Australian Communications and Media Authority (ACMA) website. ACMA is a government regulator of telecommunications and radiocommunications.

MOBILE COMMUNICATIONS – TOTAL COMMUNICATIONS INFRASTRUCTURE PTY LTD ABN 74 095 043 057
a subsidiary of SERVICE STREAM LIMITED
Level 4, 357 Collins Street, Melbourne VIC 3000
T +61 3 9677 8888 | F +61 3 9677 8877 | E info@servicestream.com.au | www.servicestream.com.au
Service Stream Limited ABN 46 072 369 870

Should you require assistance with this matter, please contact Barbara Grinter on telephone number 03 9937 6555 or email barbara.grinter@servicestream.com.au.

Yours faithfully

Barbara Grinter
Planning Consultant
Service Stream Mobile Communications

Enclosures:

- Appendix A - Certificate of Title
- Appendix B - Preliminary plans
- Appendix C – Site Photograhs
- Appendix D - EME Report
- Written submission

City of HOBART

Enquiries to: City Planning
Phone: (03) 6238 2711
Email: coh@hobartcity.com.au

12 January 2022

Barbara Grinter (Servicestream on behalf of Telstra Corporation)
PO Box 14570
Melbourne Victoria 8001

mailto: barbara.grinter@servicestream.com.au

Dear Sir/Madam

1 BELL STREET, NEW TOWN - WORKS ON COUNCIL LAND NOTICE OF LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION - GMC-21-86

Site Address:

1 Bell Street, New Town

Description of Proposal:

Upgrade Works on Council Land

Applicant Name:

Barbara Grinter for Servicestream
obo Telstra Corporation

PLN *(if applicable)*:

PLN-21-823

I write to advise that pursuant to Section 52 of the *Land Use Planning and Approvals Act 1993*, I grant my consent on behalf of the Hobart City Council as the owner/administrator of the above land for you to make application to the City for a planning permit for the development described above and as per the attached documents. I granted consent pursuant to delegation, a copy of which is enclosed.

Please note that the granting of the consent is only for the making of the application and in no way should such consent be seen as prejudicing any decision the Council is required to make

as the statutory planning authority.

This consent does not constitute an approval to undertake any works and does not authorise the owner, developer or their agents any right to enter or conduct works on any Council managed land whether subject to this consent or not.

If planning approval is granted by the planning authority, you will be required to seek approvals and permits from the City as both landlord, land manager, or under other statutory powers (such as other legislation or City By-Laws) that are not granted with the issue of a planning permit under a planning scheme. This includes the requirement for you to reapply for a permit to occupy a public space under the City's Public Spaces By-law if the proposal relates to such an area.

Accordingly, I encourage you to continue to engage with the City about these potential requirements.

Yours faithfully

(John Fisher)
ACTING DIRECTOR CITY AMENITY

Relevant documents/plans:

Plans by ServiceStream
TX660 S1, TX660 S1-1, TX660 S3, TX660 S3-2

City of Hobart

INSTRUMENT OF DELEGATION

General Delegation

Director City Amenity

I, Kelly Grigsby, Chief Executive Officer, being the General Manager of the Hobart City Council as appointed by Council pursuant to section 61 of the *Local Government Act 1993* ("the Act") hereby delegate pursuant to Section 64 of the Act, the following powers and functions to the **Director City Amenity**, or to such persons who may be acting in that position:

1. to sign an application; and
2. to provide written permission to make an application;

pursuant to section 52(1B) of the *Land Use Planning and Approvals Act 1993*, EXCEPT where an application is recommended for refusal.

Dated this 20 day of August 2021

(Kelly Grigsby)
CHIEF EXECUTIVE OFFICER

Being the General Manager as appointed by the Council pursuant to Section 61 of the Local Government Act 1993 (tas)

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
153814	1
EDITION	DATE OF ISSUE
1	01-Aug-2008

SEARCH DATE : 30-Nov-2021
SEARCH TIME : 01.50 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 153814
Derivation : Part of 109A-3R-0Ps. and 5A-3R-30Ps. Gtd. to J. Bell and Part of 2000 Acres Gtd to George Hull
Prior CTs 122033/1, 40760/1, 37175/10, 37175/11 and 37175/12

SCHEDULE 1

HOBART CITY COUNCIL

SCHEDULE 2

C844962 Land is limited in depth to 15 metres, excludes minerals and is subject to reservations relating to drains sewers and waterways in favour of the Crown
SP 37175 BURDENING EASEMENT: a right of carriageway (appurtenant to the land marked AA,L,M,Z,N,O on Plan 153814) over the Right of Way 'YY' 4.00 wide on Plan 153814
SP 37175 BURDENING EASEMENT: a right of carriageway (appurtenant to the land marked PQRSTUVWXYZML,AA on Plan 153814) over the Right of Way 'ZZ' 4.00 wide on Plan 153814
SP 37175 BENEFITING EASEMENT: (appurtenant to the land marked AA,L,M,Z,N,O on Plan 153814) a right of carriageway over the Right of Way 'YY' 4.00 wide on Plan 153814
SP 37175 BENEFITING EASEMENT:(appurtenant to the land marked PQRSTUVWXYZML,AA on Plan 153814) a right of carriageway over the Right of Way 'ZZ' 4.00 wide on Plan 153814
SP 37175 FENCING COVENANT in Schedule of Easements
C844962 FENCING PROVISION in Transfer
B239027 ADHESION ORDER under Section 477A of the Local Government Act 1962 Registered 12-Dec-1988 at noon
C840779 ADHESION ORDER under Section 110 of the Local Government (Building and Miscellaneous Provisions) Act 1993 Registered 01-Aug-2008 at noon
E124729 CAVEAT by Optus Mobile Pty Limited (affecting such

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

portion of the said land within described as shown hatched on the plan attached thereto) Registered 13-Feb-2018 at noon

E236505 CAVEAT by Telstra Corporation Limited (affecting that part of the land shown as Lot 1 on plan annexed to caveat) Registered 12-Oct-2020 at noon

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

OWNER

FOLIO REFERENCE C.T.122033/1, C.T.40760/1, C.T.37175/10, C.T.37175/11, C.T.37175/12

GRANTEE

PLAN OF TITLE

LOCATION

CITY OF HOBART

CONVERTED BY PLAN No. P.122033, D.40760, S.P.37175

COMPILED BY LDRB

NOT TO SCALE LENGTHS IN METRES

Registered Number

P.153814

APPROVED 9 JULY 2008

Alice Kawa

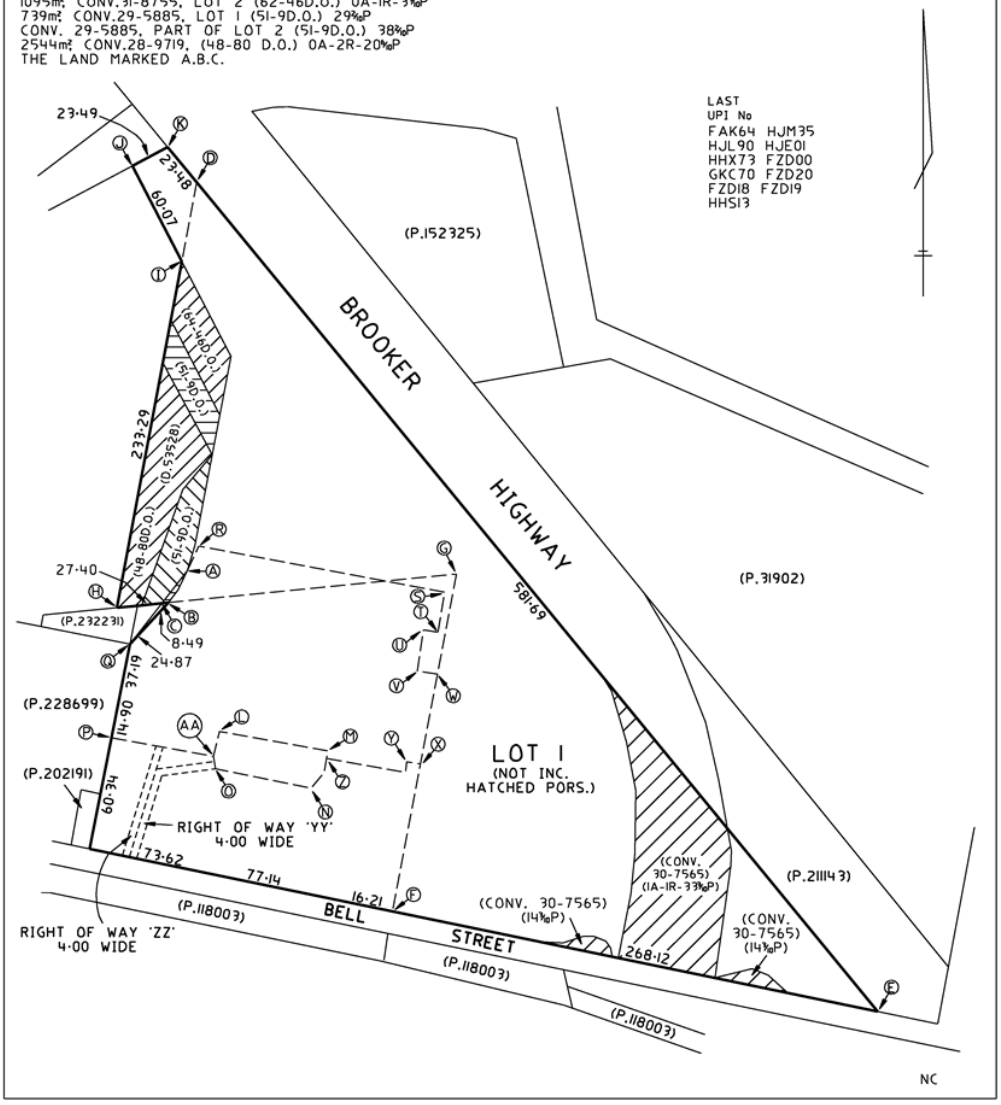
Recorder of Titles

MAPSHEET MUNICIPAL CODE No.	LAST UPI No	LAST PLAN No.	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN
114 (5225-32)	"SEE BELOW"	P.122033, D.40760, S.P.37175	

SKETCH BY WAY OF ILLUSTRATION ONLY AS RELATES TO LAND MARKED DEFGHI & DIJK DERIVED FROM CONV. 22/4537 & 31/8756 RESPECTIVELY

"EXCEPTED LANDS"

362m², CONV.30-7565, 14‰P
590lm², CONV.30-7565, 1A-1R-33P
362m², CONV. 30-7565, 14‰P
1095m², CONV.31-8755, LOT 2 (62-46D.O.) 0A-1R-3‰P
739m², CONV.29-5885, LOT 1 (51-9D.O.) 29‰P
CONV. 29-5885, PART OF LOT 2 (51-9D.O.) 38‰P
2544m², CONV.28-9719, (48-80 D.O.) 0A-2R-20‰P
THE LAND MARKED A.B.C.

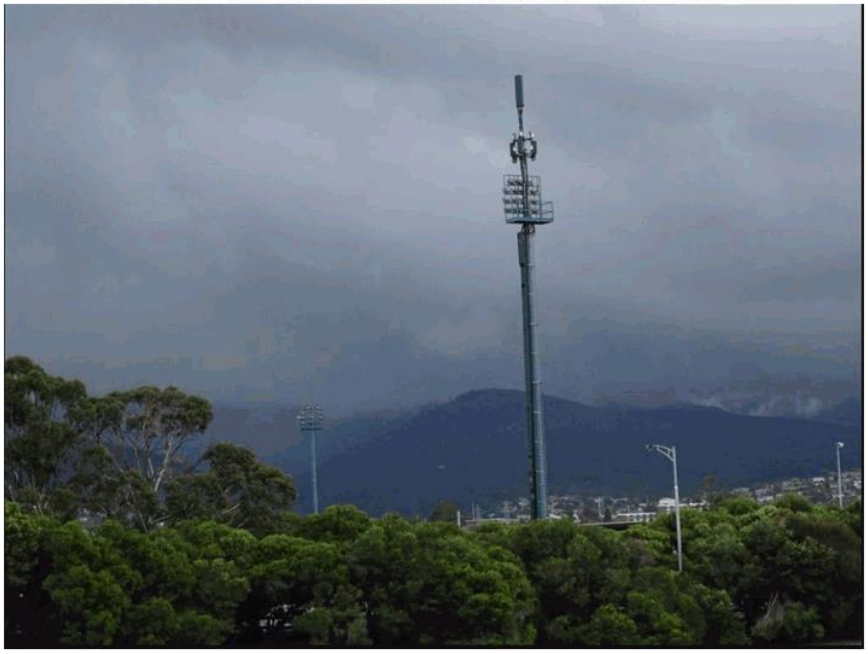


Appendix C – Photographs

Photograph 1 – Existing Telstra telecommunications facility installed on flood light pole and Telstra Shelter, looking south east. Source: Servicestream

Photograph 2 – Existing Telstra telecommunications facility installed on flood light pole and Telstra Shelter, looking north. Source: Servicestream

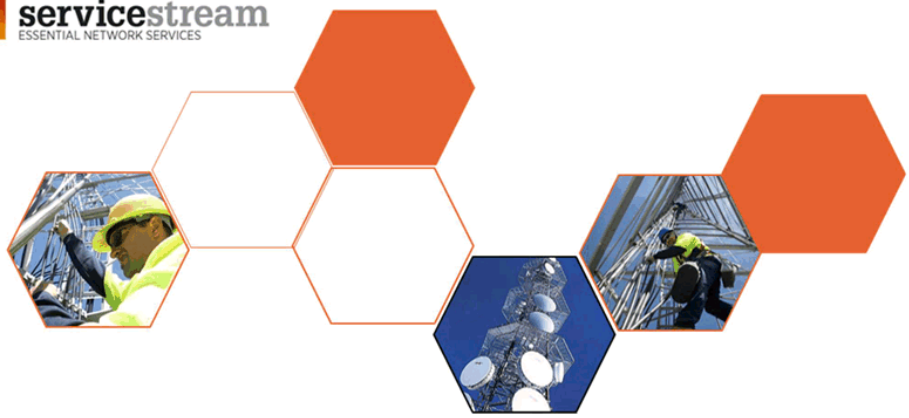
Photograph 3 – Existing Telstra Shelter, looking east. Source: Servicestream



Photograph 4 – Existing Telstra facility, viewed from the Brooker Highway, looking south. Source: Servicestream

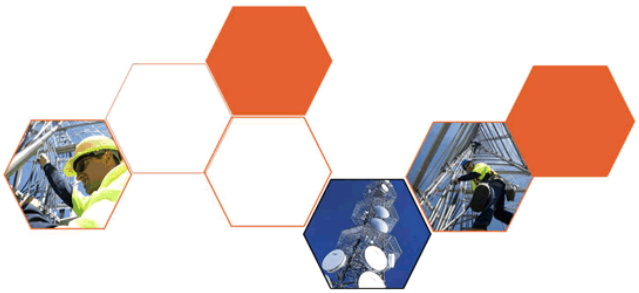
Photograph 5 – Telstra facility installed on light pole at the Hockey Centre grounds, viewed from Bell Street, looking north . Source: Google Earth, 29/11/21

servicestream
ESSENTIAL NETWORK SERVICES



PLANNING ASSESSMENT

Proposed Telstra Mobile Telecommunications Facility At:
Tasmanian Hockey Centre, 1 Bell Street, New Town Tas 7008



servicestream
ESSENTIAL NETWORK SERVICES

November 2021
Prepared by: Service Stream – Mobile Communications
On behalf of: Telstra Corporation

Document Control Record

Document Description	Development Application Submission		
Site No.	VT19750.01	**Site Name**	New Town CMTS (Tas)

	Name	Signed	Date
Prepared By	Barbara Grinter		November 2021

Document Status	V3 - Final

Prepared for	Prepared by:
Telstra	Service Stream – Mobile Communications Contact: Barbara Grinter Level 4, 357 Collins St, Melbourne VIC 3000 Ph: 03 9937 6555 www.servicestream.com.au

This report has been prepared as a supporting document to the Development Application. The report relies upon data, surveys, measurements and results taken at or under particular times and conditions specified herein. Any findings and conclusions or recommendations only apply to the aforementioned circumstances. Service Stream does not accept any responsibility for the use of this report by any parties without its prior written permission.

Table of Contents

1 Executive Summary 4

2 Background to the Application 5

2.1 Mobile Network Services 5

4G Technology 5

The Future – 5G Technology 5

2.2 Need for the Facility 6

2.3 Assessment of Candidate Sites 6

2.4 Co-Location Options 6

2.5 Alternative New Site Options 7

2.6 Subject Site and Surrounds 8

2.7 Summary of the Proposal 9

3 Regulatory Framework 10

3.1 Commonwealth Regulatory Framework and Telecommunications Act 1997 10

3.6 Hobart Interim Planning Scheme 11

4 Assessment of Application 12

4.1 Statutory Controls 12

4.1.1 Recreation Zone 12

4.1.2 Royal Hobart Hospital Helipad Airspace Specific Area Plan 16

4.1.3 Telecommunications Code 17

4.2 Other Planning Considerations 20

4.2.1 Maintenance 20

4.2.2 Access 20

4.2.3 Utilities 20

4.2.4 Management of Weeds 20

4.2.5 Noise 20

4.2.6 Standards for exposure to radio emissions will be met. 20

4.2.7 Design and Construction 21

4.2.8 Effect on Other Transmission Frequencies 21

4.2.9 Redundant Facilities and Rehabilitation 21

5 Conclusion 22

APPENDICES

Appendix A	Property Documents	23
Appendix B	Preliminary Plans	23
Appendix C	Photographs	23
Appendix D	EME Report	23

1 Executive Summary

This Planning Submission provides an assessment of a proposal by Telstra for buildings and works to upgrade an existing telecommunications facility at the Tasmanian Hockey Centre, to improve its mobile telecommunications network within the New Town area and surrounds, in addition to achieving safety requirements.

The existing flood light pole has reached is structural life and loading capacity and as such it is not possible for Telstra to upgrade mobile equipment. It is therefore proposed to strengthen the pole to enable upgrade works to be undertaken at this Telstra site.

In October 2006, Telstra launched its $1.1 billion Next G™ wireless broadband network, which is geographically the world's largest national 3GSM network, and delivers unequalled customer reach and speed across the country. Telstra's Next G™ network covers 99.3 per cent of the Australian population and with a coverage footprint of more than 2.4 million square kilometres and is Australia's fastest national mobile network.

Telstra 4G LTE (Long Term Evolution technology) is now also an integral part of the Telstra mobile network and is now available in all capital CBD's, many suburban areas of capital cities, their airports and in over more than 100 metropolitan and regional centres across the country. It currently covers 87% of the population and is still expanding.

Telstra has identified a need to provide enhanced coverage and services in the New Town area, which requires upgrading the existing telecommunications facility. For this proposal extensive investigations around the New Town area have been undertaken. A detailed site selection process has been completed, taking into account planning, property, design and radio frequency engineering disciplines.

As a licensed telecommunications carrier in Australia, Telstra must operate under the provisions of the *Telecommunications Act 1997* (The Act 1997) and the *Telecommunications Code of Practice 2018*. The Act 1997 exempts carriers from the requirements of State and Territory environmental and planning legislation when the proposed facility falls within the definition of a 'low-impact' facility as described under the *Telecommunications (Low-impact Facilities) Determination 2018*. However, where a facility does not comply with the requirements of the Low-impact Facilities Determination, the facility is subject to State and Territory environmental legislation and a permit may be required.

In this case, the proposal is not deemed 'low-impact' under Commonwealth legislation. Telstra is therefore seeking a planning permit from Council to upgrade the existing telecommunications facility with pole strengthening of the flood light pole upon which Telstra antennas are current mounted.

This report comprises a description of the need for these works to enable upgrade of mobile services, and an assessment of the planning/environmental impacts associated with the proposal. Telstra is seeking to establish low-impact solutions where possible however, in this instance no other viable solutions were found and therefore a planning permit is sought for this proposal.

In this case the proposal is not deemed 'low-impact' under Commonwealth legislation. Telstra is therefore seeking a planning permit from Hobart City Council, in accordance with the Hobart Interim Planning Scheme, to upgrade the existing telecommunications facility. The proposal comprises:

- Removal of the existing flood lights and platform to enable Telstra to strengthen the 30m flood light pole, which has an existing 5m extension;
- Upgrade of the existing pole footing and associated minor earth works;
- New flood light steel frame, platform and ladder to be installed on top of a steel jacket to be fitted over the flood light pole;
- Swap out of six (6) redundant panel antennas (3 x 2120mm L @ CL 35m and 3 x 920mm L @ CL 32m) with nine (9) new panel antennas (6 x 2533mm L and 3 x 810mm L @ CL 35m) onto a new replacement headframe at the top of the pole extension;
- Ancillary equipment to be upgraded including remote radio units, cabling, feeders, mounts, junction boxes, conduits, and removal of redundant equipment; and
- Internal works within the existing Telstra equipment shelter.

This report comprises a description of the need for the upgrade of this facility and an assessment of the planning/environmental impacts associated with the proposal. Telstra always seeks to establish low-impact solutions where possible. However, in this instance no other viable solutions were found and therefore a planning permit is sought for this proposal.

2 Background to the Application

2.1 Mobile Network Services

4G Technology

Telstra has identified the need to expand on the existing mobile network telecommunications facilities within the New Town area to satisfy network capacity demands and "depth of coverage" objectives.

A mobile communications network is made up of multiple telecommunication network base stations ("facilities") covering a geographic area. They work by sending and receiving low power radio signals to mobile phones and other mobile devices by their antennas.

In general, the location and height of a facility along with the size and number of antennas are balanced to ensure dedicated services to an intended geographic area. This area is largely defined by the number of customers using our network, their usage patterns (when and how they use connected devices) with a consideration for future growth. For example, streaming a video to a mobile or tablet device requires a lot more bandwidth than many users making a phone call or sending multiple text messages at one time. This means additional facilities are not only needed in areas where there is unreliable coverage but are also needed where there are multiple or high bandwidth users. A compromise in height or a location further away from its technically optimum position may result in service gaps and require additional or taller local facilities, to achieve the same level of service. Engineers use state of the art applications to record customer patterns of use and to predict future usage trends.

The proposal detailed in this development application will form a part of Telstra's mobile network solution in this rural town and will deliver essential improved mobile services via its mobile network.

With a coverage footprint of more than 2.4 million square kilometres and covering 99.3% of the Australian population, Telstra's network is Australia's largest and fastest national mobile broadband network and as such it requires more network facilities, located closer together to ensure a high-quality signal strength to achieve reliable service and the fastest possible data transfer rates.

Telstra 4G LTE (Long Term Evolution technology) is proposed for this development. It is an integral part of the Telstra mobile network in over more than 100 metropolitan and regional centres across the country.

Telstra's 4G devices provide Australians within 4G coverage areas with more consistent data speeds during peak and off-peak times, the ability to stream high-quality video and access to high-definition video conferencing plus faster response times when accessing the mobile internet. More importantly this leading-edge technology allows customers to do more things online at the same time with their device, giving Telstra the opportunity to efficiently meet user demand for mobile data, which is doubling every year.

The proposed upgrade to the Telstra facility will also provide an opportunity for the New Town community to benefit more readily for technology upgrades in the future.

The Future – 5G Technology

The proposal will also provide an opportunity for the local community to benefit from new 5G technology as it rolls out throughout Australia over the next 2 years. Hence, the new facility will include the installation of 5G antennas.

5G has the potential to transform the way we all live and work. Like previous generations of mobile technology, it will deliver more capacity and faster data speeds but on top of that it will support vastly more connected devices at very high levels of reliability and lower latency.

5G will take us from a world of connecting people to each other and the internet to a world of ultra-fast mobile speeds and the Internet of Things on a mass scale. These enhancements will unleash a host of new opportunities – everything from smart cities and smart homes, to drones and driverless cars, to augmented reality in both entertainment and at work.

5G readiness is part of building Networks for the Future, a key pillar of the up to $3 billion in incremental investment we are making to transform the way we deliver services and bring new products to market. This investment will mean Telstra continues to deliver Australia's largest and fastest "mobile network."

2.2 Need for the Facility

The upgraded facility is required within the New Town area to support increasing demand on the Telstra network in what is an increasingly more populated area and to provide critical network relief to:

- Ensure that the increased demands in mobile network traffic identified in the New Town area and surrounds on the existing base stations do not critically compromise customers' ability to connect to the Telstra network; and
- Ensure that optimal data speeds are maintained at all times during the day; and
- Improve mobile phone coverage to local businesses within the commercial and residential areas and along main traffic corridors in this recreational area, supporting the economic future of the local business communities of New Town and the wider district.
- Comply with safety requirements.

The Responsible Authority is the City of Hobart who administer the Hobart Interim Planning Scheme that applies to the site. The Telecommunications Code within the Planning Scheme sets out the planning requirements for telecommunications facilities in the area.

The proposal to upgrade the existing telecommunications facility seeks to satisfy the relevant planning criteria with regard to preserving the amenity of the surrounding area, designing and siting the structure where there is existing Telstra mobile equipment on an existing light pole within reserve land.

At the same time, and of equal importance, the proposal satisfies Telstra's coverage objectives, providing an effective and efficient solution to respond to the identified (growing) demand for Telstra's network services from the community, businesses and travellers. Furthermore, the site is ideally positioned to satisfy Telstra's future requirements in terms of providing 4G and 5G technology, to the area including high speed network access.

2.3 Assessment of Candidate Sites

Co-location on existing infrastructure and the upgrading of existing telecommunications facilities are the first options examined when new infrastructure is required.

With the objective of providing the best coverage in the New Town area, a comprehensive site selection/analysis was undertaken. This process began with investigation of possible 'co-location' opportunities on existing infrastructure in accordance with Chapter 4 Part 3 Clause 4.13 of the *Telecommunications Code of Practice 2018*.

2.4 Co-Location Options

Wherever possible, Telstra actively pursues site sharing arrangements and the use of existing structures so as to prevent the proliferation of mobile phone towers and masts.

Figure 1 below shows the location of the existing facility to be upgraded in blue and the nearest existing and/or proposed telecommunications facilities in grey in the surrounding area.

The nearest existing other telecommunications facilities in the area include an Optus facility, which is also installed on a flood light within the Hockey Centre land. Other facilities are otherwise further distanced.

Telstra has explored all opportunities to upgrade (and expand) its existing facilities in the surrounding area and the most feasible option is to strengthen the existing flood light pole to enable the upgrade of Telstra's mobile equipment.

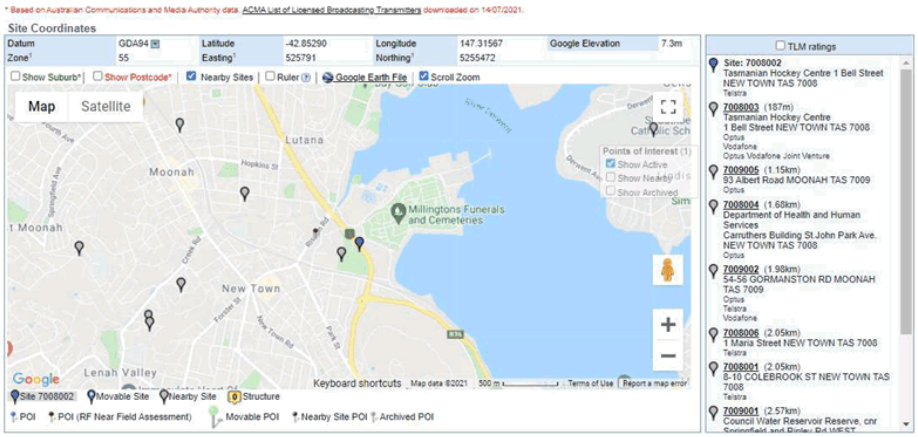


Figure 1 – Shows the location of the Telstra facility (blue pin) and other telecommunications facilities in the surrounding area (grey pins). Source: RFNSA website, 25/11/21

2.5 Alternative New Site Options

In identifying potential new sites, consideration is given to surrounding land uses and development and the availability of any effective screening measures which may be available. These considerations however are tempered by a range of other requirements and site suitability issues which include, but are not limited to those identified below;

- Environmental Planning considerations
- Property matters and the ability to secure a lease
- Engineering requirements
- Radio frequency coverage quality

As the existing light pole has reached the end of its structural life and loading capacity, Telstra's plans to upgrade mobile equipment were not feasible on the existing structure. The proposal to strengthen the existing monopole was therefore deemed the most feasible design, in addition to being the most appropriate structural and visual solution, rather than replacing the existing pole or the construction of a new monopole at a new location within the property.

Furthermore, as the site is already utilised for telecommunications infrastructure, the site offers access to power, fibre transmission and ancillary equipment housed within the nearby equipment shelter and pits located alongside the pole.

Overall, this solution was considered the prime location in terms of its ability to build network capacity for the existing Telstra network in the New Town area, where there are higher traffic flows, and where demand is greatest. It is also considered that the submitted proposal strikes an appropriate balance between protecting existing local amenity, reducing the degree of visual change, improving mobile coverage, utilising existing infrastructure and achieving safety requirements for the facility.

2.6 Subject Site and Surrounds

The subject property of this application is the Tasmanian Hockey Centre, which is located at 1 Bell Street, New Town Tas 7008, (Refer Certificate of Title in Appendix A). The land is developed for recreational purposes, comprising several sporting fields and ovals, informal recreational areas, club rooms, associated buildings and a car park area. Figure 3 shows the location of the subject property in the wider district.

The property abuts the Brooker Highway, a high trafficked road corridor, along its northern boundary and Bell Street along its southern boundary. Access to the property is off an existing driveway entered from Bell Street and internal tracks lead to the Telstra facility.

Land north and south of the site is recreational, with residential properties located further south and west of the reserve land. A cluster of high-rise apartments are situated north of the facility, however separated by the Highway and buffered by vegetation.

This site has been identified as the optimum location for this proposal as it provides the best coverage for the wider area and provides an opportunity for upgrading mobile communications equipment onto one light pole structure. The site has an existing use for telecommunications infrastructure which includes existing mobile antennas installed on a monopole and a shelter within the property.

Existing tall structures in the surrounding area include several existing flood light poles within the reserve land, power poles and prominent commercial and road signage.

There is scattered vegetation in the wider surrounding area, and trees lining the roads to the north to buffer views from the nearest residential properties.

Figure 2: Subject site and surrounding area (Source: Nearmap, 24/11/21)

2.7 Summary of the Proposal

Drawings accompanying this application illustrate the site locality and proposed layout, site set out, site elevation, and contextual information (refer **Appendix B**).

In summary Telstra proposes to upgrade an existing telecommunications facility installed on a flood light pole within the Tasmanian Hockey Centre property. The proposed works are to comprise:

- Removal of the existing flood lights and platform to enable Telstra to strengthen the 30m flood light pole, which has an existing 5m extension;
- Upgrade of the existing pole footing and associated minor earth works;
- New flood light steel frame, platform and ladder to be installed on top of a steel jacket to be fitted over the flood light pole;
- Swap out of six (6) redundant panel antennas (3 x 2120mm L @ CL 35m and 3 x 920mm L @ CL 32m) with nine (9) new panel antennas (6 x 2533mm L and 3 x 810mm L @ CL 35m) onto a new replacement headframe at the top of the pole extension;
- Ancillary equipment to be upgraded including remote radio units, cabling, feeders, mounts, junction boxes, conduits, and removal of redundant equipment;
- Internal works within the existing Telstra equipment shelter; and
- All new equipment to be colour matched to the existing structure.

The overall height of the facility will increase from 36.12m to 36.4m, which is a negligible increase of 0.28m.

3 Regulatory Framework

3.1 Commonwealth Regulatory Framework and Telecommunications Act 1997

In 1991, the Commonwealth Government initiated a major reform of the communications industry in Australia. The reforms allowed limited competition until July 1997 at which time full competition was permitted. In July 1997, the *Telecommunications Act 1997* was introduced, replacing the 1991 Act, which facilitated this competition.

Under the 1997 Act, the Government established the *Telecommunications Code of Practice 2018* (Commonwealth Code of Practice), which sets out the conditions under which a carrier must operate. Carrier, as a licensed telecommunications carrier, must comply with the *Telecommunications Act 1997* and the *Telecommunications Code of Practice 2018* for all telecommunication facilities. Under the 1997 Act, provisions have been made for telecommunications carriers to be subject to State and Territory environmental and planning laws where the proposed facility does not fall within the definition of the *Telecommunications (Low-impact Facilities) Determination 2018*.

3.2 Telecommunications (Low-impact Facilities) Determination

The Telecommunications (Low-impact Facilities) Determination came into effect on 1st July 1997 and there have been a number of amendments in the interim, none of which impact consideration of this application.

The Determination defines the type of facilities that can be "low-impact", and the areas in which these facilities can be installed without the requirement for planning approval under State or Territory laws.

In this instance, the proposed facility is not considered a "low-impact facility" under the definitions contained in the Determination as the proposal does not comply with:

- Part 8 – Co-located Facilities, Item No. 2, as the proposed upgrade works, which are to comprise swap out of six (6) for nine (9) panel antennas, in addition to installation of a steel jacket to be fitted over the light pole to strengthen the structure, will result in the facility being 'more than 25% greater than the volume of the original facility or the original infrastructure'.

Therefore, a planning application is required for the proposed upgrade of the telecommunications facility and so the provisions of the *Land Use Planning and Approvals Act 1993* and the *Hobart Interim Planning Scheme 2015* apply to this proposal.

3.3 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act* commenced on 16th July 2000. It introduces a new role for the Commonwealth Government in the assessment and approval of development proposals where those proposals involve actions that have a significant impact on matters of National Environmental Significance, the environment of Commonwealth owned land and actions carried out by the Commonwealth Government. This proposal is not of National Environmental Significance, as it will not impact on:

- World Heritage Areas;
- Wetlands protected by International Treaty (The RAMSAR Convention);
- Nationally listed threatened species and communities;
- Nationally listed migratory species;
- All nuclear actions; or
- The environment of Commonwealth Marine area.

Therefore, approval from the Minister for the Environment is not required in this instance.

3.4 Telecommunications Code of Practice 2018

Section 2.11 of the Telecommunications Code of Practice 1997 requires carriers to ensure that the design, planning and installation of facilities are in accordance with industry "best practice". This is required to [2.11(3)]:

> "*...minimise the potential degradation of the environment and the visual amenity associated with the facilities*".

"Best Practice" involves the carrier complying with any relevant industry code or standard, which is registered by the ACMA under Part 6 of the Act. The planning and siting of the current proposal has taken place in accordance with Section 3 (Planning and Siting) of the Australian Standard, Siting of Radiocommunications Facilities (AS 3016.2).

3.5 Industry Code C564:2020

The Industry Code (Mobile Base Station Deployment) is a national Code implemented in July 2012 by licensed telecommunications Carriers. The aim of the Code is to address the concerns of the community about the risks of radiofrequency EMR exposure by allowing the community and the Councils to have greater participation in decisions made by Carriers and encouraging a more collaborative approach between carriers, local councils and the community alike to mobile base station deployment. As part of this, Carriers are required to adopt a Precautionary Approach in planning, installing and operating radio-communications infrastructure.

The Code however does not change the existing regulatory regime at Local, State or Federal level and is a supplement to existing requirements imposed on Carriers. This proposal is compliant with the Industry Code and Telstra has applied the Precautionary Approach in the Selection and Design of the proposed site in accordance with Sections 4.1 and 4.2 of this Code.

3.6 Hobart Interim Planning Scheme

As part of the State Government's broader planning reform agenda Hobart City Council prepared a new Interim Planning Scheme which has now been endorsed by Council.

The proposed site on land at 1 Bell Street, New Town, is included within a Recreation Zone and encumbered with a Royal Hobart Hospital Helipad Airspace Specific Area Plan Overlay. The main purpose of the land is for recreational uses.

In accordance with the relevant provisions of the scheme, a telecommunications facility is a discretionary use and will be assessed by Council against a number of factors including the impact of the facility on streetscape and amenity, and the objectives of the zone and overlay.

The Telecommunications Infrastructure Code forms part of the Hobart Interim Planning Scheme and sets out the objectives with which telecommunications infrastructure must comply. An assessment of the proposal described in section 2 of this report against the Planning Scheme provisions is outlined in the next section of this report.

4 Assessment of Application

4.1 Statutory Controls

4.1.1 Recreation Zone

Under the Hobart Interim Planning Scheme 2015, the subject site at 1 Bell Street, New Town Tas 7008 and surrounds is within a Recreation Zone. Part 18.0 states the purpose of the Recreation Zone is to provide for a range of active and organized recreational use or development and complementary uses that do not impact adversely on the recreational use of the land.

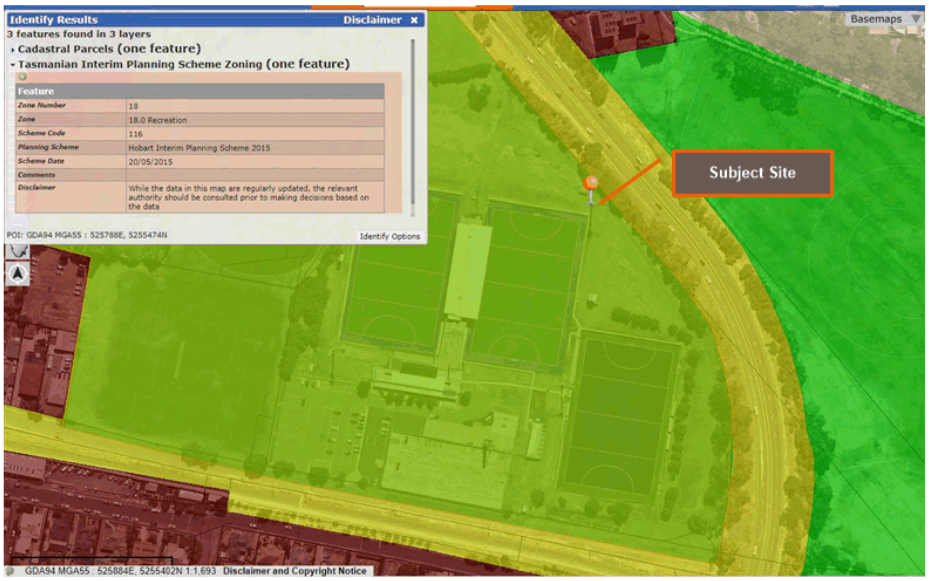


Figure 3: Zoning Map - Recreation Zone (Source: List Map, 24/11/21)

Development of a Telecommunications Facility in this zone and overlay area must comply with Development Standards of the Scheme, in particular the Telecommunications Infrastructure Code. The proposal must demonstrate compliance with the objectives and performance criteria of the Code.

It is submitted that the proposal is consistent with the intent of the zone as outlined above. The proposal supports the use and development of this area as a recreational area of New Town.

Importantly the upgrade of the existing telecommunications facility on the Hockey Centre land will serve to satisfy capacity demands on the mobile network in the area and support Telstra's improved "depth of coverage" objectives while in no way detracting from the purpose for which the land (including surrounding land) is zoned used and developed.

The proposal will have minimal impact on the landscape character of the existing site and surrounds and the proposed building footprint will remain unchanged. It is furthermore submitted that no trees or vegetation are proposed to be removed as part of this application.

Visual impact has been carefully considered in the location of the existing facility, which is co-located onto an existing flood light. Upgrading an existing facility will help to reduce any visual impact, rather than the

installation of a new facility. It is therefore submitted that the proposed upgrade of the facility will not unreasonably impact on the scenic or environmental values of the area.

Refer to Appendix B showing photographs of the Telstra site location.

Quality wireless broadband services are moreover, consistent with the effective functioning of the activities that occur both locally and more widely within this recreational area of New Town. The improvements to the existing network enabled by the proposal will support not only the operation of local businesses but will also serve to support the local community and visitors to the area more generally.

Importantly the proposal is able to be established and carry out its function without disruption to the current and continued use of the land and its surrounds for recreational purposes respectively.

A more detailed planning assessment of these issues is provided below in accordance with the Hobart Interim Planning Scheme and the Telecommunications Code.

Part 18.4 of the Recreation Zone outlines the Development Standards for Buildings and Works.

E18.4.1 Building Height		
Objective To ensure that building height contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 Building height must be no more than: 10m	**P1** Building height must satisfy all of the following: (a) Be consistent with any Desired Future Character Statements provided for the area: (b) Not unreasonably overshadow adjacent public space	**A1** Compliant The proposal is for the proposed upgrade of antennas to be installed onto an existing telecommunications facility installed on a Council flood light pole which is within Recreation zoned land. The height required for the telecommunications facility is necessary to exceed 10m in order to achieve mobile coverage requirements for the wider area. The proposal does not overshadow other properties as it is well setback within the reserve land.
A2 Building height within 10m of a residential zone must be no more than 8.5m.	**P2** Building height within 10m of a residential zone must be compatible with the building height of existing buildings on adjoining lots in the residential zone.	**A2** N/A The subject site is located more than 10m from residential zoned land.

E18.4.2 Setback		
Objective To ensure that building setback contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 Building setback from frontage must be no less than: 5m	**P1** Building setback from frontage must satisfy all of the following: (a) Be consistent with any Desired Future Character Statements provided for the area: (b) Enhance the characteristics of the site, adjoining lots and the streetscape	**A1** Compliant The proposal is within Recreation zoned land for the upgrade of antennas to be installed onto an existing telecommunications facility installed on a Council flood light pole at the Hockey Centre. The existing facility is setback more than 5m from the frontage of the property. In fact, setbacks are more than 5m from all of the boundaries.
A2 Building setback from a residential zone must be no less than: (a)3m; (b)half the height of the wall, Whichever is the greater.	**P2** Building setback from a residential zone must be sufficient to prevent unreasonable adverse impacts on residential amenity by: (a)overshadowing and reduction of sunlight to habitable rooms and private open space on adjoining lots to less than 3 hours between 9.00 am and 5.00 pm on June 21 or further decrease sunlight hours if already less than 3 hours; (b)overlooking and loss of privacy;	**A1** Compliant **P2** Compliant The existing facility is setback more than 3m from the boundaries of the property. There are no walls proximate to the proposal. There will be no overlooking or additional loss of privacy resulting from the proposal works. Visual impact has been mitigated with the upgrading of the existing facility which will enable continued co-location of telecommunications equipment on the upgraded flood light pole.

	(c) visual impact when viewed from adjoining lots, taking into account aspect and slope.	
E18.4.3 Design		
Objective To ensure that building design contributes positively to the streetscape, the amenity and safety of the public and adjoining land in a residential zone.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 Walls of a building facing a residential zone must be coloured using colours with a light reflectance value not greater than 40 percent.	**P1** No performance criteria.	**A1** Compliant The proposed new equipment will be colour matched to the existing facility. The submitted plans include a materials, colours and finishes schedule which includes light reflectance values. The light reflectance value of the colour to be matched is as follows: Existing pole & Extension – Green – 32%; Flood light, Platform, Panel Antennas, Ancillaries, Headframe, Steel Jacket and Strengthening Member – Brunswick Green – 7% Existing equipment shelter (no works proposed to exterior of shelter) – Off White – 70%
E18.4.4 Passive Surveillance		
Objective To ensure that building design provides for the safety of the public.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 Buildings design must comply with all of the following: (a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site; (b) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the front façade which amount to no less than 40 % of the surface area of the ground floor level façade; (c) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the façade of any wall which faces a public space or a car park which amount to no less than 30 % of the surface area of the ground floor level façade; (d) avoid creating entrapment spaces around the building site, such as concealed alcoves near public spaces; (e) provide external lighting to illuminate car parking areas and pathways; (f) provide well-lit public access at the ground floor level from any external car park.	**P1** Buildings design must provide for passive surveillance of public spaces by satisfying all of the following: (a) provide the main entrance or entrances to a building so that they are clearly visible from nearby buildings and public spaces; (b) locate windows to adequately overlook the street and adjoining public spaces; (c) incorporate shop front windows and doors for ground floor shops and offices, so that pedestrians can see into the building and vice versa; (d) locate external lighting to illuminate any entrapment spaces around the building site; (e) provide external lighting to illuminate car parking areas and pathways; (f) design and locate public access to provide high visibility for users and provide clear sight lines between the entrance and adjacent properties and public spaces; (g) provide for sight lines to other buildings and public spaces.	**A1** Compliant The proposal to strengthen an existing Council flood light pole and the upgrade of Telstra's mobile equipment on the structure and within an existing equipment shelter, will not require upgrading of access to the site. There is established clear access to the facility via an existing driveway into the property off Bell Street. Vehicles and pedestrians may then utilise existing internal tracks and paths. There are no new windows or doors proposed to be installed as part of this scope of works. The Telstra equipment shelter, which houses ancillary equipment, does not have any windows, nor are there any required or proposed to be installed. The shelter is required to be secure, watertight, maintain a fire-proof rating, and be temperature controlled at all times. There are no concealed alcoves near public spaces proposed. Flood lights will be reinstated on the pole once Telstra's upgrade works are completed. There is no existing or proposed external lighting required or proposed for this development, although there is existing internal lighting within the equipment shelter for maintenance engineers. Should maintenance or urgent repair works be necessary to the external structure, then lighting for the works will be brought to site if required.
E18.4.5 Landscaping		
Objective To ensure that a safe and attractive landscaping treatment enhances the appearance of the site and if relevant provides a visual break from land in a residential zone.		
Acceptable Solutions	**Performance Criteria**	**Response**

A1 Landscaping must be provided along the frontage of a site (except where access is provided) unless the building has nil setback to frontage.	**P1** Landscaping must be provided to satisfy all of the following: (a) enhance the appearance of the development; (b) provide a range of plant height and forms to create diversity, interest and amenity; (c) not create concealed entrapment spaces; (d) be consistent with any Desired Future Character Statements provided for the area.	**A1** N/A The proposal is to strengthen an existing Council flood light pole and the upgrade of Telstra's mobile equipment on the structure and within an existing equipment shelter. The flood light pole is located on the north east corner of one of the playing fields within the Hockey Centre reserve land, which is managed by Council. Due to the site's location and design being adjacent to a playing field, it is not appropriate to provide additional landscaping in this location. As there is existing established landscaping along the property boundaries and throughout the reserve, additional landscaping for these upgrade works is not required or warranted.
A2 Along a boundary with a residential zone landscaping must be provided for a depth no less than: 2m.	**P2** Along a boundary with a residential zone landscaping or a building design solution must be provided to avoid unreasonable adverse impact on the visual amenity of adjoining land in a residential zone, having regard to the characteristics of the site and the characteristics of the adjoining residentially-zones land	**P2 Compliant** The proposal is well setback from the property boundaries of the reserve land and also significantly setback from residential zoned land to the north, west and south. As there is existing landscaping along the property boundaries and within the reserve, additional landscaping for these upgrade works is not required or warranted.

E18.4.6 Outdoor Storage Areas

Objective

To ensure that outdoor storage areas for non-residential use do not detract from the appearance of the site or the locality.

Acceptable Solutions	Performance Criteria	Response
A1 Outdoor storage areas for non-residential uses must comply with all of the following: a) be located behind the building line; b) all goods and materials stored must be screened from public view; c) not encroach upon car parking areas, driveways or landscaped areas	**P1** Outdoor storage areas for non-residential uses must satisfy all of the following: (a) be located, treated or screened to avoid unreasonable adverse impact on the visual amenity of the locality; (b) not encroach upon car parking areas, driveways or landscaped areas	**A1** N/A The proposal, which is to strengthen an existing Council flood light pole and the upgrade of Telstra's mobile equipment on the structure and within an existing equipment shelter, will not require additional storage to be constructed. The existing Telstra equipment shelter, which is located adjacent to the flood light pole within a security fenced compound, will remain unchanged externally. However, internal works will be undertaken to upgrade ancillary equipment to operate the facility and if required, to store any additional equipment.

E18.4.7 Fencing

Objective

To ensure that fencing does not detract from the appearance of the site or the locality and provides for passive surveillance.

Acceptable Solutions	Performance Criteria	Response
A1 Fencing must comply with all of the following: (a) fences, walls and gates of greater height than 1.5 m must not be erected within 4.5 m of the frontage; (b) fences along a frontage must be at least 50% transparent above a height of 1.2 m; (c) height of fences along a common boundary with land in a residential zone must be no more than 2.1 m and must not contain barbed wire.	**P1** Fencing must contribute positively to the streetscape and not have an unreasonable adverse impact upon the amenity of land in a residential zone which lies opposite or shares a common boundary with a site, having regard to all of the following: (a) the height of the fence; (b) the degree of transparency of the fence; (c) the location and extent of the fence; (d) the design of the fence; (e) the fence materials and construction; (f) the nature of the use; (g) the characteristics of the site, the streetscape and the locality, including fences; (h) any Desired Future Character Statements provided for the area.	**A1** N/A The proposal will not require new fencing to be constructed for this upgrade proposal. The existing security-mesh fenced compound and gates will remain unchanged. The existing open weave fencing provides passive surveillance for the facility.

4.1.2 Royal Hobart Hospital Helipad Airspace Specific Area Plan

The subject property is encumbered by a Royal Hobart Hospital Helipad Airspace Specific Area Plan. The purpose of this Area Plan is so the planning authority may impose conditions on a permit to ensure that cranes or other temporary structures used in construction of a development that may exceed the specified heights in subclause F4.3.1 A1, do not create an obstruction or hazard for the operation of aircraft having regard to any advice from the Civil Aviation Safety Authority (CASA), the Department of Health and Human Services and the helipad operator.

Figure 4 shows the subject site is affected by the Royal Hobart Hospital Helipad Airspace Specific Area Plan.

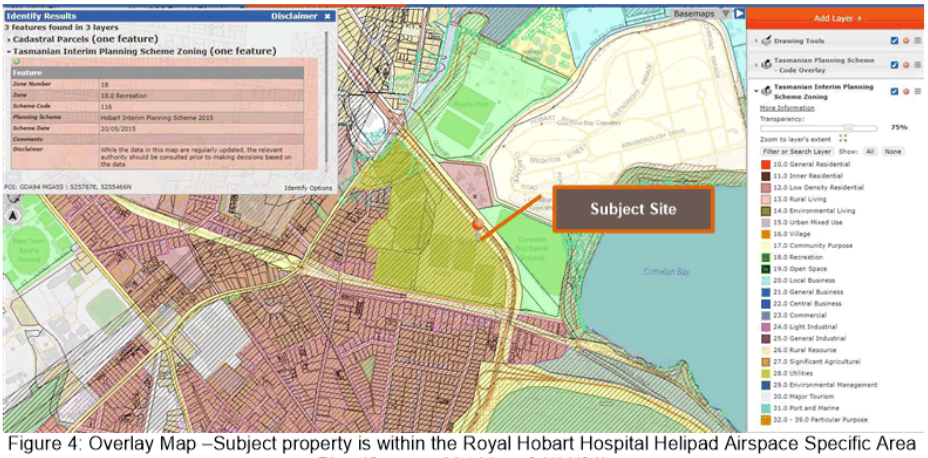


Figure 4: Overlay Map –Subject property is within the Royal Hobart Hospital Helipad Airspace Specific Area Plan (Source: List Map, 24/11/21)

Figure 5 shows the map provided in Part F4.1 of the Hobart Interim Planning Scheme which confirms the Telstra facility is located within the Outer Area 100m AHD boundary of the Area Plan.

The Telstra upgrade proposal is assessed against the Development Standards for works within the Area Plan as follows:

F4.3.1 Building Height		
Objective To ensure that buildings do not interfere with safe aircraft operations in the vicinity of the Royal Hobart Hospital helipad.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 Building height including minor protrusions, masts or aerials within the areas shown on Figure F4.1 must be no more than: (a) 64.5m AHD if within the Inner Area; (b) 100m AHD if within the Outer Area.	**P1** Buildings that exceed the specified height must not create an obstruction or hazard for the operation of aircraft, having regard to any advice from the Civil Aviation Safety Authority, the Department of Health and Human Services and the helipad operator	**A1** The telecommunications facility is located within the Outer Area 100m AHD boundary of the Area Plan. According to the submitted plans, at ground level, the structure is at RL 7.3m AHD. The overall height of the structure will increase from 36.12m to 36.4m, which is a minor increase of 0.28m, being a negligible difference overall. The structure's AHD will remain at well below the 100m AHD allowable in this location.

It is noted that….. *" the planning authority may impose conditions on a permit to ensure that cranes or other temporary structures used in the construction of a development that may exceed the specified height in subclause F4.3.1 A1 do not create an obstruction or hazard for the operation of aircraft having regard to any advice from the Civil Aviation Safety Authority, the Department of Health and Human Services and the helipad operator."*

Figure F4.1 Royal Hobart Hospital Helipad Airspace Specific Area Plan

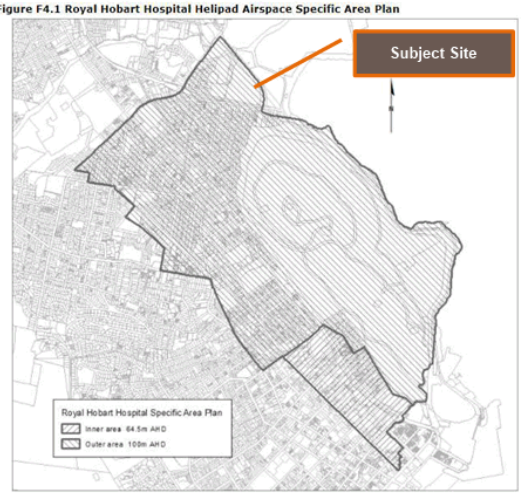


Figure 5: Shows the Telstra facility is within the outer area 100m AHD boundary of the Royal Hobart Hospital Helipad Airspace Specific Area Plan (Source: List Map, 25/11/21)

4.1.3 Telecommunications Code

The Telecommunications Code is contained in Part E19.0 of the Hobart Interim Planning Scheme. This Code applies to the development of telecommunications facilities and contains the development standards for telecommunications infrastructure, such as the one proposed, within the Hobart municipality.

The purpose of the Code is to:

(a) facilitate equitable provision and access to high-speed broadband and telecommunication networks as services essential for the prosperity, security and welfare of the community;

(b) encourage new telecommunication and digital facilities to form part of a local or regional telecommunications network for all carriers;

(c) encourage shared use and co-location of facilities to minimise the number of towers within the municipal area;

(d) minimise likely adverse impact of communication systems on community health and safety;

(e) minimise adverse visual impact of towers and antennae.

The tables below assess the proposed facility against the Development Standards of the Telecommunications Code.

E19.7.1 Shared Use and Co-Location		
Objective To minimise the total number of towers and antenna within the municipal area.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 A new antenna must be located on an existing tower.	**P1** A new antenna may be located on a new tower if it is impracticable to co-locate on an existing tower, having regard to the following: (a) no existing tower is located within the telecommunications network area with technical capacity to meet the requirements for the antenna; (b) no existing tower is located within the telecommunications network area with sufficient height to meet the requirements of the antenna; (c) no existing tower is located within the telecommunications network area with	**A1** Compliant The proposal is for the proposed antennas to be installed onto an existing telecommunications facility installed on a Council flood light pole.

	sufficient structural strength to support the proposed antenna and related equipment; (d) there is a risk of electromagnetic interference between the antenna and an existing antenna on an existing tower; (e) there are other limiting factors that render existing towers unsuitable.	
A2 A new structure or mast must be structurally and technically designed to accommodate comparable additional users, including by the rearrangement of existing antenna and the mounting of antenna at different heights.	**P2** No performance criteria	**A2 Compliant** The proposed strengthening of the flood light pole will enable Telstra to upgrade their mobile equipment on the existing structure. The upgraded structure will be capable of greater loading capacity for this proposal and future upgrades. Upon application with Telstra, the structure may also be capable of accommodating additional users.
E19.7.2 Visual Amenity		
Objective: To minimise detrimental impact upon the visual amenity of a locality by reducing prominence of telecommunications infrastructure.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 The location of telecommunications infrastructure must comply with all of the following; (a) be within existing utility corridors and sites and use existing infrastructure; (b) be externally finished and maintained in a neutral colour that minimises visual intrusiveness; (c) not: (i) be located on skylines that can be seen in silhouette; (ii) be aligned diagonally to the principal slope on a hill; (iii) cross a low point of a saddle between hills; (iv) be located around the base of a hill; (v) be along the edge of an existing clearing; (vi) be artificially lit unless required for air navigation safety. (vii) be used for signage purposes, other than necessary warning and equipment information. (d) aerial telecommunication lines or additional supporting structures are erected and operated in residential and commercial areas only where overhead cables exist; (e) equipment housing and other visually intrusive infrastructure is screened from public view.	**P1** The location of the telecommunications infrastructure not complying with A1 must ensure any detrimental impact upon visual amenity is minimised by reducing the prominence of telecommunications infrastructure, and important public views such as vistas to significant public buildings, streetscapes and heritage areas are protected.	**A1 Compliant, P1 Compliant** The proposal to strengthening an existing flood light pole will enable Telstra to upgrade mobile equipment on the existing structure which currently accommodates Telstra antennas. Upgrading the existing pole will enable the continued use of the existing structure for telecommunications purposes. New equipment to be installed will be colour matched to the existing structure. The upgrade will be viewed in the context of several flood light poles within the reserve land. Its relatively slimline design will not unduly additionally impact the skyline with its parkland location surrounded by vegetation. The change in overall height will be a minor increase of 0.28m, which is a negligible difference to the existing structure height in the current context. Once the pole is strengthened, new flood lights and a platform will be reinstalled onto the structure for lighting the sports fields. The telecommunications facility itself is currently not artificially lit and the upgrade works will not require artificial lighting to be installed. Safety hazard and warning signage is already displayed on the structure in accordance with regulatory requirements. Should the works require temporary removal of these signs, they will be reinstalled at the completion of the works. To minimise visual intrusiveness, ancillary equipment to be upgraded will be housed within an existing Telstra equipment shelter located next to the pole. Ancillary equipment will also be installed behind the panel antennas to minimise their visibility by the public.
A2 Height above natural ground level must be no more than: (a) 60 metres in the Environmental Management, Rural Resource and Significant Agricultural Zones; (b) 45 metres in the General Industrial or Port and Marine Zone;	**P2** Height above natural ground level not complying with A2 must satisfy all of the following: (a) the predominant height of existing infrastructure or vegetation in the immediate vicinity is above the specified height limit;	**A1 Compliant, P1 Compliant** The proposed telecommunications facility is within a Recreation Zone. The overall height of the upgraded facility at 36.4m complies with all A2 height restrictions under this section of the code.

(c) 40 metres in the Central Business, Commercial, Environmental Living, General Business, Major Tourism, Rural Living and Utilities Zones; (d) 20 metres in the Community purpose, General Residential, Inner Residential, Light Industrial, Local Business, Low Density Residential, Recreation, Urban Mixed Use and Village Zones.	(b) there is no adverse impact on heritage or ecological values, or visual amenity of the locality; (c) it is critical for the role of the facility within the telecommunications network.	The central areas of Hobart contain many buildings of heritage value and this area is no exception. It is noted however that the site is not within an identified Heritage Area under the planning scheme. The visual intactness of a Heritage Area is therefore not relevant in this case. Although individually listed buildings are in the vicinity to the subject site, it is considered that the heritage values of these buildings will not be significantly impacted by the proposed upgrade of the existing telecommunications facility. The site was originally selected for telecommunications purposes as it offers good setbacks from sensitive uses and developments and would not adversely impact heritage or ecological values of the locality. The upgrade works will not impact these heritage and ecological values. The Telstra upgrade proposal is appropriately located within recreational reserve land, which will enable the continued co-location of mobile equipment on an existing flood light pole. The height offered by the flood light is necessary for the efficient operation of the facility to provide mobile coverage for the local area. Installing antennas above the flood lights with required separation distances, will ensure that the antennas and the lights will be able to safely operate and be accessed for periodic maintenance as necessary.

E19.7.3 Environmental Values

Objective:
To ensure that environmental values are protected.

Acceptable Solutions	Performance Criteria	Response
A1 Telecommunications infrastructure must not be located in an area of environmental significance.	**P1** Telecommunications infrastructure located within an area of environmental significance must ensure environmental and heritage values are not significantly impacted.	**A1** Compliant, **P1** Compliant The existing facility is in Hockey Centre recreational reserve park land with a surrounding developed urban area with little environmental value. No trees or vegetation are proposed to be removed as part of this upgrade proposal. The proposal comprises a relatively discreet building footprint and will not adversely impact on the existing environmental values of the land. An EPBC Act Protected Matters Report has been prepared for the subject site. Whilst the report indicates that a number of listed threatened and migratory species may be found within 1km of the subject site, by virtue of the nature of the proposal and modest building footprint, the proposal is not expected to have any adverse impact on these species.

E19.7.3 Access

Objective:
To ensure that telecommunications infrastructure does not impede movement of vehicular and other modes of traffic.

Acceptable Solutions	Performance Criteria	Response
A1 Telecommunications infrastructure must not impede movement of vehicular and other modes of transport.	**P1** Telecommunications infrastructure must provide for adequate clearance for vehicular traffic and must not pose a danger or encumbrance to users of other land or aircraft.	**A1** Compliant, **P1** Compliant Access to the property is via an existing driveway off Bell Street and internal tracks lead to the subject site located on the north side of the reserve land. The location of the proposal provides for adequate vehicular access and will not pose a danger or encumbrance to other land users or aircraft.

E19.7.3 Significant Agricultural Land

Objective: To protect the productive capacity and efficient farming operations of agricultural land.		
Acceptable Solutions	**Performance Criteria**	**Response**
A1 Telecommunications infrastructure within the Significant Agriculture Zone must be placed on or within 2 metres of property boundaries or fence lines.	**P1** Telecommunications infrastructure within the Significant Agriculture Zone must not degrade or restrict the productive capacity of the land.	**A1** Compliant, **P1** Compliant The proposed facility is not located within the Significant Agriculture Zone.

4.2 Other Planning Considerations

4.2.1 Maintenance

The upgraded facility would be subject to routine maintenance checks, a maximum of once a month or as required in an electricity outage or similar event, as what currently occurs at this existing site.

4.2.2 Access

Access to the site will in most cases be undertaken in a standard motor vehicle. Access is available from access into the property.

4.2.3 Utilities

The site has existing power connected via the existing power available on the land.

4.2.4 Management of Weeds

In upgrading the monopole, Telstra and its contractors will:

- Ensure machinery and vehicles working on site have been washed down prior to entering the property;
- Use materials sourced from sites known to be free from declared weeds.

4.2.5 Noise

Construction activity will generate some noise however this will be in accordance with relevant guidelines for construction site noise as per State Environment Protection Policies.

The only noise emitted by the facility once completed is associated with an existing air conditioning unit attached to the equipment shelter emitting a noise level similar to that of a domestic air conditioner. As this equipment is within the existing building on the site, operational noise levels will not be noticeable externally. As noted the site is surrounding by recreational open spaces with a substantial degree of separation from residential properties and consequently the noise from the facility, which will remain unchanged, is unlikely to disturb adjacent users.

Operation of the base station will not generate any odour emissions, or solid waste, nor discharge any liquid waste.

4.2.6 Standards for exposure to radio emissions will be met.

The levels of EME (electromagnetic energy) emissions from the mobile phone base stations was assessed as part of the current structure and identified as not of concern.

Telstra is required to complete and make available an EME report for this new structure which predicts the maximum environmental EME level the facility will emit. The EME is calculated with the facility operating at maximum power. However, mobile networks are specifically designed to use the lowest possible power from base stations and mobile phones necessary to ensure quality voice or data services. The network automatically adjusts the base station transmitter power according to how far away the mobile phone users are. With the optimal network design, base stations are located close to mobile phone users and produce the lowest possible EME. The further away base stations are located from mobile phone users, the higher the power required, resulting in higher EME levels. The maximum environmental EME level predicted from the upgraded facility will be increasing from 0.40% to 2.18% which is still well below the public exposure limit in accordance with the Australian standard.

Telstra does not consider the emission of electromagnetic fields relevant to the assessment of the planning merits of a site where the facility operates in accordance with prescribed standards. The proposed facility operates well within the prescribed health standards.

A copy of the EME Report (RFNSA No. 7008002) is attached in Appendix D.

4.2.7 Design and Construction

The facility is designed and certified by qualified engineers engaged by Telstra. The design of the installation will be carried out in accordance with all relevant current Australian Standards.

During the construction period there will be trucks, a crane and other associated construction vehicles and equipment on site. All construction activities will be carried out in compliance with relevant regulations and Council requirements within the shortest possible timeframe.

4.2.8 Effect on Other Transmission Frequencies

The current base transceiver station operates at a unique frequency allocated by the Federal Government. In addition, the facility operates on a low power output. This will also be the case for the new monopole As a result its operation will not have any effect on the operation of any other transmission frequencies including AM/FM radio, amateur radio, television, satellite, sky channel, CB, or any emergency service frequency.

4.2.9 Redundant Facilities and Rehabilitation

Telstra has a policy of removal of facilities and rectification and reinstatement of sites when they become redundant. All building works and associated clean up works will be carried out to ensure that the site is left in a similar condition to that when the facility was installed. The site and the surrounds will be reinstated, and appropriate landscaping will be undertaken by contractors.

5 Conclusion

This report provides the necessary information to support the application for a planning permit to upgrade the existing telecommunications facility at the Tasmanian Hockey Centre at 1 Bell Street, New Town.

A detailed assessment of the proposed site has been undertaken with a view to ensuring that the proposal complies with relevant Commonwealth, State and Local planning policies as applicable.

It is submitted that the proposal will not conflict with surrounding land uses, nor will it decrease the general amenity of the area or have a detrimental impact on the local environment.

The proposal is compliant with the Hobart Interim Planning Scheme controls and Telecommunications Code and will assist Telstra in its commitment to ensuring that telecommunications infrastructure and services are provided in an efficient and cost-effective manner to meet community needs, whilst having a minimal impact on the amenity of any given area.

Importantly the changes to the existing site will be designed and installed to comply with human exposure levels to radio frequency emissions as defined by the ARPANSA RPS3 standard.

Approval of this facility is consistent with:

- The discretionary elements of the Hobart Interim Planning Scheme concerning the subject land and proposal;
- The general zoning of the land;
- Maintaining the general amenity of the area;
- Protecting the environmental and heritage characteristics of the locality;
- Complying with the ARPANSA RPS3 - Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz (2002); and
- Improving and maintaining the quality of mobile telecommunications services in the central New Town area.

The proposal, which supports the delivery of and access to important, contemporary and reliable telecommunications network services for New Town, will moreover have important local and regional benefits and is consistent with current State planning directives and regional planning initiatives to improve strategic planning for Tasmania.

It is therefore submitted that the proposal is both consistent and compliant with the relevant planning legislation and should be supported.

Appendix A Property Documents

Appendix B Preliminary Plans

Appendix C Photographs

Appendix D EME Report

Environmental EME Report

Location	Tasmanian Hockey Centre, 1 Bell Street, NEW TOWN TAS 7008		
Date	16/09/2021	**RFNSA No.**	7008002

How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at Tasmanian Hockey Centre, 1 Bell Street, NEW TOWN TAS 7008. These levels have been calculated by Radhaz Consulting using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

A document describing how to interpret this report is available at ARPANSA's website:
A Guide to the Environmental Report.

A snapshot of calculated EME levels at this site

The maximum EME level calculated for the **existing** systems at this site is

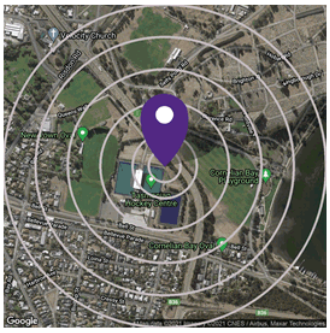
0.40%

out of 100% of the public exposure limit, 60 m from the location.

The maximum EME level calculated for the **proposed** changes at this site is

2.18%

out of 100% of the public exposure limit, 136 m from the location.



EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0-50 m	1.71%
50-100 m	2.10%
100-200 m	2.18%
200-300 m	1.53%
300-400 m	0.66%
400-500 m	0.31%

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at *http://www.rfnsa.com.au/7008002*.

Radio systems at the site

This base station currently has equipment for transmitting the services listed under the existing configuration.
The proposal would modify the base station to include all the services listed under the proposed configuration.

	Existing		Proposed	
Carrier	**Systems**	**Configuration**	**Systems**	**Configuration**
Telstra	3G, 4G	WCDMA850, LTE700, LTE1800	3G, 4G, 5G	LTE700, NR850 (proposed), WCDMA850, LTE1800, LTE2100 (proposed), LTE2600 (proposed), NR3500 (proposed)

An in-depth look at calculated EME levels at this site

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined. All EME levels are relative to 1.5 m above ground and all distances from the site are in 360° circular bands.

	Existing configuration			Proposed configuration		
Distance from the site	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit
0-50m	2.24	13.36	0.34%	7.93	166.65	1.71%
50-100m	2.44	15.85	0.40%	8.84	207.50	2.10%
100-200m	2.36	14.73	0.30%	7.72	157.91	2.18%
200-300m	2.15	12.21	0.21%	6.18	101.27	1.53%
300-400m	1.56	6.42	0.11%	4.36	50.51	0.66%
400-500m	1.17	3.61	0.06%	3.14	26.08	0.31%

Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the Communications Alliance Ltd Deployment Code C564:2020 or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit
No locations identified				

Planning: #246920

Property

1 BELL STREET NEW TOWN TAS 7008

People

Applicant
*
Servicestream on behalf of Telstra Corporation

PO Box 14570
Melbourne Victoria 8001
03 9937 6555
barbara.grinter@servicestream.com.au

Owner
*
Hobart City Council

GPO Box 503
HOBART TAS 7001
0362382711
coh@hobartcity.com.au

Entered By
BARBARA GRINTER
03 9937 6555
barbara.grinter@servicestream.com.au

Use

Utilities

Details

Have you obtained pre application advice?

- Yes

If YES please provide the pre application advice number eg PAE-17-xx

unknown

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodation Standards? Click on help information button for definition. If you are not the owner of the property you MUST include signed confirmation from the owner that they are aware of this application.
*

- No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the number of signs under Other Details below.
*

- No

If this application is related to an enforcement action please enter Enforcement Number

N/A

Details

What is the current approved use of the land / building(s)?
*

Recreation - Tasmanian Hockey Centre; Utilities - Telecommunications Infrastructure

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage)
*

Upgrade of an existing telecommunications facility installed on a flood light pole, including pole strengthening works

Estimated cost of development
*

150000.00

Existing floor area (m2)	Proposed floor area (m2)	Site area (m2)
0.00	0.00	0

Carparking on site

Total parking spaces	Existing parking spaces	N/A
0	0	Other (no selection chosen)

Hours of Business

Are the proposed hours of business different from the existing? - No

What days and hours of operation are proposed for the business?

	Existing From	Existing To	Proposed From	Proposed To
Monday to Friday				
Saturday				
Sunday				

Proposed Mon-Fri hours are the same as existing

Proposed Sat-Sun hours are the same as existing

Number of Employees

List the total number of people who will be working on the site.

Proposed number of employees	Existing number of employees
0	0

Goods Deliveries

Will there be any commercial vehicles accessing the site? - Yes

Type of Vehicle	Trips per Week
Very Large (Semi trailer)	
Large	
Medium	
Small	

Outdoor storage / seating / number of beds

Is outdoor storage proposed? - No

Other Details

Does the application include signage?
*
No

How many signs, please enter 0 if there are none involved in this application?
*
0

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register?
No

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements)
*
Appendix A - Title documents.pdf

Plans (proposed, existing)
*
Appendix B - Preliminary Plans.pdf

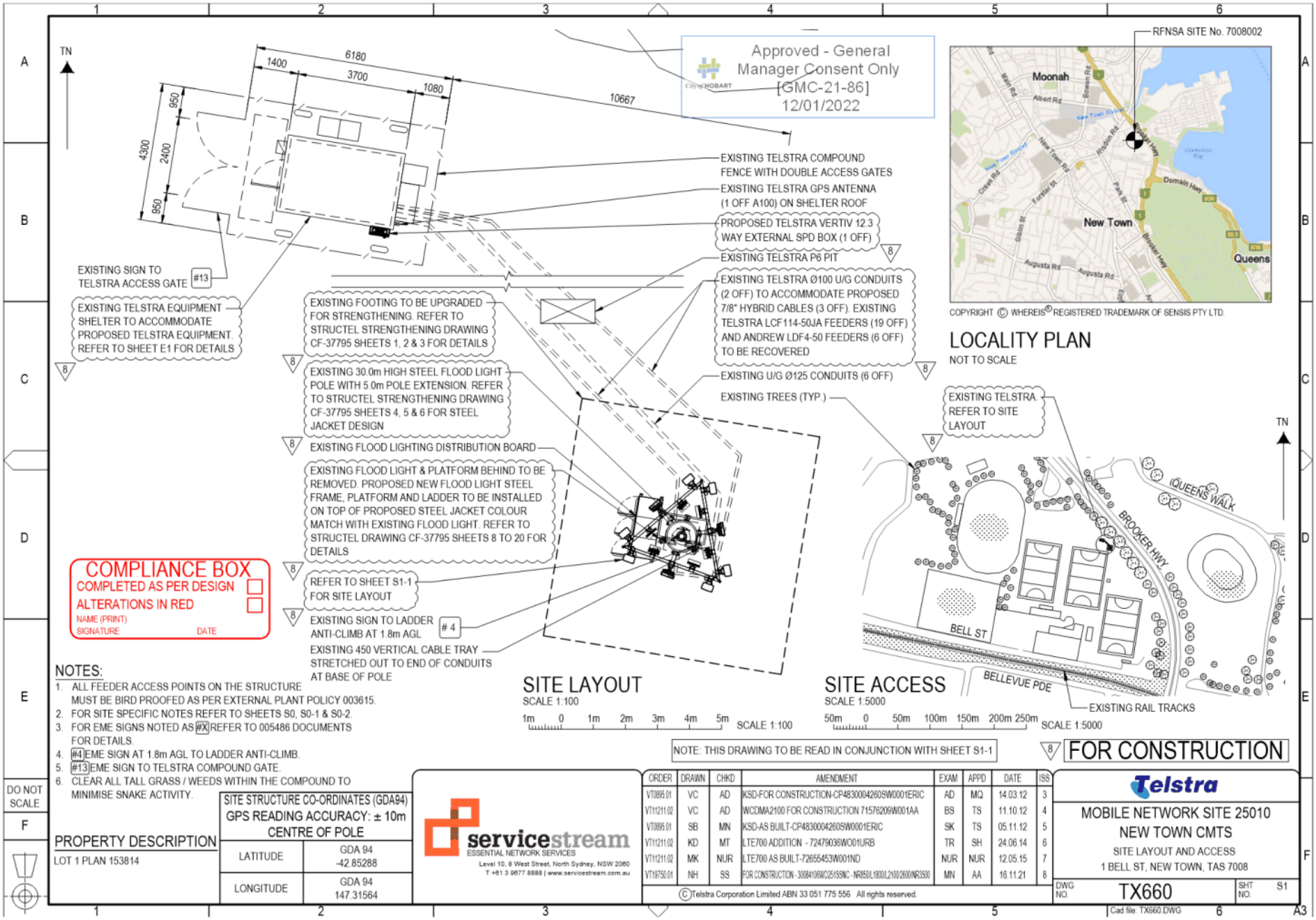
Covering Letter
New Town_Planning Permit cover letter.pdf

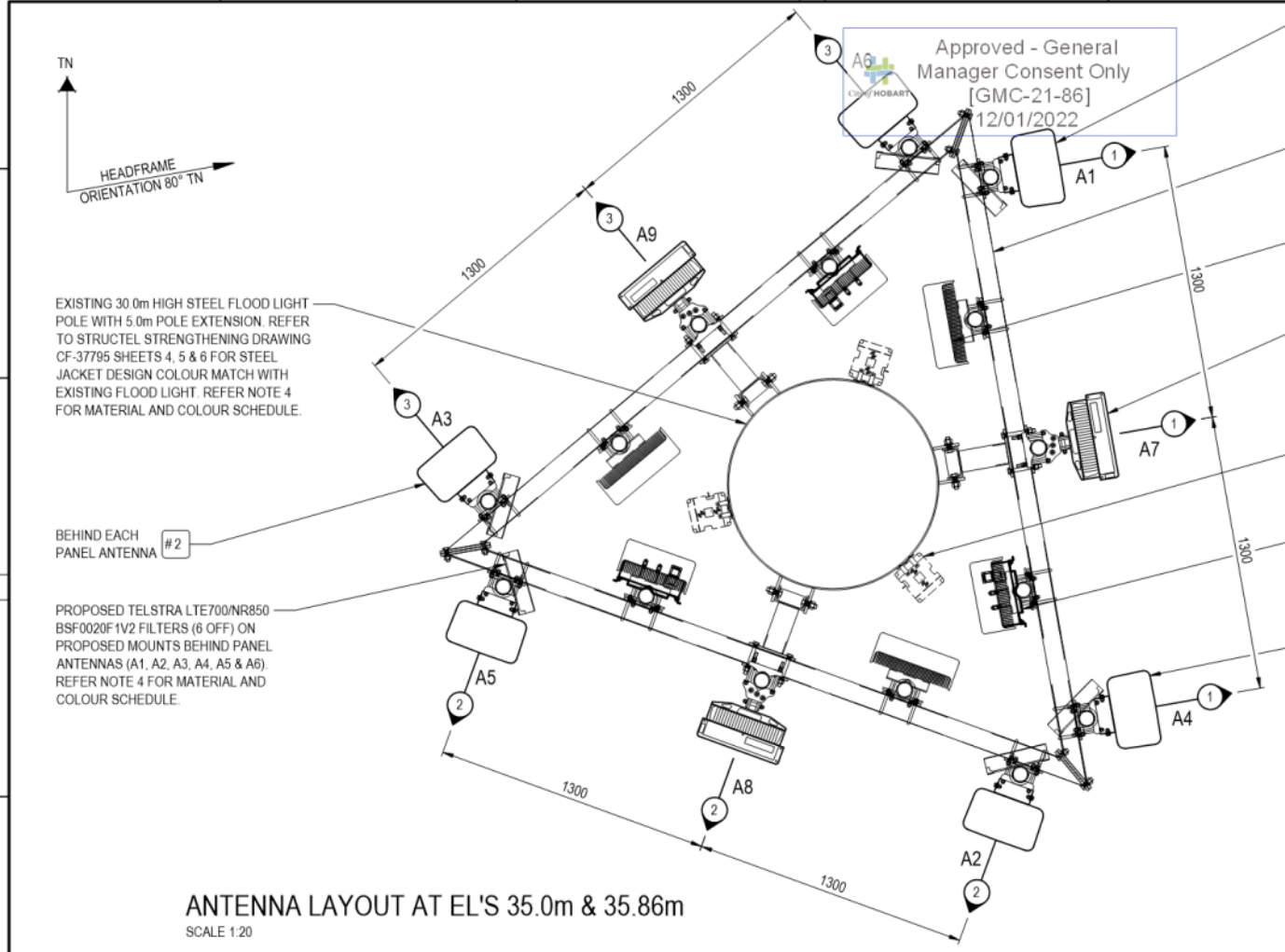
Supporting Documents

Photos or Montages
Appendix C - Photographs.pdf

Planning Report
New Town_DA Submission_v3 - Final.pdf

EME Report
Appendix D - EME Report.pdf


Approved - General Manager Consent Only [GMC-21-86] 12/01/2022
CITY OF HOBART
TN
6180
1400
3700
1080
10667
950
4300
2400
950
EXISTING TELSTRA COMPOUND FENCE WITH DOUBLE ACCESS GATES
EXISTING TELSTRA GPS ANTENNA (1 OFF A100) ON SHELTER ROOF
PROPOSED TELSTRA VERTIV 12.3 WAY EXTERNAL SPD BOX (1 OFF)
EXISTING TELSTRA P6 PIT
EXISTING TELSTRA Ø100 U/G CONDUITS (2 OFF) TO ACCOMMODATE PROPOSED 7/8" HYBRID CABLES (3 OFF). EXISTING TELSTRA LCF114-50JA FEEDERS (19 OFF) AND ANDREW LDF4-50 FEEDERS (6 OFF) TO BE RECOVERED
EXISTING U/G Ø125 CONDUITS (6 OFF)
EXISTING TREES (TYP.)
EXISTING SIGN TO TELSTRA ACCESS GATE #13
EXISTING TELSTRA EQUIPMENT SHELTER TO ACCOMMODATE PROPOSED TELSTRA EQUIPMENT. REFER TO SHEET E1 FOR DETAILS
EXISTING FOOTING TO BE UPGRADED FOR STRENGTHENING. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 1, 2 & 3 FOR DETAILS
EXISTING 30.0m HIGH STEEL FLOOD LIGHT POLE WITH 5.0m POLE EXTENSION. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 4, 5 & 6 FOR STEEL JACKET DESIGN
EXISTING FLOOD LIGHTING DISTRIBUTION BOARD
EXISTING FLOOD LIGHT & PLATFORM BEHIND TO BE REMOVED. PROPOSED NEW FLOOD LIGHT STEEL FRAME, PLATFORM AND LADDER TO BE INSTALLED ON TOP OF PROPOSED STEEL JACKET COLOUR MATCH WITH EXISTING FLOOD LIGHT. REFER TO STRUCTEL DRAWING CF-37795 SHEETS 8 TO 20 FOR DETAILS
REFER TO SHEET S1-1 FOR SITE LAYOUT
EXISTING SIGN TO LADDER ANTI-CLIMB AT 1.8m AGL # 4
EXISTING 450 VERTICAL CABLE TRAY STRETCHED OUT TO END OF CONDUITS AT BASE OF POLE
COMPLIANCE BOX
COMPLETED AS PER DESIGN
ALTERATIONS IN RED
NAME (PRINT)
SIGNATURE
DATE
NOTES:
1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR SITE SPECIFIC NOTES REFER TO SHEETS S0, S0-1 & S0-2.
3. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
4. #4 EME SIGN AT 1.8m AGL TO LADDER ANTI-CLIMB.
5. #13 EME SIGN TO TELSTRA COMPOUND GATE.
6. CLEAR ALL TALL GRASS / WEEDS WITHIN THE COMPOUND TO MINIMISE SNAKE ACTIVITY.
SITE LAYOUT
SCALE 1:100
1m 0 1m 2m 3m 4m 5m
SCALE 1:100
RFNSA SITE No. 7008002
Moonah
Albert Rd
Bowen Rd
Main Rd
New Town Rd
Creek Rd
Forster St
Glebe St
Pitt St
Hobart Hwy
Domain Hwy
New Town
Queens
Augusta Rd
Brooker Hwy
COPYRIGHT © WHEREIS® REGISTERED TRADEMARK OF SENSIS PTY LTD.
LOCALITY PLAN
NOT TO SCALE
EXISTING TELSTRA REFER TO SITE LAYOUT
QUEENS WALK
BROOKER HWY
BELL ST
BELLEVUE PDE
EXISTING RAIL TRACKS
SITE ACCESS
SCALE 1:5000
50m 0 50m 100m 150m 200m 250m
SCALE 1:5000
NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S1-1
FOR CONSTRUCTION
DO NOT SCALE
PROPERTY DESCRIPTION
LOT 1 PLAN 153814
SITE STRUCTURE CO-ORDINATES (GDA94)
GPS READING ACCURACY: ± 10m
CENTRE OF POLE
LATITUDE GDA 94 -42.85288
LONGITUDE GDA 94 147.31564
servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au
ORDER DRAWN CHKD AMENDMENT EXAM APPD DATE ISS
VT0895.01 VC AD KSD-FOR CONSTRUCTION-CP4830004260SW0001ERIC AD MQ 14.03.12 3
VT11211.02 VC AD WCDMA2100 FOR CONSTRUCTION 71576209W001AA BS TS 11.10.12 4
VT0895.01 SB MN KSD-AS BUILT-CP4830004260SW0001ERIC SK TS 05.11.12 5
VT11211.02 KD MT LTE700 ADDITION - 72479036WO01URB TR SH 24.06.14 6
VT11211.02 MK NUR LTE700 AS BUILT-72655453W001ND NUR NUR 12.05.15 7
VT19750.01 NH SS FOR CONSTRUCTION - 3008419WC251SSNC - NR850/L1800/L2100/2600/NR3500 MN AA 16.11.21 8
©Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.
Telstra
MOBILE NETWORK SITE 25010
NEW TOWN CMTS
SITE LAYOUT AND ACCESS
1 BELL ST, NEW TOWN, TAS 7008
DWG NO. TX660
SHT NO. S1
Cad file: TX660.DWG
A3



ANTENNA LAYOUT AT EL'S 35.0m & 35.86m

SCALE 1:20

200 0 1000 SCALE 1:20

NOTES:

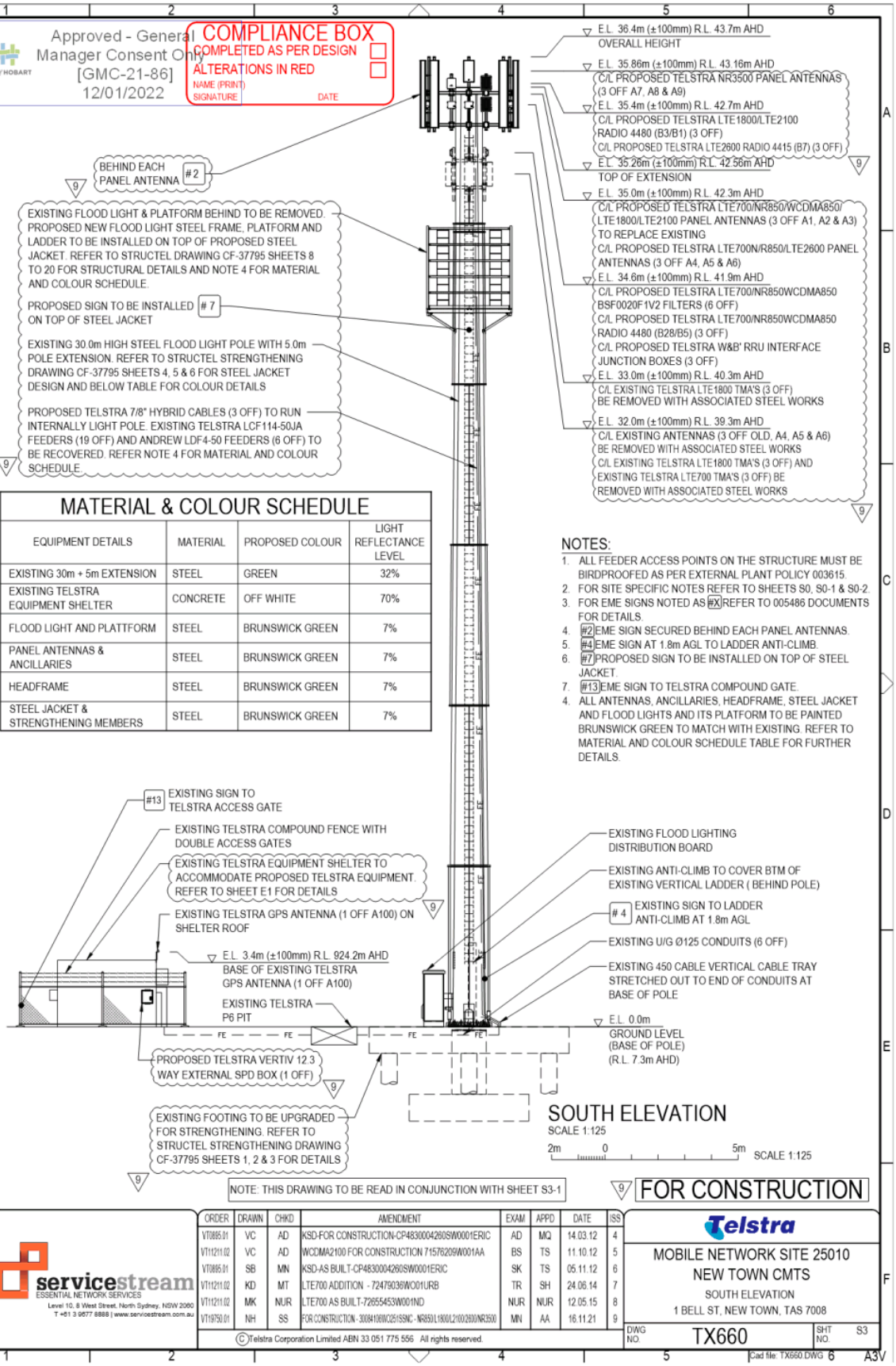
1. FOR SITE SPECIFIC NOTES REFER TO SHEETS S0, S0-1 & S0-2.
2. FOR EME SIGNS NOTED THUS #X REFER TO 005486 FOR DETAILS.
3. #2 EME SIGN TO BE SECURED BEHIND EACH PANEL ANTENNAS.
4. ALL ANTENNAS, ANCILLARIES, HEADFRAME, STEEL JACKET AND FLOOD LIGHTS AND ITS PLATFORM TO BE PAINTED BRUNSWICK GREEN TO MATCH WITH EXISTING. REFER TO MATERIAL AND COLOUR SCHEDULE TABLE IN SHEET S3 FOR FURTHER DETAILS.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
VT11211.02	KD	MT	LTE700 ADDITION - 72479036W001URB	TR	SH	24.06.14	1
VT11211.02	MK	NUR	LTE700 AS BUILT-72655453W001ND	NUR	NUR	12.05.15	2
VT19750.01	NH	SS	FOR CONSTRUCTION - 30084196WC251SSNC - NR850/L1800/L2100/2600/NR3500	MN	AA	16.11.21	3

© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.

Approved - General Manager Consent Only [GMC-21-86] 12/01/2022

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE



MATERIAL & COLOUR SCHEDULE

EQUIPMENT DETAILS	MATERIAL	PROPOSED COLOUR	LIGHT REFLECTANCE LEVEL
EXISTING 30m + 5m EXTENSION	STEEL	GREEN	32%
EXISTING TELSTRA EQUIPMENT SHELTER	CONCRETE	OFF WHITE	70%
FLOOD LIGHT AND PLATTFORM	STEEL	BRUNSWICK GREEN	7%
PANEL ANTENNAS & ANCILLARIES	STEEL	BRUNSWICK GREEN	7%
HEADFRAME	STEEL	BRUNSWICK GREEN	7%
STEEL JACKET & STRENGTHENING MEMBERS	STEEL	BRUNSWICK GREEN	7%

NOTES:
1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRDPROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR SITE SPECIFIC NOTES REFER TO SHEETS S0, S0-1 & S0-2.
3. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
4. #2 EME SIGN SECURED BEHIND EACH PANEL ANTENNAS.
5. #4 EME SIGN AT 1.8m AGL TO LADDER ANTI-CLIMB.
6. #7 PROPOSED SIGN TO BE INSTALLED ON TOP OF STEEL JACKET.
7. #13 EME SIGN TO TELSTRA COMPOUND GATE.
4. ALL ANTENNAS, ANCILLARIES, HEADFRAME, STEEL JACKET AND FLOOD LIGHTS AND ITS PLATFORM TO BE PAINTED BRUNSWICK GREEN TO MATCH WITH EXISTING. REFER TO MATERIAL AND COLOUR SCHEDULE TABLE FOR FURTHER DETAILS.

DO NOT SCALE

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S3-1

FOR CONSTRUCTION

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
VT0865.01	VC	AD	KSD-FOR CONSTRUCTION-CP48300042608W0001ERIC	AD	MQ	14.03.12	4
VT11211.02	VC	AD	WCDMA2100 FOR CONSTRUCTION 71576209W001AA	BS	TS	11.10.12	5
VT0865.01	SB	MN	KSD-AS BUILT-CP48300042608W0001ERIC	SK	TS	05.11.12	6
VT11211.02	KD	MT	LTE700 ADDITION - 72479036WC01URB	TR	SH	24.06.14	7
VT11211.02	MK	NUR	LTE700 AS BUILT-72655453W001ND	NUR	NUR	12.05.15	8
VT19750.01	NH	SS	FOR CONSTRUCTION - 30084108WC2515SNC - NR850/L1800/L2100/2600/NR3500	MN	AA	16.11.21	9

servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au

© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.

Telstra
MOBILE NETWORK SITE 25010
NEW TOWN CMTS
SOUTH ELEVATION
1 BELL ST, NEW TOWN, TAS 7008
DWG NO. TX660
SHT NO. S3
Cad file: TX660.DWG
A3V

TELSTRA MOBILES ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA ACTION REQUIRED	ANTENNA HEIGHT C/L A.G.L.	PHYSICAL ANTENNA BEARING (°T)	SECTOR NO. & TECHNOLOGY
A1	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	80°	S1: LTE700/NR850/WCDMA850 S1: LTE700/NR850/WCDMA850
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
A2	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	200°	S2: LTE700/NR850/WCDMA850 S2: LTE700/NR850/WCDMA850
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
A3	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	320°	S3: LTE700/NR850/WCDMA850 S3: LTE700/NR850/WCDMA850
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
A4	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	80°	S1: LTE700/NR850 S1: LTE700/NR850
					S1: LTE2600 S1: LTE2600
					S1: LTE2600 S1: LTE2600
A5	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	200°	S2: LTE700/NR850 S2: LTE700/NR850
					S2: LTE2600 S2: LTE2600
					S2: LTE2600 S2: LTE2600
A6	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	320°	S3: LTE700/NR850 S3: LTE700/NR850
					S3: LTE2600 S3: LTE2600
					S3: LTE2600 S3: LTE2600
A7	ERICSSON AIR6488 PANEL 810 x 400 x 200mm	INSTALL	35.86m	80°	S1: NR3500 S1: NR3500
A8	ERICSSON AIR6488 PANEL 810 x 400 x 200mm	INSTALL	35.86m	200°	S2: NR3500 S2: NR3500
A9	ERICSSON AIR6488 PANEL 810 x 400 x 200mm	INSTALL	35.86m	320°	S3: NR3500 S3: NR3500
A1 (OLD)	ARGUS CNNPX308R-6P PANEL 2120 x 370 x 120mm	REMOVE	35.0m	80°	-
A2 (OLD)	ARGUS CNNPX308R-6P PANEL 2120 x 370 x 120mm	REMOVE	35.0m	200°	-
A3 (OLD)	ARGUS CNNPX308R-6P PANEL 2120 x 370 x 120mm	REMOVE	35.0m	320°	-
A4 (OLD)	ARGUS RVVPX303.6F12B2 PANEL 920 x 353 x 209mm	REMOVE	32.0m	80°	-
A5 (OLD)	ARGUS RVVPX303.6F12B2 PANEL 920 x 353 x 209mm	REMOVE	32.0m	200°	-
A6 (OLD)	ARGUS RVVPX303.6F12B2 PANEL 920 x 353 x 209mm	REMOVE	32.0m	320°	-

Approved - General Manager Consent Only [GMC-21-86] 12/01/2022
City of HOBART

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE

DO NOT SCALE

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S3

FOR CONSTRUCTION

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
VT19750.01	NH	SS	FOR CONSTRUCTION - 30084108WC251SSNC - NR850/L1800/L2100/2600/NR3500	MN	AA	16.11.21	1

servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au

Telstra

MOBILE NETWORK SITE 25010
NEW TOWN CMTS
ANTENNA CONFIGURATION TABLE
1 BELL ST, NEW TOWN, TAS 7008

DWG NO. TX660 SHT NO. S3-2

© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.

Cad file: TX660.DWG A3V

ServiceStream

22nd April 2022

Att: Liz Wilson
Acting Senior Statutory Planner
City Planning
Hobart City Council
Email: coh@hobartcity.com.au

Dear Liz,

RE: 1 BELL STREET, NEW TOWN UPGRADING OF EXISTING TELECOMMUNICATIONS FACILITY AND ASSOCIATED WORKS APPLICATION NO. PLN-21-823

REQUEST FOR FURTHER INFORMATION - #2

I refer to your letter dated 31st March 2022 advising that the further information request was not fully satisfied and that TasWater have requested further information.

In addition to submitting revised plans, we provide the following response to the information requested:

TasWater - TW1 – Reference No. TWDA 2022/00045- HCC

Our Design Engineer has spoken with the TasWater assessor who agreed that we can resubmit the plans with additional comments to investigate relocating the Taswater main as part of the Build Stage.

As discussed with Taswater and as per the RFI letter issued by them, we are not able to keep the water main inside the proposed footing and therefore the main water is to be relocated prior to the footing upgrade.

We were also asked to provide set back distances from the Sewer main to the proposed footing and property boundary on the plans.

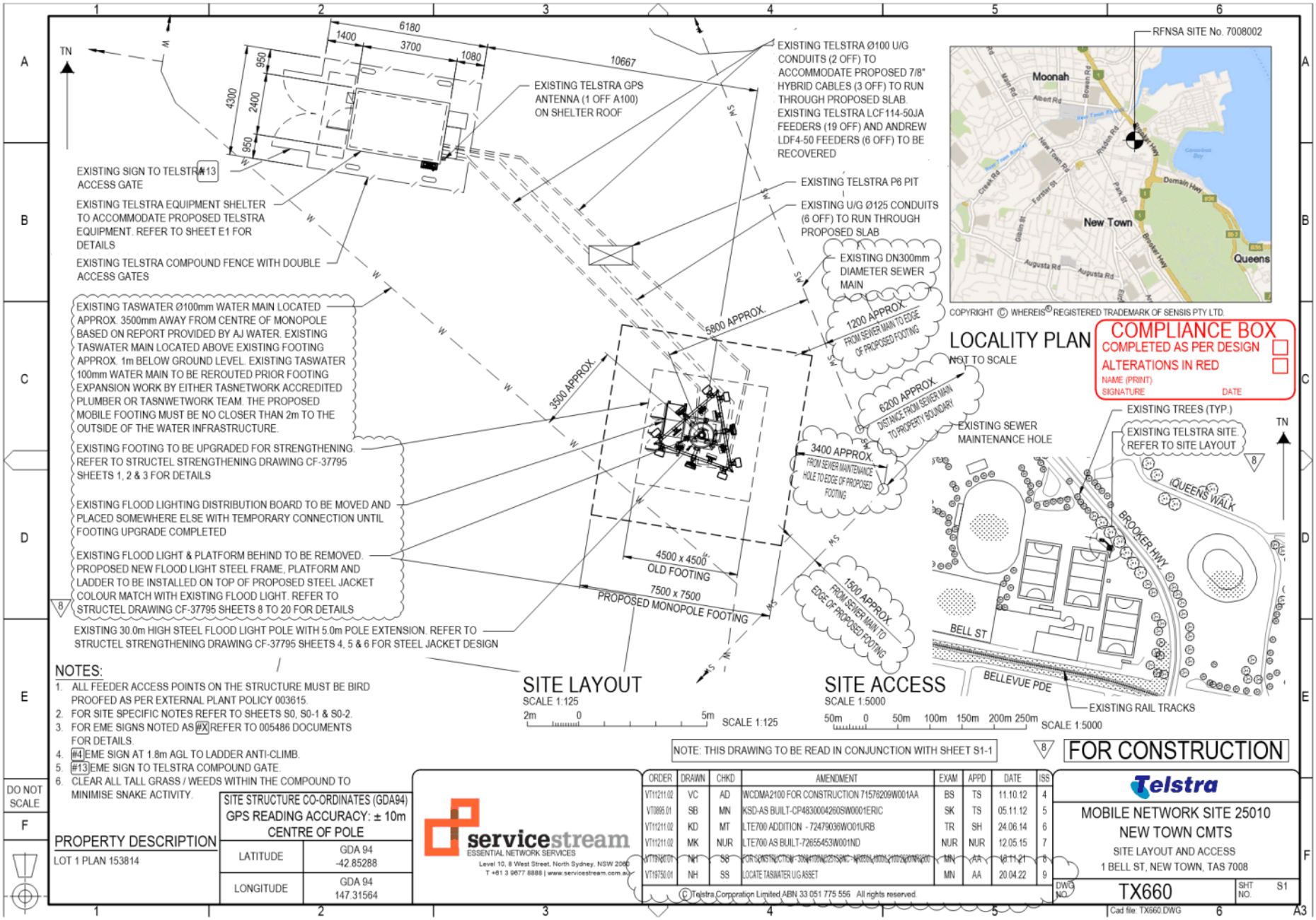
The attached revised plans were amended accordingly.

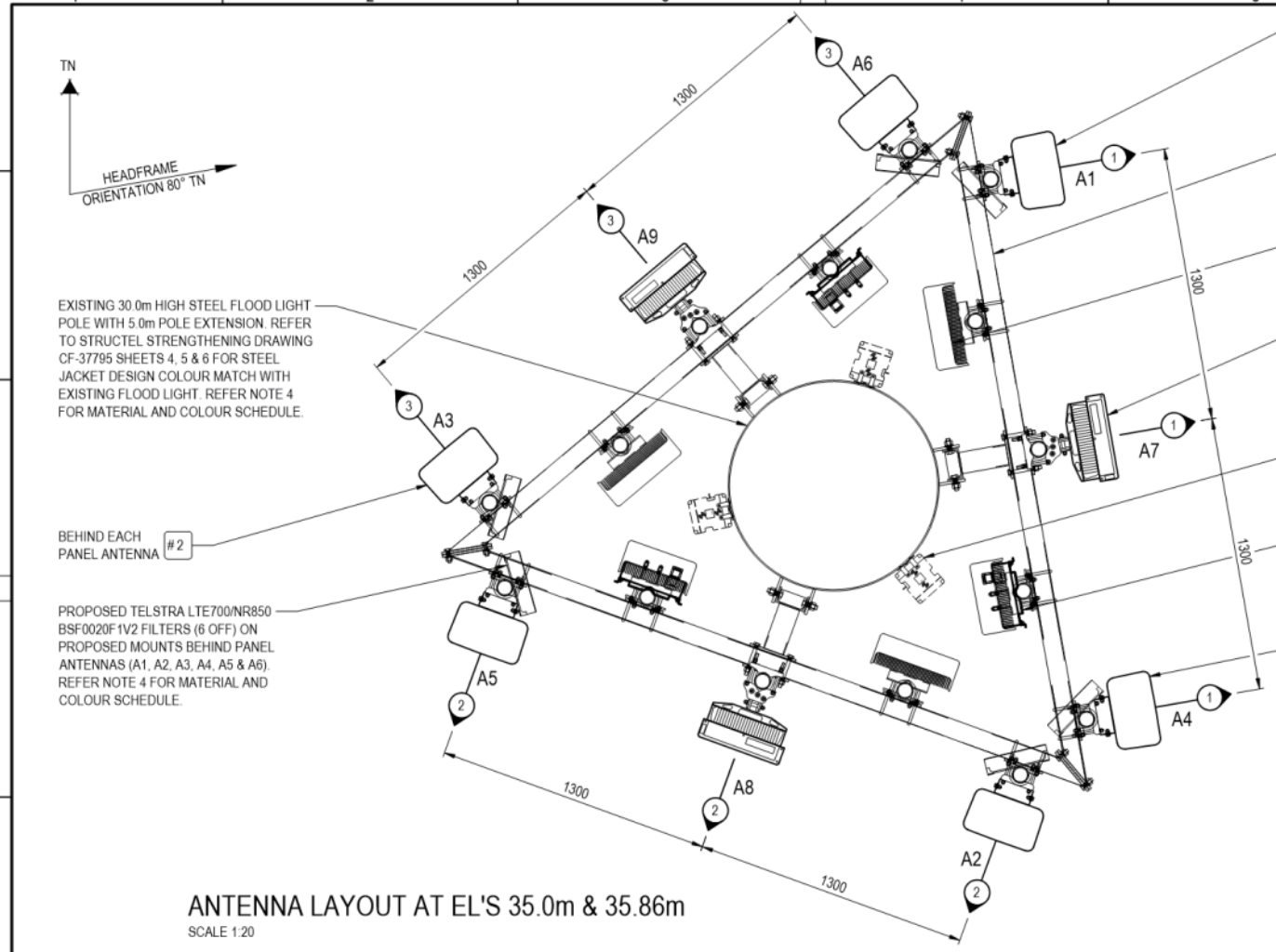
I trust the submitted documents and response adequately address the information requested by TasWater to enable this planning application to now be progressed.

Yours sincerely,

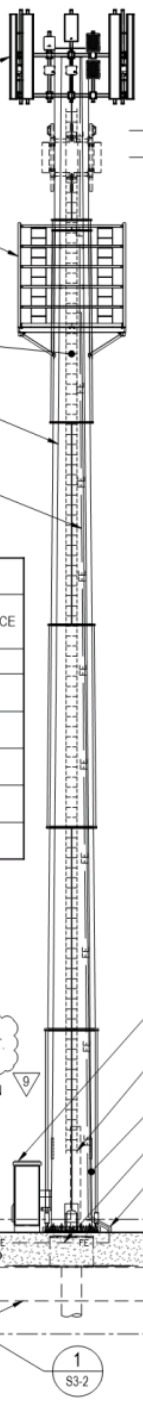
Barbara Grinter
Senior Planning Consultant
ServiceStream Limited

Attachments: Revised Plans - including details of underground water infrastructure and Cross-Section Footing Plan – Dated 20/4/2022


TN
6180
1400
3700
1080
10667
950
4300
2400
950
EXISTING TELSTRA GPS ANTENNA (1 OFF A100) ON SHELTER ROOF
EXISTING TELSTRA Ø100 U/G CONDUITS (2 OFF) TO ACCOMMODATE PROPOSED 7/8" HYBRID CABLES (3 OFF) TO RUN THROUGH PROPOSED SLAB. EXISTING TELSTRA LCF114-50JA FEEDERS (19 OFF) AND ANDREW LDF4-50 FEEDERS (6 OFF) TO BE RECOVERED
EXISTING SIGN TO TELSTRA #13 ACCESS GATE
EXISTING TELSTRA EQUIPMENT SHELTER TO ACCOMMODATE PROPOSED TELSTRA EQUIPMENT. REFER TO SHEET E1 FOR DETAILS
EXISTING TELSTRA COMPOUND FENCE WITH DOUBLE ACCESS GATES
EXISTING TELSTRA P6 PIT
EXISTING U/G Ø125 CONDUITS (6 OFF) TO RUN THROUGH PROPOSED SLAB
EXISTING DN300mm DIAMETER SEWER MAIN
1200 APPROX. FROM SEWER MAIN TO EDGE OF PROPOSED FOOTING
5800 APPROX.
3500 APPROX.
6200 APPROX. DISTANCE FROM SEWER MAIN TO PROPERTY BOUNDARY
3400 APPROX. FROM SEWER MAINTENANCE HOLE TO EDGE OF PROPOSED FOOTING
1500 APPROX. FROM SEWER MAIN TO EDGE OF PROPOSED FOOTING
EXISTING TASWATER Ø100mm WATER MAIN LOCATED APPROX. 3500mm AWAY FROM CENTRE OF MONOPOLE BASED ON REPORT PROVIDED BY AJ WATER. EXISTING TASWATER MAIN LOCATED ABOVE EXISTING FOOTING APPROX. 1m BELOW GROUND LEVEL. EXISTING TASWATER 100mm WATER MAIN TO BE REROUTED PRIOR FOOTING EXPANSION WORK BY EITHER TASNETWORK ACCREDITED PLUMBER OR TASNWETWORK TEAM. THE PROPOSED MOBILE FOOTING MUST BE NO CLOSER THAN 2m TO THE OUTSIDE OF THE WATER INFRASTRUCTURE.
EXISTING FOOTING TO BE UPGRADED FOR STRENGTHENING. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 1, 2 & 3 FOR DETAILS
EXISTING FLOOD LIGHTING DISTRIBUTION BOARD TO BE MOVED AND PLACED SOMEWHERE ELSE WITH TEMPORARY CONNECTION UNTIL FOOTING UPGRADE COMPLETED
EXISTING FLOOD LIGHT & PLATFORM BEHIND TO BE REMOVED. PROPOSED NEW FLOOD LIGHT STEEL FRAME, PLATFORM AND LADDER TO BE INSTALLED ON TOP OF PROPOSED STEEL JACKET COLOUR MATCH WITH EXISTING FLOOD LIGHT. REFER TO STRUCTEL DRAWING CF-37795 SHEETS 8 TO 20 FOR DETAILS
8
4500 x 4500 OLD FOOTING
7500 x 7500 PROPOSED MONOPOLE FOOTING
EXISTING 30.0m HIGH STEEL FLOOD LIGHT POLE WITH 5.0m POLE EXTENSION. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 4, 5 & 6 FOR STEEL JACKET DESIGN
NOTES:
1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR SITE SPECIFIC NOTES REFER TO SHEETS S0, S0-1 & S0-2.
3. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
4. #4 EME SIGN AT 1.8m AGL TO LADDER ANTI-CLIMB.
5. #13 EME SIGN TO TELSTRA COMPOUND GATE.
6. CLEAR ALL TALL GRASS / WEEDS WITHIN THE COMPOUND TO MINIMISE SNAKE ACTIVITY.
SITE LAYOUT
SCALE 1:125
2m 0 5m
SCALE 1:125
RFNSA SITE No. 7008002
Moonah
New Town
Queens
COPYRIGHT © WHEREIS® REGISTERED TRADEMARK OF SENSIS PTY LTD.
LOCALITY PLAN
NOT TO SCALE
COMPLIANCE BOX
COMPLETED AS PER DESIGN
ALTERATIONS IN RED
NAME (PRINT)
SIGNATURE
DATE
EXISTING TREES (TYP.)
EXISTING TELSTRA SITE. REFER TO SITE LAYOUT
EXISTING SEWER MAINTENANCE HOLE
QUEENS WALK
BROOKER HWY.
BELL ST
BELLEVUE PDE
EXISTING RAIL TRACKS
SITE ACCESS
SCALE 1:5000
50m 0 50m 100m 150m 200m 250m
SCALE 1:5000
NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S1-1
FOR CONSTRUCTION
DO NOT SCALE
PROPERTY DESCRIPTION
LOT 1 PLAN 153814
SITE STRUCTURE CO-ORDINATES (GDA94)
GPS READING ACCURACY: ± 10m
CENTRE OF POLE
LATITUDE GDA 94 -42.85288
LONGITUDE GDA 94 147.31564
servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au
ORDER DRAWN CHKD AMENDMENT EXAM APPD DATE ISS
VT11211.02 VC AD WCDMA2100 FOR CONSTRUCTION 71576209W001AA BS TS 11.10.12 4
VT0895.01 SB MN KSD-AS BUILT-CP483000426OSW0001ERIC SK TS 05.11.12 5
VT11211.02 KD MT LTE700 ADDITION - 72479036W001URB TR SH 24.06.14 6
VT11211.02 MK NUR LTE700 AS BUILT-72655453W001ND NUR NUR 12.05.15 7
VT19750.01 NH SS FOR CONSTRUCTION - 300410296/2251SRC - NBN FIBRE 100% 21/05/2021 MN AA 18.11.21 8
VT19750.01 NH SS LOCATE TASWATER U/G ASSET MN AA 20.04.22 9
© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.
Telstra
MOBILE NETWORK SITE 25010
NEW TOWN CMTS
SITE LAYOUT AND ACCESS
1 BELL ST, NEW TOWN, TAS 7008
DWG NO. TX660
SHT NO. S1
Cad file: TX660.DWG
A3


TN
HEADFRAME ORIENTATION 80° TN
1300
A1
A2
A3
A4
A5
A6
A7
A8
A9
EXISTING 30.0m HIGH STEEL FLOOD LIGHT POLE WITH 5.0m POLE EXTENSION. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 4, 5 & 6 FOR STEEL JACKET DESIGN COLOUR MATCH WITH EXISTING FLOOD LIGHT. REFER NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
BEHIND EACH PANEL ANTENNA #2
PROPOSED TELSTRA LTE700/NR850 BSF0020F1V2 FILTERS (6 OFF) ON PROPOSED MOUNTS BEHIND PANEL ANTENNAS (A1, A2, A3, A4, A5 & A6). REFER NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
EXISTING TELSTRA WCDMA850 PANEL ANTENNAS (3 OFF OLD A1, A2 & A3) TO BE REPLACED WITH PROPOSED TELSTRA LTE700/NR850/WCDMA850/ LTE1800/LTE2100 PANEL ANTENNAS (3 OFF A1, A2 & A3) ON PROPOSED MOUNTS. REFER NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
PROPOSED TELSTRA TRIANGULAR HEADFRAME. REFER TO STRUCTEL DRAWING CF-37795 SHEETS 20 & 21 FOR STRUCTURAL DETAILS AND NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
PROPOSED TELSTRA LTE1800/LTE2100 RADIO 4480 (B3/B1) (3 OFF) AND RADIO 4480B5/B28 (3-OFF) ON PROPOSED RRU MOUNTS. REFER NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
PROPOSED TELSTRA NR3500 PANEL ANTENNAS (3 OFF A7, A8 & A9) AND W&B RRU INTERFACE JUNCTION BOXES (3-OFF) ON PROPOSED MOUNTS. REFER TO STRUCTEL DRAWING CF-37795 SHEETS 20 & 21 FOR STRUCTURAL DETAILS AND NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
EXISTING TELSTRA LTE700 TMA'S (3 OFF) TO REMOVED
PROPOSED TELSTRA LTE2600 RADIO 4415 (B7) (3 OFF) AND W&B RRU INTERFACE JUNCTION BOXES(3-OFF) ON PROPOSED RRU MOUNTS. REFER NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
EXISTING TELSTRA WCDMA850 PANEL ANTENNAS (3 OFF OLD A4, A5 & A6) TO BE REPLACED WITH PROPOSED TELSTRA LTE700/NR850/LTE2600 PANEL ANTENNAS (3 OFF A4, A5 & A6) ON PROPOSED MOUNTS. REFER TO STRUCTEL DRAWING CF-37795 SHEETS 20 & 21 FOR STRUCTURAL DETAILS & NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.
COMPLIANCE BOX
COMPLETED AS PER DESIGN
ALTERATIONS IN RED
NAME (PRINT)
SIGNATURE
DATE
FOR CONSTRUCTION
NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S1
ANTENNA LAYOUT AT EL'S 35.0m & 35.86m
SCALE 1:20
200 0 1000 SCALE 1:20
NOTES:
1. FOR SITE SPECIFIC NOTES REFER TO SHEETS S0, S0-1 & S0-2.
2. FOR EME SIGNS NOTED THUS #X REFER TO 005486 FOR DETAILS.
3. #2 EME SIGN TO BE SECURED BEHIND EACH PANEL ANTENNAS.
4. ALL ANTENNAS, ANCILLARIES, HEADFRAME, STEEL JACKET AND FLOOD LIGHTS AND ITS PLATFORM TO BE PAINTED BRUNSWICK GREEN TO MATCH WITH EXISTING. REFER TO MATERIAL AND COLOUR SCHEDULE TABLE IN SHEET S3 FOR FURTHER DETAILS.
DO NOT SCALE
servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au
ORDER DRAWN CHKD AMENDMENT EXAM APPD DATE ISS
VT11211.02 KD MT LTE700 ADDITION - 72479036W001URB TR SH 24.06.14 1
VT11211.02 MK NUR LTE700 AS BUILT-72655453W001ND NUR NUR 12.05.15 2
VT19750.01 NH SS FOR CONSTRUCTION - 3008419WC251SSNC - NR850/L1800/L2100/2600/NR3500 MN AA 16.11.21 3
©Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.
Telstra
MOBILE NETWORK SITE 25010
NEW TOWN CMTS
ANTENNA LAYOUT
1 BELL ST, NEW TOWN, TAS 7008
DWG NO. TX660
SHT NO. S1-1
Cad file: TX660.DWG
A3

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE



E.L. 36.4m (±100mm) R.L. 43.7m AHD
OVERALL HEIGHT

E.L. 35.86m (±100mm) R.L. 43.16m AHD
C/L PROPOSED TELSTRA NR3500 PANEL ANTENNAS (3 OFF A7, A8 & A9)

E.L. 35.4m (±100mm) R.L. 42.7m AHD
C/L PROPOSED TELSTRA LTE1800/LTE2100 RADIO 4480 (B3/B1) (3 OFF)
C/L PROPOSED TELSTRA LTE2600 RADIO 4415 (B7) (3 OFF)

E.L. 35.26m (±100mm) R.L. 42.56m AHD
TOP OF EXTENSION

E.L. 35.0m (±100mm) R.L. 42.3m AHD
C/L PROPOSED TELSTRA LTE700/NR850/WCDMA850/LTE1800/LTE2100 PANEL ANTENNAS (3 OFF A1, A2 & A3) TO REPLACE EXISTING
C/L PROPOSED TELSTRA LTE700N/R850/LTE2600 PANEL ANTENNAS (3 OFF A4, A5 & A6)

E.L. 34.6m (±100mm) R.L. 41.9m AHD
C/L PROPOSED TELSTRA LTE700/NR850WCDMA850 BSF0020F1V2 FILTERS (6 OFF)
C/L PROPOSED TELSTRA LTE700/NR850WCDMA850 RADIO 4480 (B28/B5) (3 OFF)
C/L PROPOSED TELSTRA W&B' RRU INTERFACE JUNCTION BOXES (3 OFF)

E.L. 33.0m (±100mm) R.L. 40.3m AHD
C/L EXISTING TELSTRA LTE1800 TMA'S (3 OFF) BE REMOVED WITH ASSOCIATED STEEL WORKS

E.L. 32.0m (±100mm) R.L. 39.3m AHD
C/L EXISTING ANTENNAS (3 OFF OLD, A4, A5 & A6) BE REMOVED WITH ASSOCIATED STEEL WORKS
C/L EXISTING TELSTRA LTE1800 TMA'S (3 OFF) AND EXISTING TELSTRA LTE700 TMA'S (3 OFF) BE REMOVED WITH ASSOCIATED STEEL WORKS

BEHIND EACH PANEL ANTENNA #2

EXISTING FLOOD LIGHT & PLATFORM BEHIND TO BE REMOVED. PROPOSED NEW FLOOD LIGHT STEEL FRAME, PLATFORM AND LADDER TO BE INSTALLED ON TOP OF PROPOSED STEEL JACKET. REFER TO STRUCTEL DRAWING CF-37795 SHEETS 8 TO 20 FOR STRUCTURAL DETAILS AND NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.

PROPOSED SIGN TO BE INSTALLED ON TOP OF STEEL JACKET #7

EXISTING 30.0m HIGH STEEL FLOOD LIGHT POLE WITH 5.0m POLE EXTENSION. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 4, 5 & 6 FOR STEEL JACKET DESIGN AND BELOW TABLE FOR COLOUR DETAILS

PROPOSED TELSTRA 7/8" HYBRID CABLES (3 OFF) TO RUN INTERNALLY LIGHT POLE. EXISTING TELSTRA LCF114-50JA FEEDERS (19 OFF) AND ANDREW LDF4-50 FEEDERS (6 OFF) TO BE RECOVERED. REFER NOTE 4 FOR MATERIAL AND COLOUR SCHEDULE.

MATERIAL & COLOUR SCHEDULE

EQUIPMENT DETAILS	MATERIAL	PROPOSED COLOUR	LIGHT REFLECTANCE LEVEL
EXISTING 30m + 5m EXTENSION	STEEL	GREEN	32%
EXISTING TELSTRA EQUIPMENT SHELTER	CONCRETE	OFF WHITE	70%
FLOOD LIGHT AND PLATTFORM	STEEL	BRUNSWICK GREEN	7%
PANEL ANTENNAS & ANCILLARIES	STEEL	BRUNSWICK GREEN	7%
HEADFRAME	STEEL	BRUNSWICK GREEN	7%
STEEL JACKET & STRENGTHENING MEMBERS	STEEL	BRUNSWICK GREEN	7%

NOTES:
1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRDPROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR SITE SPECIFIC NOTES REFER TO SHEETS S0, S0-1 & S0-2.
3. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
4. #2 EME SIGN SECURED BEHIND EACH PANEL ANTENNAS.
5. #4 EME SIGN AT 1.8m AGL TO LADDER ANTICLIMB.
6. #7 PROPOSED SIGN TO BE INSTALLED ON TOP OF STEEL JACKET.
7. #13 EME SIGN TO TELSTRA COMPOUND GATE.
4. ALL ANTENNAS, ANCILLARIES, HEADFRAME, STEEL JACKET AND FLOOD LIGHTS AND ITS PLATFORM TO BE PAINTED BRUNSWICK GREEN TO MATCH WITH EXISTING. REFER TO MATERIAL AND COLOUR SCHEDULE TABLE FOR FURTHER DETAILS.

#13 EXISTING SIGN TO TELSTRA ACCESS GATE

EXISTING TELSTRA COMPOUND FENCE WITH DOUBLE ACCESS GATES

EXISTING TELSTRA EQUIPMENT SHELTER TO ACCOMMODATE PROPOSED TELSTRA EQUIPMENT. REFER TO SHEET E1 FOR DETAILS

EXISTING TELSTRA GPS ANTENNA (1 OFF A100) ON SHELTER ROOF

E.L. 3.4m (±100mm) R.L. 924.2m AHD
BASE OF EXISTING TELSTRA GPS ANTENNA (1 OFF A100)

EXISTING TELSTRA P6 PIT

PROPOSED TELSTRA VERTIV 12.3 WAY EXTERNAL SPD BOX (1 OFF)

EXISTING FOOTING TO BE UPGRADED FOR STRENGTHENING. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 1, 2 & 3 FOR DETAILS

1
S3-2

EXISTING FLOOD LIGHTING DISTRIBUTION BOARD

EXISTING ANTI-CLIMB TO COVER BTM OF EXISTING VERTICAL LADDER (BEHIND POLE)

4 EXISTING SIGN TO LADDER ANTICLIMB AT 1.8m AGL

EXISTING U/G Ø125 CONDUITS (6 OFF)

EXISTING 450 CABLE VERTICAL CABLE TRAY STRETCHED OUT TO END OF CONDUITS AT BASE OF POLE

PROPOSED FOOTING 7.5m x 7.5m WITH 6 OFF X PILES TO STRENGTHEN EXISTING FOOTING

E.L. 0.0m
GROUND LEVEL (BASE OF POLE) (R.L. 7.3m AHD)

SOUTH ELEVATION
SCALE 1:125

2m 0 5m SCALE 1:125

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S3-1

FOR CONSTRUCTION

DO NOT SCALE

servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au

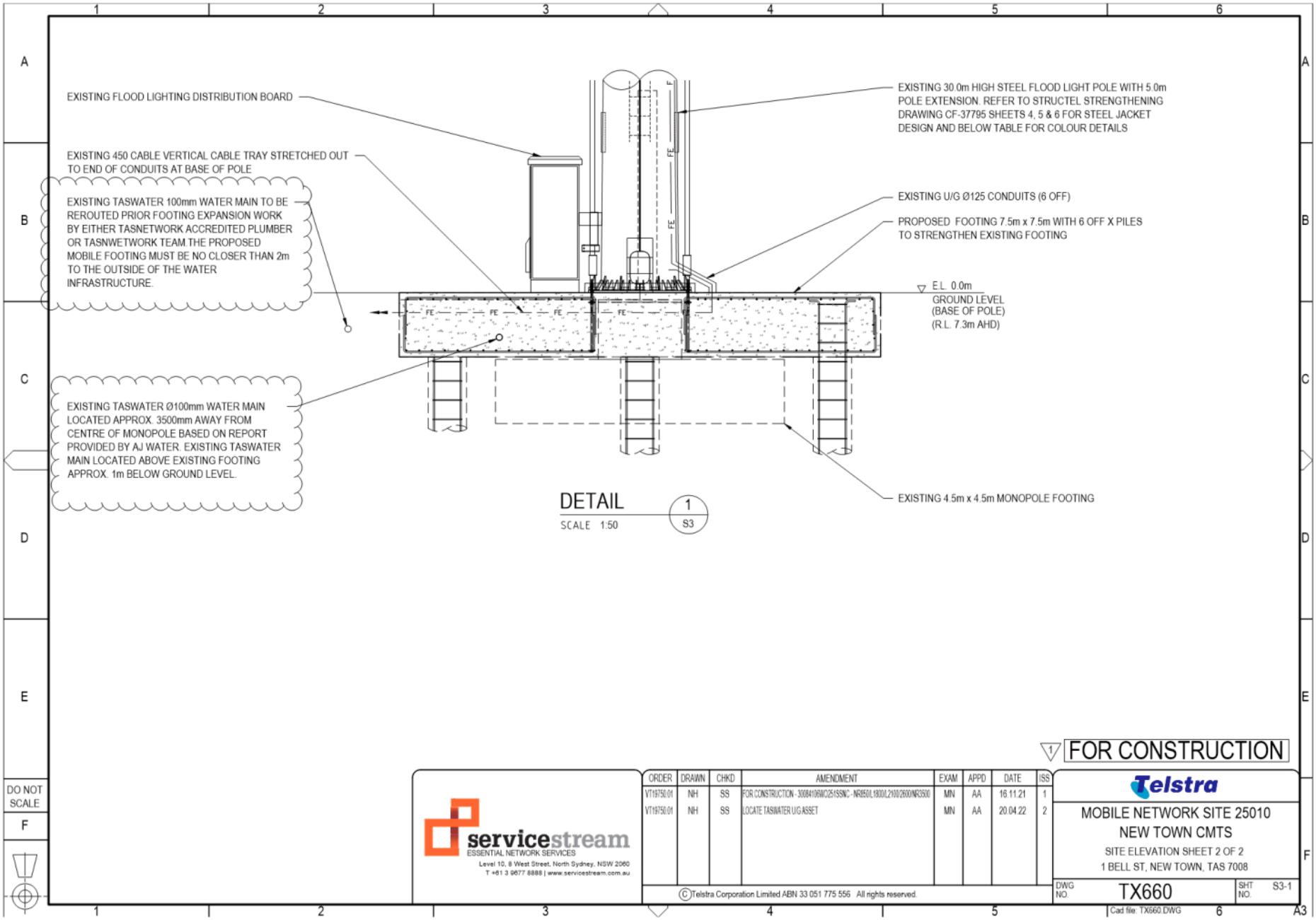
ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
VT0865.01	VC	AD	KSD-FOR CONSTRUCTION-CP48300042608W0001ERIC	AD	MQ	14.03.12	4
VT11211.02	VC	AD	WCDMA2100 FOR CONSTRUCTION 71576209W001AA	BS	TS	11.10.12	5
VT0865.01	SB	MN	KSD-AS BUILT-CP48300042608W0001ERIC	SK	TS	05.11.12	6
VT11211.02	KD	MT	LTE700 ADDITION - 72479036WC001URB	TR	SH	24.06.14	7
VT11211.02	MK	NUR	LTE700 AS BUILT-72655453W001ND	NUR	NUR	12.05.15	8
VT19750.01	NH	SS	FOR CONSTRUCTION - 30084108WC2515SNC - NR850/L1800/L2100/2600/NR3500	MN	AA	16.11.21	9

© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.

Telstra
MOBILE NETWORK SITE 25010
NEW TOWN CMTS
SITE ELEVATION SHEET 1 OF 2
1 BELL ST, NEW TOWN, TAS 7008

DWG NO. TX660 SHT NO. S3

Cad file: TX660.DWG A3V


EXISTING FLOOD LIGHTING DISTRIBUTION BOARD
EXISTING 450 CABLE VERTICAL CABLE TRAY STRETCHED OUT TO END OF CONDUITS AT BASE OF POLE
EXISTING TASWATER 100mm WATER MAIN TO BE REROUTED PRIOR FOOTING EXPANSION WORK BY EITHER TASNETWORK ACCREDITED PLUMBER OR TASNWETWORK TEAM.THE PROPOSED MOBILE FOOTING MUST BE NO CLOSER THAN 2m TO THE OUTSIDE OF THE WATER INFRASTRUCTURE.
EXISTING TASWATER Ø100mm WATER MAIN LOCATED APPROX. 3500mm AWAY FROM CENTRE OF MONOPOLE BASED ON REPORT PROVIDED BY AJ WATER. EXISTING TASWATER MAIN LOCATED ABOVE EXISTING FOOTING APPROX. 1m BELOW GROUND LEVEL.
EXISTING 30.0m HIGH STEEL FLOOD LIGHT POLE WITH 5.0m POLE EXTENSION. REFER TO STRUCTEL STRENGTHENING DRAWING CF-37795 SHEETS 4, 5 & 6 FOR STEEL JACKET DESIGN AND BELOW TABLE FOR COLOUR DETAILS
EXISTING U/G Ø125 CONDUITS (6 OFF)
PROPOSED FOOTING 7.5m x 7.5m WITH 6 OFF X PILES TO STRENGTHEN EXISTING FOOTING
E.L. 0.0m
GROUND LEVEL
(BASE OF POLE)
(R.L. 7.3m AHD)
EXISTING 4.5m x 4.5m MONOPOLE FOOTING
FE
DETAIL
1
S3
SCALE 1:50
FOR CONSTRUCTION
DO NOT SCALE
servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au
ORDER | DRAWN | CHKD | AMENDMENT | EXAM | APPD | DATE | ISS
VT19750.01 | NH | SS | FOR CONSTRUCTION - 30084106WO251SSNC - NR850/L1800/L2100/2600/NR3500 | MN | AA | 16.11.21 | 1
VT19750.01 | NH | SS | LOCATE TASWATER U/G ASSET | MN | AA | 20.04.22 | 2
Telstra
MOBILE NETWORK SITE 25010
NEW TOWN CMTS
SITE ELEVATION SHEET 2 OF 2
1 BELL ST, NEW TOWN, TAS 7008
DWG NO. TX660
SHT NO. S3-1
Cad file: TX660.DWG
A3
© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.

TELSTRA MOBILES ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA ACTION REQUIRED	ANTENNA HEIGHT C/L A.G.L.	PHYSICAL ANTENNA BEARING (°T)	SECTOR NO. & TECHNOLOGY
A1	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	80°	S1: LTE700/NR850/WCDMA850 S1: LTE700/NR850/WCDMA850
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
					S1: LTE1800/LTE2100 S1: LTE1800/LTE2100
A2	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	200°	S2: LTE700/NR850/WCDMA850 S2: LTE700/NR850/WCDMA850
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
					S2: LTE1800/LTE2100 S2: LTE1800/LTE2100
A3	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	320°	S3: LTE700/NR850/WCDMA850 S3: LTE700/NR850/WCDMA850
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
					S3: LTE1800/LTE2100 S3: LTE1800/LTE2100
A4	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	80°	S1: LTE700/NR850 S1: LTE700/NR850
					S1: LTE2600 S1: LTE2600
					S1: LTE2600 S1: LTE2600
A5	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	200°	S2: LTE700/NR850 S2: LTE700/NR850
					S2: LTE2600 S2: LTE2600
					S2: LTE2600 S2: LTE2600
A6	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	35.0m	320°	S3: LTE700/NR850 S3: LTE700/NR850
					S3: LTE2600 S3: LTE2600
					S3: LTE2600 S3: LTE2600
A7	ERICSSON AIR6488 PANEL 810 x 400 x 200mm	INSTALL	35.86m	80°	S1: NR3500 S1: NR3500
A8	ERICSSON AIR6488 PANEL 810 x 400 x 200mm	INSTALL	35.86m	200°	S2: NR3500 S2: NR3500
A9	ERICSSON AIR6488 PANEL 810 x 400 x 200mm	INSTALL	35.86m	320°	S3: NR3500 S3: NR3500
A1 (OLD)	ARGUS CNNPX308R-6P PANEL 2120 x 370 x 120mm	REMOVE	35.0m	80°	-
A2 (OLD)	ARGUS CNNPX308R-6P PANEL 2120 x 370 x 120mm	REMOVE	35.0m	200°	-
A3 (OLD)	ARGUS CNNPX308R-6P PANEL 2120 x 370 x 120mm	REMOVE	35.0m	320°	-
A4 (OLD)	ARGUS RVVPX303.6F12B2 PANEL 920 x 353 x 209mm	REMOVE	32.0m	80°	-
A5 (OLD)	ARGUS RVVPX303.6F12B2 PANEL 920 x 353 x 209mm	REMOVE	32.0m	200°	-
A6 (OLD)	ARGUS RVVPX303.6F12B2 PANEL 920 x 353 x 209mm	REMOVE	32.0m	320°	-

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE

DO NOT SCALE

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S3

FOR CONSTRUCTION

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
VT19750.01	NH	SS	FOR CONSTRUCTION - 30084108WC251SSNC - NR850/L1800/L2100/2600/NR3500	MN	AA	16.11.21	1

servicestream
ESSENTIAL NETWORK SERVICES
Level 10, 8 West Street, North Sydney, NSW 2060
T +61 3 9677 8888 | www.servicestream.com.au

Telstra

MOBILE NETWORK SITE 25010
NEW TOWN CMTS
ANTENNA CONFIGURATION TABLE
1 BELL ST, NEW TOWN, TAS 7008

DWG NO. TX660 SHT NO. S3-2

© Telstra Corporation Limited ABN 33 051 775 556 All rights reserved.

Cad file: TX660.DWG A3V

ServiceStream

22 February 2022

Att: Liz Wilson
Acting Senior Statutory Planner
City Planning
Hobart City Council

Email: coh@hobartcity.com.au

Dear Liz,

RE: 1 BELL STREET, NEW TOWN UPGRADING OF EXISTING TELECOMMUNICATIONS FACILITY AND ASSOCIATED WORKS APPLICATION NO. PLN21823

I refer to your letters dated 14th and 21st January 2022 requesting further information in relation to the above planning permit application.

In addition to submitting revised plans, we provide the following response to the information requested:

TasWater - TW1 – Reference No. TWDA 2022/00045HCC

An assessment has been completed by our Build Contractors to address TasWater's request for information regarding the proposed footing upgrade and earthworks which are proximate to underground water mains infrastructure within the hockey centre grounds.

The submitted plans include details of the underground water infrastructure relative to the proposed footing upgrade with a notation how the pipe was located.

Following consultation and advice received from TasWater, the submitted plans also include a cross-section footing plan which proposes the installation of a protective sleeve to ensure the water mains pipe in its current location will not be impacted by Telstra's footing upgrade works.

Potentially Contaminated Land - PCL1 – Contamination Environmental Site Assessment, Remediation and/or Protection Measures and Statement of Suitability

A Contamination Environmental Site Assessment Report prepared by a suitably qualified and experienced person in accordance with the procedures and practices detailed in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM) as amended 2013, is attached.

The Report, prepared by Greencap, includes a statement that the excavation works will not adversely impact on human health or the environment, and concluded that a Remediation and/or Protection Plan is not required.

ServiceStream

Open Space Planning – OS1 – Flood lighting and Use of Hockey Fields during Construction

Our Build Contractors have advised:

As part of the works, the lighting switch board will need to be moved and placed somewhere else with a temporary connection until the footing upgrade works are completed. The switchboard will then be reinstated after the upgrade is completed and mounted back on the new footing. This will take between 3 to 5 hours.

Prior to any plan for construction and after the planning permit is granted, the build contractor will coordinate with Hockey Tasmania to confirm a suitable date and time so they can proceed with the works.

A build schedule will be developed and agreed with Council and the Hockey Association to ensure that the use of the hockey fields will not be disrupted during construction works.

I trust the submitted documents and response adequately address the information requested to enable this planning application to progress.

Yours sincerely,

Barbara Grinter
Senior Planning Consultant
ServiceStream Limited

Attachments:

- Revised Plans - including details of underground water infrastructure and Cross-Section Footing Plan
- Contamination Environmental Site Assessment Report including Statement of Suitability prepared by Greencap, February 2022

GREENCAP
Going Further in Managing Risk

Level 1 / 677 High Street
Kew East VIC 3102
Australia
T: (03) 9890 8811
F: (03) 9890 8911

ENVIRONMENTAL SITE ASSESSMENT

February 2022
J176373

SERVICE STREAM MOBILE COMMUNICATIONS

1 Bell Street, New Town, Tasmania

C125128 : TM

greencap.com.au
ABN 76 006 318 010
Adelaide | Auckland | Brisbane | Canberra | Darwin | Melbourne | Perth | Sydney | Wollongong

February 2022

GREENCAP
Going Further in Managing Risk

Document Control

Document Quality Management Details		
Report Name:	Environmental Site Assessment	
Site Details:	1 Bell Street, New Town, Tasmania	
Project Number:	J176373	
Client Name:	Service Stream Mobile Communications Pty Ltd	
Client Number:	C125128	
Signatures:	Prepared By: Tary Mathew Consultant - Environmental	Authorised By: Kris Knight Team Manager - Environmental

Issue Status

Version No.	Date	Creator	Reviewer
1	10/02/2022	Tary Mathew	Kris Knight

Document Circulation

No of Copies	Type	Customer Name	Company
1	Electronic	Barbara Grinter	Service Stream Mobile Communications

February 2022

GREENCAP
Going Further in Managing Risk

Executive Summary

Greencap Pty Ltd was engaged by Service Stream Mobile Communications Pty Ltd to undertake an environmental site assessment at a portion of 1 Bell Street, New Town, Tasmania ('the site').
The site had an approximate combined land area of 6.27 ha and comprises of hockey field. However, the investigation area is limited to the immediate vicinity of the flood light and mobile telecommunications facility and equipment shelter at the site (approximately 40 m2).
Review of site history information found that the site historically was vacant land until at least 2004. The communications tower was erected between 2004 and 2011. Minor earthworks occurred at the site in circa 1950 - 1960s during the construction of the Brooker Highway. Additionally, during the construction of the hockey centre's redevelopment circa 2000s cut and fill occurred on the wider hockey centre site. There was limited other onsite and offsite historical activities of contaminant concern identified within the desktop site history assessment. Based on the review of site history information and historical imagery the site was considered to have a low risk of contamination.
Baseline soil sampling was undertaken at the site in January 2022 and included the collection of soil samples from 5 boreholes in a general gridded pattern across the site to a maximum depth of 0.65 m using hand auger. Fill soils generally comprised sandy silt with fine grained sand and heterogeneous clay/gravel/sand mixtures. Natural soils were encountered at selected locations and generally comprised low plasticity, brown to grey clay with fine grained gravels. No evidence of asbestos containing material was observed during the site works. No staining or odours indicative of potential contamination were observed during the investigation.
Contaminant concentrations recorded in soils at the site were less than the adopted human health and ecological investigation levels for a commercial/industrial land use. Based on the results of the assessment, soils at the site were considered unlikely to pose an unacceptable risk to future occupiers of the site for a commercial/industrial and larger site recreational land use.

Based on the results of the assessment, the site is fit for use as a flood light and mobile telecommunications facility within a wider recreational space (hockey centre), and is considered a low risk to human health and the local environment.

Furthermore, Greencap do not consider further environmental assessment and/or remediation including an environmental audit or a remediation action plan at the site as warranted.

Adelaide | Auckland | Brisbane | Canberra | Darwin | Melbourne | Perth | Sydney | Wollongong

February 2022

GREENCAP
Going Further in Managing Risk

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Table of Contents

Executive Summary III
1. Introduction 1
2. Background 1
3. Project Objectives 1
4. Project Scope 1
5. Site Information 1
5.1 Site Geology 2
5.2 Site Topography 2
5.3 Site Hydrogeology 2
5.3.1 Regional Groundwater Bore Search 2
6. Site Inspection 2
7. Site History Assessment 2
7.1 Historical Aerial Photographs 2
7.2 EPA Regulated Premises 3
7.3 EPA Notices 4
7.4 Summary of Site History 4
8. Summary of Contaminants of Potential Concern 4
9. Regulatory Framework for Soil Assessment 5
9.1 National Environment Protection Measure (NEPM) Investigation Levels 5
9.2 Land use settings 5
9.2.1 Maintenance of Ecosystems 6
9.2.2 Human Health 6
9.2.4 Aesthetics 7
9.2.5 Buildings and Structures 7
10. Soil Assessment Methodology 7
10.1 Sampling Program 7
10.2 Analytical Schedule 8
10.3 Quality Control/Quality Assurance Procedures 8
11. Assessment Criteria 9
11. 1 Chemical Contamination Criteria 9
12. Soil Assessment Results 11

Adelaide | Auckland | Brisbane | Canberra | Darwin | Melbourne | Perth | Sydney | Wollongong

12.1 Field Observations 11
12.2 Soil Analytical Results 11
12.3 Quality Control/Quality Assurance Results 11
13.Discussion 12
13.1 Soil Contaminant Status 12
13.2 Potential Impacts to Soil Protected Beneficial Uses 12
13.2.1 Maintenance of Ecosystems 12
13.2.2 Human Health 12
13.2.3 Buildings and Structures 12
13.2.4 Aesthetics 12
14. Conceptual Site Model 12
14.1 Setting 12
14.2 Potential Contamination Sources 12
14.3 Potential Release Conditions, Contaminant Pathways/Transport Mechanisms 13
14.4 Potential Receptors 13
14.5 Exposure Pathways 13
14.6 Exposure Pathway Likelihood and Qualitative Risk Assessment 14
15. Data Gaps 15
16. Conclusion 15
Figures I
Tables II
Appendix A: Service Plan III
Appendix B: Soil Map and Geological Map IV
Appendix C: Site inspection Photographs V
Appendix D: Historical Aerial Photographs VI
Appendix E: NATA Certified Analytical Results and COC VII
Appendix F: Soil Log VIII
Appendix G: Report Maps and Enviro-Screen Report IX

February 2022

GREENCAP
Going Further in Managing Risk

Statements of Limitation

All and any Services proposed by Greencap to the Client are subject to the Terms and Conditions listed on the Greencap website at: https://www.greencap.com.au/terms-conditions. Unless otherwise expressly agreed to in writing and signed by Greencap, Greencap does not agree to any alternative terms or variation of these terms if subsequently proposed by the Client. The Services are to be carried out in accordance with the current and relevant industry standards of testing, interpretation and analysis. The Services are to be carried out in accordance with Commonwealth, State or Territory legislation, regulations and/or guidelines. The Client will be deemed to have accepted these Terms when the Client signs the Proposal (where indicated) or when the Company commences the Services at the request (written or otherwise) of the Client.

The services were carried out for the Specific Purpose, outlined in the body of the Proposal. To the fullest extent permitted by law, Greencap, its related bodies corporate, its officers, consultants, employees and agents assume no liability, and will not be liable to any person, or in relation to, any losses, damages, costs or expenses, and whether arising in contract, tort including negligence, under statute, in equity or otherwise, arising out of, or in connection with, any matter outside the Specific Purpose.

The Client acknowledges and agrees that proposed investigations rely on information provided to Greencap by the Client or other third parties. Greencap makes no representation or warranty regarding the completeness or accuracy of any descriptions or conclusions based on information supplied to it by the Client, its employees or other third parties during provision of the Services. The Client releases and indemnifies Greencap from and against all Claims arising from errors, omissions or inaccuracies in documents or other information provided to Greencap by the Client, its employees or other third parties. Under no circumstances shall Greencap have any liability for, or in relation to, any work, reports, information, plans, designs, or specifications supplied or prepared by any third party, including any third party recommended by Greencap.

The Client will ensure that Greencap has access to all sites and buildings as required by or necessary for Greencap to undertake the Services. Notwithstanding any other provision in these Terms, Greencap will have no liability to the Client or any third party to the extent that the performance of the Services is not able to be undertaken (in whole or in part) due to access to any relevant sites or buildings being prevented or delayed due to the Client or their respective employees or contractors expressing safety or health concerns associated with such access.

Greencap, its related bodies corporate, its officers, employees and agents assume no liability and will not be liable for lost profit, revenue, production, contract, opportunity, loss arising from business interruption or delay, indirect or consequential loss or loss to the extent caused or contributed to by the Client or third parties, suffered or incurred arising out of or in connection with our Proposals, Reports, the Project or the Agreement. In the event Greencap is found by a Court or Tribunal to be liable to the Client for any loss or damage arising in connection with the Services, the Client's entitlement to recover damages from Greencap shall be reduced by such amount as reflects the extent to which any act, default, omission or negligence of the Client, or any third party, caused or contributed to such loss or damage. Unless otherwise agreed in writing and signed by both parties, Greencap's total aggregate liability will not exceed the total consulting fees paid by the client in relation to this Proposal. For further detail, see Greencap's Terms and Conditions available at https://www.greencap.com.au/terms-conditions

The Report is provided for the exclusive use of the Client for this Project only, in accordance with the Scope and Specific Purpose as outlined in the Agreement, and only those third parties who have been authorised in writing by Greencap. It should not be used for other purposes, other projects or by a third party unless otherwise agreed and authorised in writing by Greencap. Any person relying upon this Report beyond its exclusive use and Specific Purpose, and without the express written consent of Greencap, does so entirely at their own risk and without recourse to Greencap for any loss, liability, or damage. To the extent permitted by law, Greencap assumes no responsibility for any loss, liability, damage, costs or expenses arising from interpretations or conclusions made by others or use of the Report by a third party. Except as specifically agreed by Greencap in writing, it does not authorise the use of this Report by any third party. It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

The conclusions, or data referred to in this Report, should not be used as part of a specification for a project without review and written agreement by Greencap. This Report has been written as advice and opinion, rather than with the purpose of specifying instructions for design or redevelopment. Greencap does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise in relation to the site it investigated. This Report should be read in whole and should not be copied in part or altered. The Report as a whole sets out the findings of the investigations. No responsibility is accepted by Greencap for use of parts of the Report in the absence (or out of context) of the balance of the Report.

February 2022

GREENCAP
Going Further in Managing Risk

1. Introduction

Greencap Pty Ltd (Greencap) was engaged by Service Stream Mobile Communications Pty Ltd to undertake a baseline environmental site assessment (ESA) at 1 Bell Street, New Town, Tasmania ('the site').

A figure depicting the site location has been included as **Figure 1** in the **Figures** section of this report.

2. Background

The hockey centre has an approximate combined land area of 58,406 m^2 and the Telstra tower upgrade area is approximately 40 m^2 which is on the northern side of the hockey centre. Greencap understands that the upgrade will require earthworks to upgrade the flood light pole and footings where the Telstra antennas are installed to be upgraded. A copy of a site development plan showing the site area and surrounding infrastructure is included in **Appendix A**.

Greencap was requested to undertake an ESA to assess the contaminant status of the site as Hobart City Council has advised that the site is potentially contaminated.

3. Project Objectives

The objective of the assessment was to collect analytical data representative of the soil conditions of the site, attributable to previous/current activities and/or the environmental setting.

- To reduce the uncertainty associated with soil contamination that may be present within in-situ soils onsite; and, if required
- Provide recommendations and if required, assist with management procedures of contaminated soils at the site during and post redevelopment of the site.

4. Project Scope

As part of the assessment Greencap undertook the following:

- Site walkover;
- Desktop site history, including documentation review;
- Collection of soil samples;
- Laboratory analysis of samples;
- Assessment of analytical results against appropriate national and state criteria;
- Prepare an environmental site assessment report; and
- Preparation of an environmental management plan, if required.

5. Site Information

General site information is provided in Table 1.

Table 1: Site Information	
Site Address:	**1 Bell Street , New Town, Tasmania**
Property Identification:	2891281
Title Reference	153814/1
Approximate Area:	6.27 ha
Current Zoning:	**Planning Zone:** • Zone number: 18 Zone: Recreation
Current Site Use:	Flood light and mobile telecommunications facility
Proposed Site Use:	Flood light and mobile telecommunications facility
Potential Site Users:	Maintenance workers and visitors

Surrounding Site Use:	**North**	Brooker Highway and Residential apartments at Cornelian Bay
	East	Grassland, Brooker highway, Cornelian Bay
	South	Residential properties
	West	Sportsground, residential and commercial area
Surface Water Bodies:	**Surface Drain**	Onsite
	Cornelian Bay	435 m east of the site

5.1 Site Geology

Regional geological information for the site was obtained from the 1:100,000 scale Reconnaissance Soil Map series of Tasmania -Hobart and Geological Map of Tasmania 1:500,000

Review of the Map Sheet found that the site is underlain by undifferentiated soils developed on Quaternary alluvium, slopes of deep dark clays, comprising of sand, gravel and mud of alluvial soil.

An extract of the geological map is provided in **Appendix B**. Refer to **Appendix -H (Map 1.4a)**

5.2 Site Topography

Based on topographical maps and site observations, the site had varying topography. The site has an average slope of 5.9 degrees and topography of 5 – 10 m AHD.

5.3 Site Hydrogeology

5.3.1 Regional Groundwater Bore Search

Aquifer type is porous, extensive aquifers of low to moderate productivity. The registered ground water bore (ID – 2864) is off site in the south-east direction. Refer to **Appendix -H (Map 2.1)**.

6. Site Inspection

A site inspection by Greencap environmental consultant was undertaken on 24 January 2022. Photographs from the site inspection are provided in **Appendix C**. During the site inspection the following observations were noted:

- The site was completely covered in grass and the Flood light and mobile telecommunications facility;
- The site was bound by the Brooker Highway to the north and east, vacant land on the west, hockey centre to the south;
- The western portion comprised vacant land with tree vegetation;
- No evidence of asbestos containing material was observed on the site; and
- No visual or odour contamination was observed at or on site.

7. Site History Assessment

A review of available site history information undertaken at the time of reporting is provided in the following section.

7.1 Historical Aerial Photographs

A review of historical aerial photographs of the site dating back to the 1946 was undertaken as part of this assessment. A summary of the observations made from these photographs is provided in Table 2.

Table 2: Summary of Aerial Photograph Observations

Year	Observations
1946	**Onsite:** The site appeared to be vacant pastural land with a large commercial style building and ancillary structures (possibly a depot) to the south of the larger hockey centre site. **Offsite:** The surrounding site area was largely vacant pastural land with residential properties located to the south of the site across Bellevue Parade. Further to the north-east a cemetery occupies a large portion of land.

Table 2: Summary of Aerial Photograph Observations	
Year	Observations
1957	**Onsite:** Some minor earthworks or stockpiling of materials (possibly from the development of Brooker Highway has occurred at the investigation area. The wider hockey centre site has been developed into sports fields with 2 additional north south aligned shed like structures to the near south of the investigation area. The commercial property to the south of the wider site has been reshaped as a result of the sports fields and no longer appears to be used as possible storage area/depot **Offsite:** The Brooker Highway has begun being built and a possible site sheds area is present to the immediate north of this. The property to the west of the hockey centre has been converted into a cricket field.
1969	**Onsite:** The mounded earthworks at the investigation area has been removed. **Offsite:** Brooker Highway has been completed, further residential dwellings have been erected to the south of Bellevue Parade. A commercial precinct has been built where the previous site sheds were in 1957. Cornelian Bay Sports Ground to the east of site across Brooker Highway have begun being developed.
1977	**Onsite:** The site appeared to have car parking lot next to the buildings on the south **Offsite:** General continued residential and commercial development in the region.
1984	**Onsite:** The smaller of the 2 northern sheds has been removed from adjacent to the investigation area. **Offsite:** No significant changes since 1977
1993	**Onsite:** The wider site has had a hockey field constructed in the centre of site in an east – west alignment **Offsite:** No significant changes since 1984
2004	**Onsite:** Another hockey field was constructed on site east side of the wider site in a north – south alignment. The commercial building in the south of the wider site has been demolished with a concrete floor remaining in use as a car park in the place of it. **Offsite:** No major changes since 1993
2011	**Onsite:** The communications tower and associated equipment shelter has been erected at the investigation area. On the wider hockey centre site the previous hockey field and shed in the north has been replaced, two new hockey fields in a south-south alignment have been built. Mounded areas to the north of each of the 3 hockey fields are present (outside of the investigation area), these materials have presumably been placed as a result of the wider hockey centres redevelopment (i.e. cut and fill). **Offsite:** No significant changes since 2004
2021	**Onsite:** There appeared to be relatively little change on site from the 2011 aerial photograph. **Offsite:** There appeared to be relatively little change from the 2011 aerial photograph.

Copies of historical aerial photographs are provided as **Appendix D.**

7.2 EPA Regulated Premises

The EPA provides information via the Land Information System Tasmania (LISTmap). Specifically:

- 'EPA Regulated Premises' identifies the location of currently regulated Level 2 premises as well as contaminated sites which are currently regulated.
- 'EPA Underground Petroleum Storage Systems'. This layer shows sites where the EPA has received notification of the registration, temporary decommissioning or permanent decommissioning of underground petroleum storage systems (UPSS) since 2010.

Typically, these are sites where pollution of land and/or groundwater presents an unacceptable risk to human health or to the environment.

These documents are linked directly to the EPA's internal regulatory database so that any changes are automatically updated to LISTmap within 24 hours. This service ensures that the public are provided with up-to-date information on environmental regulation throughout Tasmania. A search on the LISTmap found the site was not listed on the register. There were two (2) EPA Regulated premises for Tasmania listed within 500 m of the site and are listed as follows :

- Selfs Point Wastewater Treatment Plant (460 m, north of site)

- Underground Petroleum Storage System (UPSS) (245 m, north-west of site)

Refer to Map 3.2 provided in **Appendix H.**

7.3 EPA Notices

A search of the database indicated that at the time of preparing this report no properties located within 1 km of the site was listed.

7.4 Summary of Site History

Review of site history information found that the site historically was a vacant land with a building in the south that appeared to be a warehouse. The northern and eastern portion were also vacant and over the years the surrounding area developed into a predominantly residential area.

A summary of the site history information and associated risk of contamination is provided in Table 3.

Table 3: Site Contamination Risk Rating

Site History Results		Potential Contamination Risk Rating (High, Medium of Low)
Aerial Photographs	Historical Business Data	
Onsite remained generally vacant pasture between 1946 to 1984. The hockey centre underwent progressive development between 1984 and present day. The communications tower and equipment shelter erected between 2004 and 2011. Possible earthworks at the investigation area in circa 1950s – 1960s due to the construction of Brooker Highway. Offsite residential, recreational and commercial development occurred from 1957 onwards.	Onsite remained generally vacant between 1946 to 2014. 2015- Tasmanian Hockey Centre Function Room Offsite development occurred from 2005 onwards with activities such as sporting goods, restaurants and building restoration	Low

Based on the site setting and review of available site history documentation, the site was considered to have a low potential for soil contamination where the mobile communications tower is to be upgraded.

8. Summary of Contaminants of Potential Concern

An outline of the contaminants of potential concern which may be associated with the land uses based on review of available site history information is provided in Table 4.

Table 4: Summary of Contaminants of Potential Concern

Land use	Potential Contaminants of Concern
Potential Onsite Sources of Contamination	
Imported (uncontrolled) fill material	Heavy metals, Pesticides (including Organochloride (OCPs) and Organophosphorus (OPPs)) and Herbicides, Polychlorinated Bi-phenyls (PCBs), Polyaromatic Hydrocarbons (PAHs), Asbestos Containing Material (ACM), Total Recoverable Hydrocarbons (TRH), and Benzene, Toluene, Ethylbenzene and Xylenes (BTEXN)
Potential Offsite Sources of Contamination	
Imported (uncontrolled) fill material on the rest of the area of the hockey centre	Heavy metals, Pesticides (including OCPs and OPPs) and Herbicides, PCBs, PAHs, ACM, TRH, and BTEXN

9. Regulatory Framework for Soil Assessment

9.1 National Environment Protection Measure (NEPM) Investigation Levels

The Site Contamination NEPM (1999 as amended 2013) provides a range of investigation and screening levels for contaminants in soil and groundwater, at levels to protect human health and ecology under different land use scenarios. This assessment for a commercial/industrial land use (communications towe) in a wider recreational (public open space) land use setting, thus will focus on human health risk and determine whether substances are present at levels that are likely to be harmful to human health.

Health Investigation levels (HILs) and Health screening levels (HSLs) are contaminant concentrations which, if exceeded, should lead to further appropriate investigation and evaluation. They are not clean-up or response levels. The fact that a site has contaminant concentrations above a screening level does not necessarily mean there is an unacceptable health risk; rather, it is a trigger to undertake further assessment. This includes considering the range of analytical results, the average and maximum concentrations, the 95% Upper Confidence Limit (UCL), the number above the HIL, and the magnitude of any elevated results.

HILs are intentionally conservative; soil levels slightly in excess of the HILs do not imply unacceptability or a significant health risk, but that further investigation is required. Comparing site data with generic screening levels for the relevant land use is considered a Tier 1 risk assessment, using conservative screening levels for the initial assessment and can be used to determine the need for further assessment or development of an appropriate management strategy[1].

9.2 Land use settings

Investigation and screening levels for human health and environmental protection have been developed for various generic land use settings and are described below (adapted from NEPM S.B7).

- Urban residential areas:
  - With significant soil access (e.g "low density" residential and other sensitive uses e.g. primary schools, child care centres) = HIL-A
  - Without significant soil access (e.g. "high density" residential areas) = HIL-B
- Public open space = HIL-C
- Commercial and industrial land uses = HIL-D
- Areas of ecological significance (for ecological investigations).

Note: Potential ecological impacts should be considered in each contamination assessment, including considering their relevance in the context of the land use. A pragmatic risk-based approach should be taken in applying Ecological Investigation/Screening Levels in residential and commercial/industrial land use settings.

In this case, the site is in the middle of an urban environment and Greencap understands that the site soils are likely to be covered with buildings, vegetation and other landscaping in a commercial/industrial development and thus it represents a highly modified ecosystem. The ecological values, and other beneficial uses, are not the primary focus of this report and are discussed briefly after human health.

[1] Investigation and screening levels are intended to be used for assessing existing contamination and - when they are exceeded - to trigger consideration of an appropriate site-specific risk-based approach or appropriate risk management options. Using them as default remediation criteria is inappropriate and may result in unnecessary remediation and unnecessary disturbance to the site and local environment (which may indirectly lead to additional spread of contamination and risk).

9.2.1 Maintenance of Ecosystems

The protection of the beneficial use 'Maintenance of Ecosystems' is assessed with reference to the NEPM (1999 as amended 2013) Ecological Investigation Levels (EILs).

The EILs are derived for the protection of terrestrial ecosystems for common contaminants in soil based on a species sensitivity distribution model developed for Australian conditions. The methodology considers the physicochemical properties of soil and contaminants and the capacity of the local system to accommodate increases in contaminant levels above ambient background. The methodology assumes that only contaminant levels over and above this background concentration could have an adverse effect on the environment. The EILs have been developed for the following three generic land uses with differing levels of protection:

- **Areas of ecological significance:** planning provision or land use designation is for the primary intention of conserving and protecting the natural environment. This includes: national parks, state parks, wilderness areas and designated conservation areas. Level of protection is 99%.
- **Urban residential areas and public open space:** Broadly equivalent to HIL A, B, and C land use. Level of protection is 80%.
- **Commercial and industrial land uses**: Level of protection is 60%.

EILs were calculated based on site specific parameters using the spreadsheet included in the ASC NEPM Toolbox calculator for aged contamination. In the absence of site-specific data, EILs were calculated based on normalisation data for Australian soils (Schedule B5b NEPM 1999 as amended 2013); cation exchange capacity (CEC) of 10 cmolc/kg dwt, organic carbon content (OC) of 1 %, soil pH of 6.0 and based on a Victorian location and a high traffic volume.

With reference to EILs at urban residential/public open space sites the NEPM (1999 as amended 2013) notes that: "In most circumstances, hospitals, day care centres, pre-schools, primary schools and secondary schools belong to this land use".

Based on the location of the site, the 'urban residential and public open space' land use EILs (80% level of protection) were considered for the beneficial use of maintenance of ecosystems for the wider site, noting the investigation area is considered commercial/industrial land use with a 60% level of protection.

9.2.2 Human Health

The protection of the beneficial use 'Human Health' is assessed with reference to the NEPM (1999 as amended 2013) Health Investigation Levels (HILs). The HILs have been developed for a broad range of metals and organic substances. The HILs are applicable for assessing human health risk via all relevant pathways of exposure. The HILs are generic to all soil types and apply generally to a depth of 3 m below the surface for residential use. Site-specific conditions should determine the depth to which HILs apply for other land uses.

The HILs are defined in the NEPM (1999 as amended 2013) as: "Scientifically based, generic assessment criteria designed to be used in the first stage of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario for the following four generic land use settings":

HIL A: Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day-care centres, pre-schools, and primary schools.

HIL B: Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.

HIL C: Public open space such as parks, playgrounds, playing fields, secondary schools, and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves) which should be subject to a site-specific assessment where appropriate.

HIL D: Commercial/industrial such as shops, offices, factories, and industrial sites and for construction workers' health.

It is emphasised within the NEPM that HILs are not intended for use as default remediation trigger or remediation target criteria but are intended to prompt an appropriate site-specific assessment when they are exceeded. However, it is considered reasonable in the first instance to use these investigations limits as default acceptance criteria and consider impacts more closely in the event of an investigation limit being exceeded.

A Health Risk Assessment is considered the primary driver in making site decisions if elevated concentrations are reported. As well, additional factors such as aesthetic suitability, practicality, timescale, effectiveness, cost, sustainability and associated ecological risks should also be considered.

The human exposure setting and land use scenario 'HIL C' and 'HIL D' were adopted based on the nature of the proposed land use (commercial/industrial on a larger recreational site) and for the consideration of any site visitors and construction workers conducting future redevelopment works.

9.2.3 Interim HILs for volatile organic chlorinated compounds

In order to assess the vapour inhalation pathway, additional interim HIL soil vapour values for specific volatile organic chlorinated compounds (VOCCs) have been developed. The interim values developed provide guidance for health risks from soil contamination sources and groundwater associated with this group of compounds. These values generally apply to the same land uses as described above, though the values for A and B are combined as the vapour inhalation pathway is considered to be the same.

They have interim status pending further scientific work on volatile gas modelling from the sub-surface to building interiors for chlorinated compounds.

9.2.4 Aesthetics

The Land SEPP states that "contamination must not cause the land to be offensive to the senses of human beings". There are currently no specific numeric aesthetic guidelines, however site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared with industrial settings.

Aesthetic observations made in the field are detailed on the soil logs and if relevant were considered in the discussion.

9.2.5 Buildings and Structures

The Land SEPP states that "contamination must not cause the land to be corrosive to or adversely affect the integrity of structures or building materials". This is based on the following conditions that may be present:

- Unknown construction material of the building in the south side of the site

Field observations and pH analytical results can be used to assess extreme conditions (such as acidity) that might undermine structures/buildings.

10. Soil Assessment Methodology

10.1 Sampling Program

Soil sampling was undertaken at the site on 24 January 2022 and included the collection of soil samples from 5 boreholes using hand auger sampling method. The sample density was in general accordance with the *Australian Standard AS4482.1 – 2005* for a site of this size. It is noted that samples were collected from 0.1 m to 0.5 m and 0.1 m to 0.65 m

Sample locations are provided in **Figure 2** within the **Figures** section of this report.

Table 2: Soil Sampling Methodology	
Activity	**Detail / Comments**
Underground service location	Underground services were located by an independent contractor with Telstra accreditation (using electronic detection equipment) prior to sub-surface works being undertaken. Dial before you dig (DBYD) data was also reviewed prior to the works.
Decontamination of sampling equipment	Sampling was conducted using disposable gloves to obtain samples directly from the hand auger. Gloves were changed after every sampling point.
Soil inspection	The surface and subsurface soils encountered during field works were visually assessed for the presence of asbestos-containing materials (ACM).
Soil logging	Detailed soil borehole logs are included in **Appendix E**.
Soil Sampling	All soil boreholes were established using hand auger techniques. Soil samples were collected through the soil profile with samples generally collected from below surface 0.1 – 0.2 m bgl, 0.5 - 0.6 m bgl, 0.4 – 0.5 m bgl, 0.5 – 0.55 m bgl and 0.5 – 0.65 m bgl. Additional samples were collected for Quality check Sample collection, storage and transport were conducted according to Greencap standard operating procedures (SOP) including the use of disposable gloves and laboratory supplied containers. Upon collection, samples were placed immediately in laboratory supplied ice chests for transport. Samples were stored and transported under Greencap chain of custody (COC) documentation.
Reinstatement of soil cuttings	Soil cuttings were reinstated into sampling locations. So far as practicable soils were reinstated in the same order in which they were excavated from the borehole. No specialist reinstatement was undertaken as part of these works.

10.2 Analytical Schedule

Laboratories accredited with the National Association of Testing Authorities, Australia (NATA) were used for all soil laboratory testing undertaken during the investigation with Eurofins as the primary laboratory and Envirolab used as the secondary laboratory.

Soil samples were submitted to Eurofins for a combination of the following analyses:

- Heavy Metals;
- PAH;
- TRH;
- BTEXN;
- PCB
- pH;
- Organochlorine pesticides
- Organophosphorus pesticides
- Triazines
- NEPM 2013 Acid Herbicides
- NEPM 2013 Organochlorine pesticides
- NEPM 2013 Phenols

10.3 Quality Control/Quality Assurance Procedures

Greencap quality assurance/quality control (QA/QC) procedures were implemented throughout the investigation to assess data quality. The QA/QC program undertaken by Greencap included the following:

- Preservation of samples in chilled containers and ice during transport from the field to the laboratory;
- Transportation of samples with accompanying chain of custody documentation;
- Compliance with sample holding times;
- Collection & analysis of blind replicates, splits, rinsates, field blank and trip blank samples; and

- Review of laboratory QA/QC samples including duplicates, blanks, matrix spikes, matrix spike duplicates, and surrogates.

The NATA certified analytical results are provided in **Appendix F.**

11. Assessment Criteria

Human health-based soil contamination assessment criteria are provided in the 2013 Amendment of the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (NEPM 2013) Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater.

Analytical results for soil samples are compared to a set of acceptance criteria (contaminant investigation levels) adopted from the NEPM 2013, to assess suitability of soils for the site's proposed use. The criteria is used to ensure the soil materials (to which site users may be exposed), are not contaminated and do not pose a health risk. The current use of the site is a flood light and mobile telecommunications facility. Greencap has selected "Commercial/Industrial D" land use for this investigation. Greencap has also factored the adjacent hockey centre "Recreational" land use for this investigation.

Soil Investigation Levels (SILs) are used to assess the significance of the concentrations of contaminants in soil. SILs are the concentration levels above which further appropriate evaluation and/or remediation are required.

Typically for contaminant concentration to be considered acceptable for the respective land use criteria, the data set must conform to the following requirements:

- 95% upper confidence limit (UCL) of the arithmetic mean of analytical results is below the site criteria.
- Standard deviation is less than 50% of the site criteria.
- No single sample analytical result is greater than 250% of the site criteria.

11. 1 Chemical Contamination Criteria

Criteria for chemical contaminants in soil is selected based on the Health-based Investigation Levels for "Commercial/Industrial D" land used presented in *NEPM 2013 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 1A (1).*

The criteria are presented in Table 3 below.

Table 3: Health investigation levels for soil contaminants

Chemical		Health-based investigation levels (mg/kg) Recreational[1] C	Health-based investigation levels (mg/kg) Commercial/Industrial[2] D
Metals	Arsenic	300	3,000
	Cadmium	90	900
	Chromium (VI)	300	3600
	Copper	17,000	240,000
	Lead	600	1,500
	Mercury (inorganic)	80	730
	Nickel	1,200	6,000
	Zinc	30,000	400,000
PAH	Carcinogenic PAHs (as BaP TEQ)	3	40
	Total PAHs	300	4,000
Phenols	Phenol	40,000	240,000
	Pentachlorophenol	120	660

Table 3: Health investigation levels for soil contaminants

Chemical		Health-based investigation levels (mg/kg) Recreational[1] C	Health-based investigation levels (mg/kg) Commercial/Industrial[2] D
	Cresols	4,000	25,000
Organochlorine Pesticides	DDT+DDE+DDD	400	3,600
	Aldrin and dieldrin	10	45
	Chlordane	70	530
	Endosulfan	340	2,000
	Endrin	20	100
	Hephtachlor	10	50
	HCB	10	80
	Methoxychlor	400	2,500
	Mirex	20	100
	Toxaphene	30	160
Other Organics	PCBs	1	7

Note:

1. HIL C – Recreational, includes sports fields, parks and reserves
2. HIL D – Commercial/industrial, includes premises such as shops, offices, factories and industrial site.

Soil criteria for vapor intrusion were selected based on the Health Screening Levels of vapour intrusion for "Commercial/Industrial D" land used presented in *NEPM 2013 – Schedule B 1 Guideline on Investigation Levels for Soil and Groundwater, Table 1A (3).*

The soil criteria are presented in Table 4 below.

Table 4: Soil Health Screening levels for vapour intrusion (mg/kg)*

	HSL D Commercial / Industrial – Sand	
	0m to < 1m	1m to < 2m
Toluene	NL	NL
Ethylbenzene	NL	NL
Xylenes	NL	NL
Naphthalene	NL	NL
Benzene	3	3
F1[2]	260	370
F2[3]	NL	NL

Note:

*Recreational/public open space does not have vapour intrusion criteria due to limited nature of enclosed spaces generally associated with parks and reserves

1. For soil texture classification undertaken in accord with AS 1726, the classifications of sand, silt and clay may be applied as coarse, fine with liquid limit <50% and fine with liquid limit >50% respectively as the underlying properties to develop the HSLs may reasonably be selected to be similar. Where there is uncertainty, either a conservative approach may be adopted or laboratory analysis should be carried out. In this particular case a conservative approach is adopted and the soil texture classification is assumed to be coarse (sand).
2. To obtain F1 subtract the sum of BTEX concentrations form the C6-C10 fraction.
3. To obtain F2 subtract naphthalene form the >C10-C16 fraction.

12. Soil Assessment Results

12.1 Field Observations

Fill soils generally comprised gravel, sand, that were pale brown with fine grained sand and clay/gravel/sand mixtures that was dark brown with fine to coarse grained, round gravels and medium plasticity clay.

Natural soils were not encountered at the site due to refusal on dense gravels and very stiff clays.

No evidence of asbestos containing material was observed during the site works. No staining or odours or solid inert waste indicative of potential contamination were observed during the investigation.

Photographs taken during site works have been included within **Appendix C** and Soil Log in **Appendix E**.

12.2 Soil Analytical Results

Contaminant concentrations were less than the adopted human health and ecological criteria for Recreational (HIL C) land uses and commercial/industrial (HIL D) land uses. These concentrations are measured against the NEPM standard and can be found in the **Tables** section of the report.

Detailed soil sampling results, NATA certified analytical results and Greencap chain of custody documentation are provided in **Appendix F**.

12.3 Quality Control/Quality Assurance Results

The evaluation of the Relative Percentage Differences (RPD) results (list in Table 9 below) shows that the established measurement data quality objectives for this project have generally been met and the data set is considered to be reliable. The manganese failure in RPD criteria are attributed to heterogeneity of the soils and noted as a normal occurrence.

Table 9: QA/QC comparison table

		LOR	Unit	SPS_600	SPS_600-QC	RPD	RPD Criteria	Result (Pass/ Fail)
Heavy Metal	Arsenic	2	mg/kg	< 2	4	N/A	No limit	Pass
	Barium	10	mg/kg	83	66	22.82%	< 50%	Pass
	Beryllium	2	mg/kg	< 2	<1	N/A	No limit	Pass
	Boron	10	mg/kg	11	<3	N/A	No limit	Pass
	Cadmium	0.4	mg/kg	< 0.4	<0.4	N/A	No limit	Pass
	Chromium	5	mg/kg	8.6	5	52.94%	No limit	Pass
	Cobalt	5	mg/kg	27	13	70.00%	No limit	Pass
	Copper	5	mg/kg	41	30	30.99%	< 50%	Pass
	Lead	5	mg/kg	11	7	44.44%	No limit	Pass
	Manganese	5	mg/kg	550	290	61.90%	< 50%	Fail
	Mercury	0.1	mg/kg	< 0.1	<0.1	N/A	No limit	Pass
	Molybdenum	5	mg/kg	< 5	<1	N/A	No limit	Pass
	Nickel	5	mg/kg	14	10	33.33%	No limit	Pass
	Selenium	2	mg/kg	< 2	<2	N/A	No limit	Pass
	Silver	2	mg/kg	< 2	<1	N/A	No limit	Pass
	Tin	10	mg/kg	< 10	<1	N/A	No limit	Pass
	Zinc	5	mg/kg	56	35	46.15%	< 50%	Pass

13.Discussion

13.1 Soil Contaminant Status

Contaminant concentrations recorded in soils at the site were less than the adopted human health and ecological criteria for recreational and commercial/industrial land uses and were not considered to present an unacceptable health risk to future users of the site.

13.2 Potential Impacts to Soil Protected Beneficial Uses

The beneficial uses of land that need to be protected at the site under the Environment Reference Standard (EPA Victoria) based on the proposed use include:

- Maintenance of Ecosystems (highly modified);
- Human Health;
- Buildings & Structures;
- Aesthetics.

13.2.1 Maintenance of Ecosystems

Contaminant concentrations recorded in soils at the site were less than the adopted ecological criteria for the continued land use and therefore were not considered to represent an unacceptable risk to the surrounding environment.

13.2.2 Human Health

Contaminant concentrations recorded in soil at the site were less than the adopted human health criteria for the proposed commercial/industrial land use and wider sites recreational land use and therefore were not considered to represent an unacceptable risk to human health.

13.2.3 Buildings and Structures

The recorded soil pH in the samples analysed ranged between pH 7.2 and 7.8. Recorded pH were compared against Standards Australia AS2159-2009 Piling – Design and Installation (2009). Based on the recorded pH the conditions would generally be considered non-aggressive for steel piles and concrete piles. Soils were considered unlikely to impact the beneficial use Buildings and Structures.

13.2.4 Aesthetics

Based on the minor nature and occurrence of foreign material, the beneficial use of aesthetics was considered unlikely to be precluded.

14. Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. A CSM provides the framework for identifying how a site became contaminated and how potential receptors may be exposed to contamination either in the present or future.

14.1 Setting

The site is underlain by undifferentiated soils developed on Quaternary alluvium, slopes of deep dark clays, comprising of sand, gravel and mud of alluvial soil. The site is currently a mobile communications tower with dedicated equipment shelter. The primary land uses surrounding the site were recreational (hockey centre) and residential.

14.2 Potential Contamination Sources

Past/current uses of the site that may have resulted in contamination are uncontrolled importation of fill material.

14.3 Potential Release Conditions, Contaminant Pathways/Transport Mechanisms

Contaminant release mechanisms may vary depending on the specific processes at the site but based on the site history information would generally have occurred from potential spills/leaks of chemicals used onsite.

Transport through the soil profile would potentially have occurred through the downward movement of the contaminants through permeable soils (for instance in the vicinity of services following a path of least resistance).

If contamination is present at the site, based on the site setting the potential transport mechanisms include:

- Movement of soils during excavation or development works;
- Leaching of contaminants through the soil profile;
- Extraction of groundwater from offsite groundwater bores;
- Creation of surface water runoff which may enter nearby drains or watercourses; and
- Creation of dust/vapour during potential demolition, excavation or development works where soils are disturbed.

Elevated concentrations of metals can be released by precipitation and disbursed across the site and surrounding properties by surface water runoff and wind (adsorbed onto dust particles).

14.4 Potential Receptors

Based on the proposed redevelopment works, potential receptors identified onsite include the following:

- Workers involved in potential future excavations and development works.
- Future users of the site;
- Flora and fauna; and
- Closest receiving off-site surface water body (Cornelian Bay to the east).

14.5 Exposure Pathways

Adverse health effects may be associated with contaminant exposure via ingestion, inhalation and/or direct contact pathways. A complete exposure pathway consists of the following elements:

- A source and mechanism for release;
- A storage and/or transport medium (e.g. contaminants are stored in soil, volatilise and are transported into the atmosphere);
- An exposure point, where the receptor comes in contact with the contamination; and
- An exposure route (e.g. inhalation and dermal contact and/or ingestion).

The physicochemical characteristics of the contaminant and the behaviour of the population of interest will determine the method of exposure and subsequent systemic absorption.

The following potential exposure pathways have been identified for the site:

- Dermal contact and/or direct ingestion of contaminated soils onsite;
- Inhalation of dust created during potential demolition, development or excavation works where soils are disturbed;
- Plants can be exposed to contamination through uptake of water, groundwater or nutrients through the root systems or through dust accumulation on leaf surfaces;
- Contamination can also have indirect effects on hydraulically down gradient sites and ecosystems through migration of contamination in groundwater; and
- Inhalation of vapours associated with contaminated soil and/or groundwater.

14.6 Exposure Pathway Likelihood and Qualitative Risk Assessment

Assessment of the likelihood for a complete exposure pathway and a Tier 1 qualitative risk assessment is provided in Table 5 based on the data contained within this report. The Tier 1 risk assessment has been completed by reviewing the likelihood of a complete pathway and the consequence of exposure referencing adopted investigation and screening levels compared with the recorded results.

Table 5: Tier 1 Risk Assessment

Receptor	Exposure Pathway	Pathway Likelihood	Risk Level	Reasoning
Current/ Future On-site workers/visitor	Dermal contact and/or direct ingestion of soils onsite during demolition, development or excavation works	Potential	Low	Soil testing results were below the adopted human health investigation and screening levels, indicating the risk of contaminated soils on-site is considered to be low.
	Inhalation of dust created during potential demolition, development or excavation works where soils are disturbed	Potential	Low	Soil testing results were all below the adopted human health investigation and screening levels.
	Dermal contact and/or ingestion of surface or groundwater contacted during potential demolition, development or excavation works where appropriate hygiene measures are not implemented	Potential	Low	Soil testing results were all below the adopted human health investigation and screening levels indicating the likelihood of contaminants leaching from soils into surface/groundwater to be low.
	Inhalation of vapours associated with contaminated soil and/or groundwater	Potential	Low	Soil testing results were all below the adopted human health investigation and screening levels for vapour intrusion, indicating vapour risks were unlikely.
	Buildings and structures can be affected by contamination through direct contact with contaminated soil or groundwater leading to corrosion or similar alteration of building materials	Unlikely	Low	Based on the pH of soils recorded at site it is considered that unlikely that buildings and structures will be adversely impacted by the recorded conditions.
Offsite Ecological Receptors	Plants can be exposed to contamination through dust accumulation on leaf surfaces	Unlikely	Low	Soil testing results were all below adopted ecological investigation and screening levels. Dust generated during construction activities is considered have a short duration and limited impact.
Off-site recreational and residential	Inhalation of dust created during excavation works onsite	Potential	Low	Soil testing results were all below the adopted human health investigation and screening levels for recreational and commercial/industrial use. The short-term nature of potential exposure to dust generated during excavation works/construction are considered to be low.

	Dermal contact with soil during excavation works	Unlikely	Low	Soil testing results were all below the adopted human health investigation and screening levels. It is considered unlikely that the general public would have access to exposed soils during excavation/construction at the site.

15. Data Gaps

Potential data gaps determined during this baseline assessment include the following:

- Inaccessible soils under hardstand and building footprint on the site;
- Natural soils were not intersected within the site investigation; and
- Groundwater contamination status on-site was unknown.

16. Conclusion

Greencap Pty Ltd was engaged by Service Stream Mobile Communications Pty Ltd to undertake an Environment Site assessment at Lot 2, 1 Bell street, New Town, Tasmania.

Review of site history information found that the site historically was vacant land until at least 2004. The communications tower was erected between 2004 and 2011. Minor earthworks occurred at the site in circa 1950 - 1960s during the construction of the Brooker Highway. Additionally, during the construction of the hockey centre's redevelopment circa 2000s cut and fill occurred on the wider hockey centre site. There was limited other onsite and offsite historical activities of contaminant concern identified within the desktop site history assessment.

Based on the review of site history information and historical imagery the site was considered to have a low risk of contamination.

Baseline soil sampling was undertaken at the site in January 2022 and included the collection of soil samples from 5 boreholes in a general gridded pattern across the site to a maximum depth of 0.65 m using hand auger. Fill soils generally comprised sandy silt with fine grained sand and heterogeneous clay/gravel/sand mixtures. Natural soils were encountered at selected locations and generally comprised low plasticity, brown to grey clay with fine grained gravels. No evidence of asbestos containing material was observed during the site works. No staining or odours indicative of potential contamination were observed during the investigation.

Contaminant concentrations recorded in soils at the site were less than the adopted human health and ecological investigation levels for recreational and commercial/industrial land use. Based on the results of the assessment, soils at the site were considered unlikely to pose an unacceptable risk to future occupiers of the site for a commercial/industrial and the wider sites recreational land use.

Based on the results of the assessment, the site is fit for use as a communication tower within a wider recreational space (hockey centre), and is considered a low risk to human health and the local environment.

Furthermore, Greencap do not consider further environmental assessment and/or remediation including an environmental audit or a remediation action plan at the site as warranted.

February 2022

GREENCAP
Going Further in Managing Risk

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Mobile Communications

1 Bell Street, New Town, Tasmania

Figures

Legend:

Metres: 0 25 50 75 100

Site Boundary

Site Location

GREENCAP
Going Further in Managing Risk

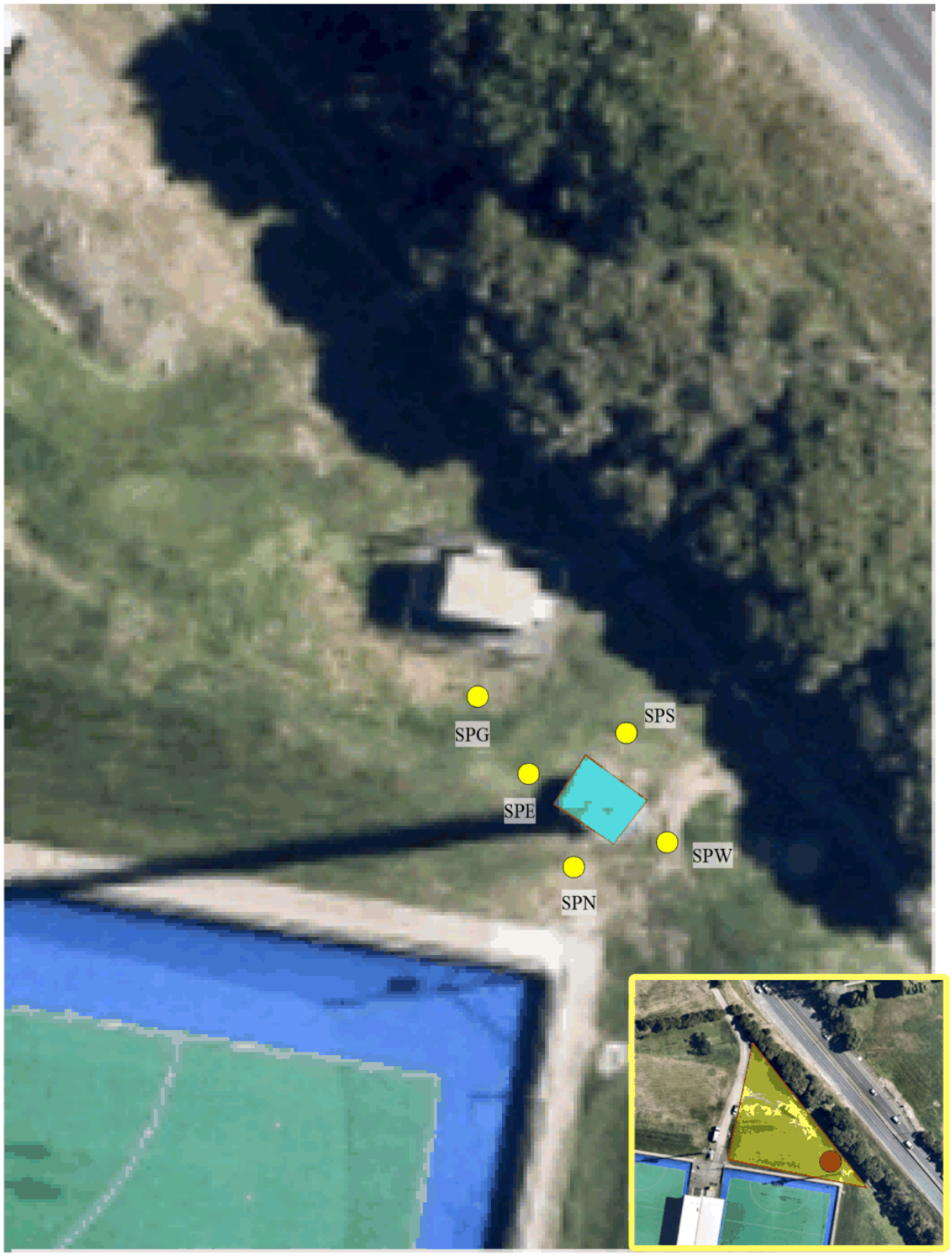
G, N - Building, 22 Giffnock Ave
Macquarie Park, NSW 2113

Ph: 02-9889-1800

Fx: 02-9889-1811

Client Name:	Service Stream Mobile Communications				
Client Number:	C125128		Project Number:	J176373	
Project Description:	Baseline Environment Site Assessment				
Address:	19 Bell St, New Town TAS 7008, Australia				
Prepared:	SW	Reviewed:	KK	Version Date:	08/02/2022
Figure 1	Site Location and Regional Context				

Disclaimer: Greencap Pty Ltd has produced this map for the purpose of presenting a summary of relevant spatial information and gives no warranty in relation to the data (including accuracy, reliability, completeness or suitability) and accepts no liability (including without limitation liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of or reliance upon the data. Data must not be used for direct marketing or be used in breach of privacy laws. Service Layer Credits: © 2019 NSW Land and Property Information (Six Maps)



Legend:

Metres: 0 2.5 5 7.5 10

- Site Boundary
- Tower Location
- Current Tower
- Sample Locations

GREENCAP
Going Further in Managing Risk

G, N - Building, 22 Giffnock Ave
Macquarie Park, NSW 2113

Ph: 02-9889-1800

Fx: 02-9889-1811

Client Name:	Service Stream Mobile Communications				
Client Number:	C125128	Project Number:	J176373		
Project Description:	Baseline Environmental Site Assessment				
Address:	19 Bell St, New Town Tamania 7008 Australia				
Prepared:	SW	Reviewed:	KK	Version Date:	08/02/2022
Figure 2	Site Layout and Sampling Locations				

Disclaimer: Greencap Pty Ltd has produced this map for the purpose of presenting a summary of relevant spatial information and gives no warranty in relation to the data (including accuracy, reliability, completeness or suitability) and accepts no liability (including without limitation liability for negligence) for any loss, damage or costs (including consequential damage) relating to any use of or reliance upon the data. Data must not be used for direct marketing or be used in breach of privacy laws. Service Layer Credits: © 2019 NSW Land and Property Information (Six Maps)

February 2022

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Tables

ATTACHMENT B

W
I

I

w b9ta

					t9	t9	tD	tD	tb	tb	t	t	t	t
		9v	b9ta IL w	b9ta IL w 5										
Ç 9														
9														
b														
Ç														
I														
Ç														
a /														
a														
I														
a														
L														
/														
a /														
I														
a														
/														
/														
/														
/														
/														
[														
a														
a														
a														
b														
Ç														
h														
/														
555														
55Ç														
5														
9														
9														
9														
9														
I														
a														
Ç														
h														
/														
t I														
/														
5														
Ç														
Ç														
L														
b														
t I														
t														
t														
t/														

W
I

I

w b9ta

GREENCAP
Going Further in Managing Risk

						t9	t9	tD	tD	tb	tb	t	t	t	t
		9v	b9ta IL w	b9ta IL w 5											
t/															
t a															
t a a t t t															
Ç tl / / C / / C / / C / / C / / C															
Ç w / / C b / / C / / C / / C / / C / / C															

9

b9ta
b9ta
b9ta w
b9ta w .

b 5 a

February 2022

GREENCAP
Going Further in Managing Risk

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix A: Service Plan

February 2022

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix B: Soil Map and Geological Map

February 2022

GREENCAP
Going Further in Managing Risk

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix C: Site inspection Photographs

February 2022

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix D: Historical Aerial Photographs

February 2022

GREENCAP
Going Further in Managing Risk

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix E: NATA Certified Analytical Results and COC

February 2022

Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix F: Soil Log

February 2022

GREENCAP
Going Further in Managing Risk

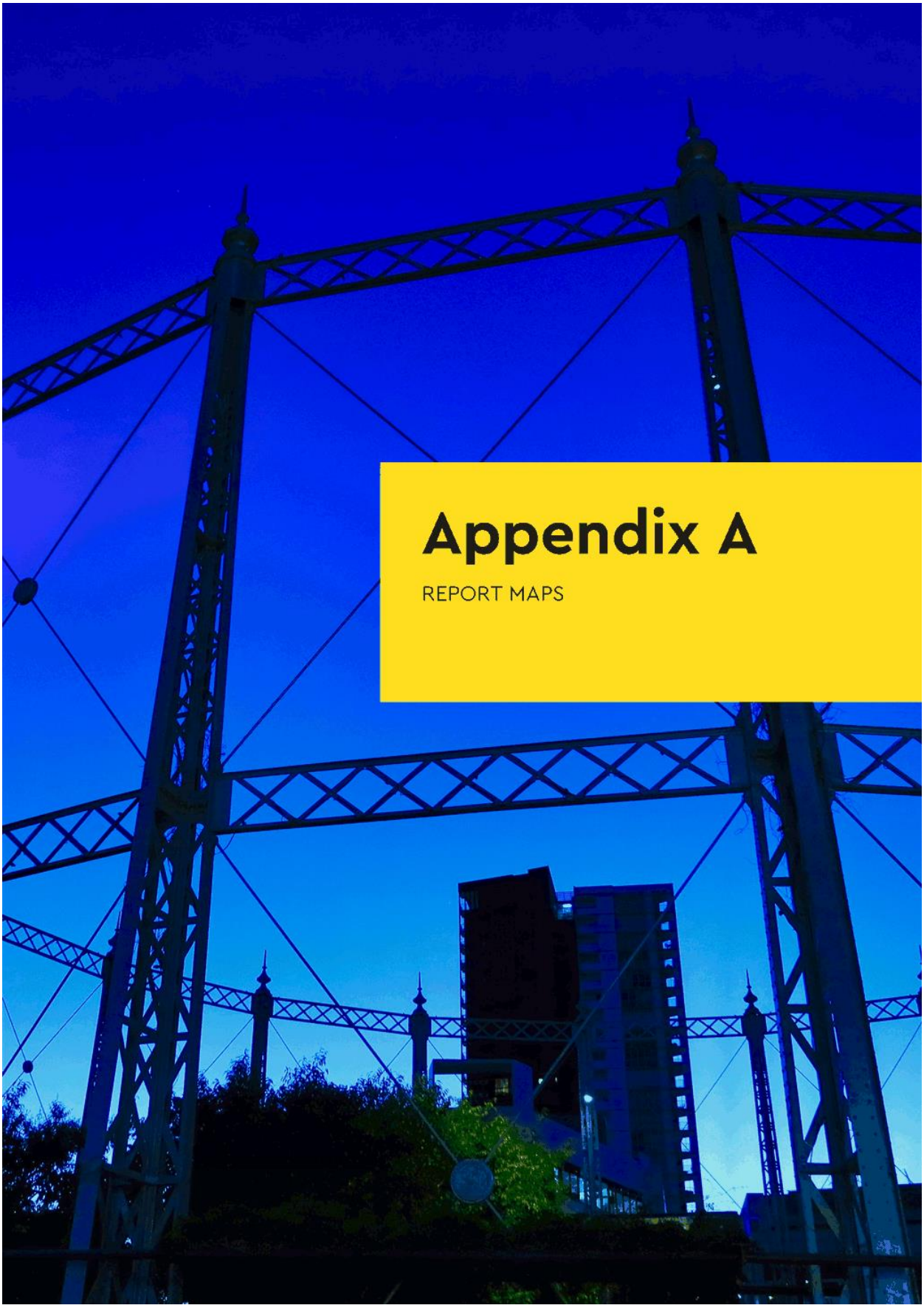
Level 1 / 677 High Street
Kew East VIC 3102
Australia

Environmental Site Assessment

Service Stream Mobile Communications Pty Ltd

1 Bell Street, New Town, Tasmania

Appendix G: Report Maps and Enviro-Screen Report



Appendix A

REPORT MAPS

PROPERTY SETTING

MAP 1.1

Subject Area and Sensitive Receptors

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

Sensitive Receptors

- Community Centres & Services
- Sports and Recreation Activities

0 50 100 150 200 250m

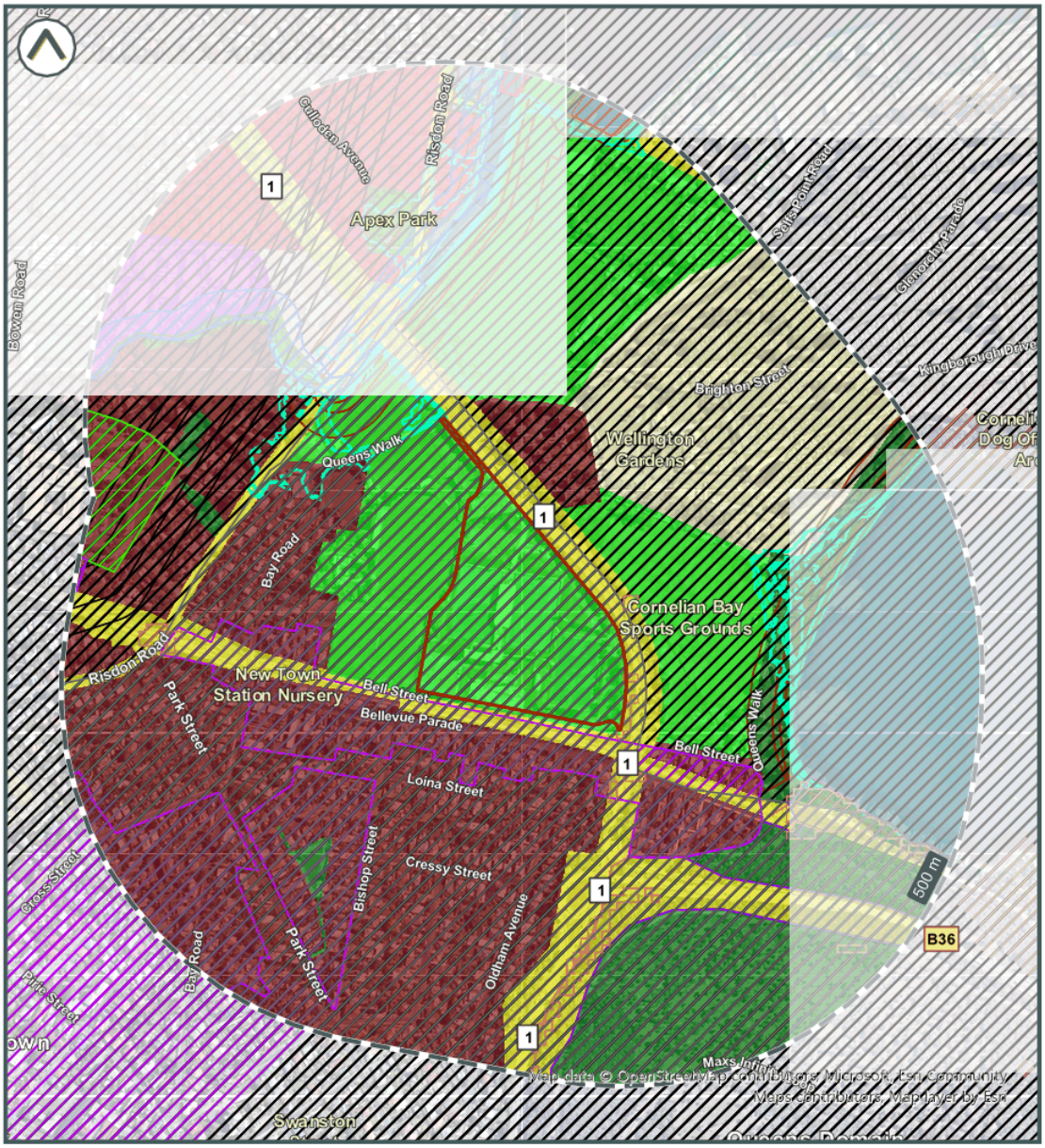
Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

PROPERTY SETTING

MAP 1.2

Planning Controls



Subject area
Planning Scheme Overlay
- Biodiversity Protection Area
- Bushfire Prone Areas
- Coastal Erosion Hazard Areas
- Coastal Inundation Hazard Area
- Cultural Landscape Areas
- Electricity Transmission Infrastructure Protection
- Former Douglas Parker Rehabilitation complex
- Heritage Area/Precinct
- Landslide Hazard Area
- Potential Acid Sulfate Soils
- Specific Area Plan
- Waterway and Coastal Protection Areas

Zoning
- 10.0 General Residential
- 11.0 Inner Residential
- 17.0 Community Purpose
- 18.0 Recreation
- 19.0 Open Space
- 24.0 Light Industrial
- 28.0 Utilities
- 29.0 Environmental Management

0 50 100 150 200 250m

Land Insight

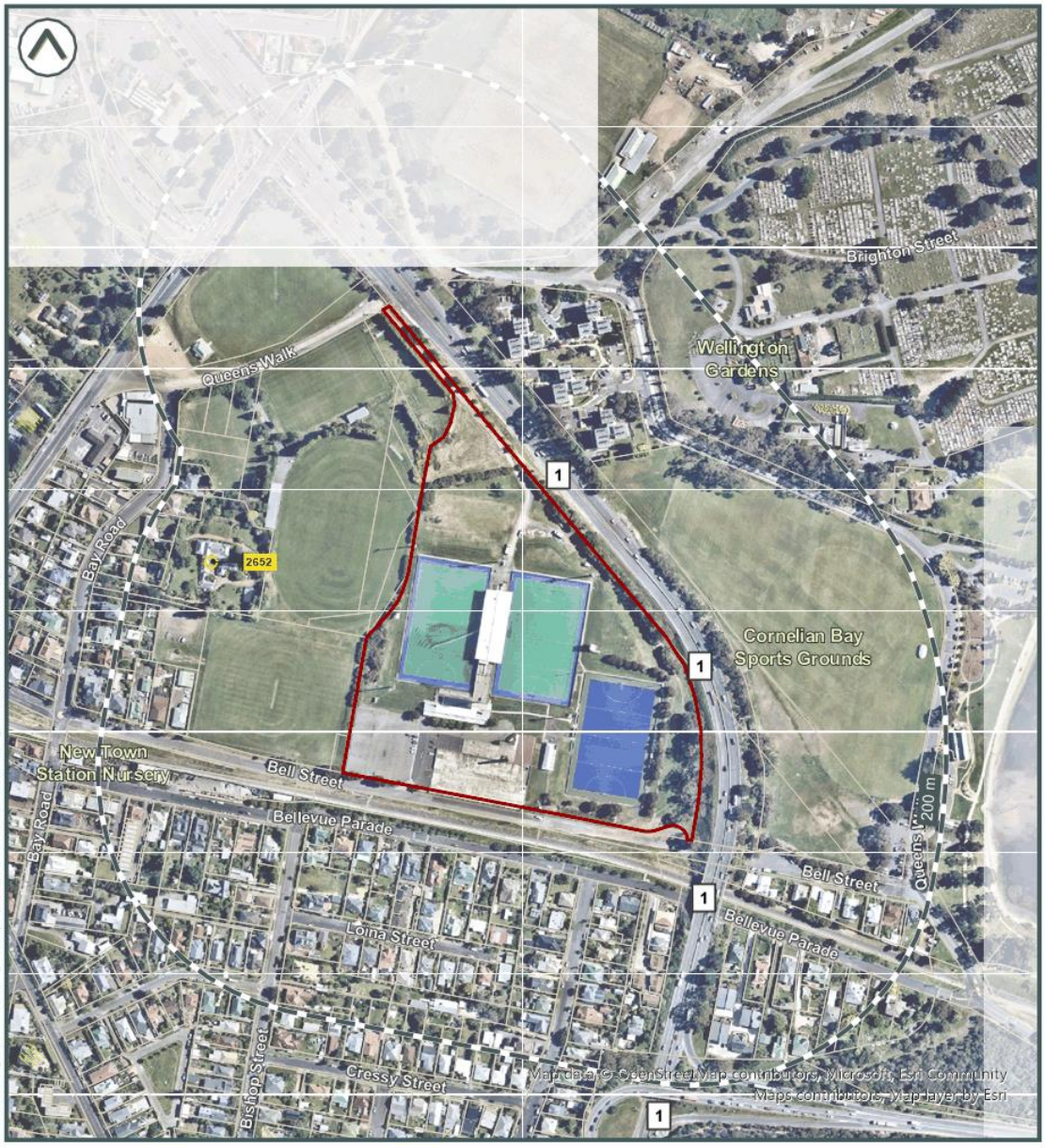
Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

PROPERTY SETTING

MAP 1.3

Heritage



Subject area
Tasmania Heritage Register THR
Commonwealth Heritage List (CHL)
National Heritage List (NHL)
World Heritage Area (WHA)

0 50 100 150 200 250m

Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

PROPERTY SETTING

MAP 1.4a

Soil Landscape and Salinity

Subject area
Radon Level (Bq/m3)
5–19

Soil Type
A | Undifferentiated alluvial soils
Blb1 | Black soils on basalt 1
Bld1 | Black soils on dolerite 1
Bld1-Pd1 | Black soils on dolerite 1 with podzolic soils on dolerite 1
water |

0 50 100 150 200 250m

Land Insight

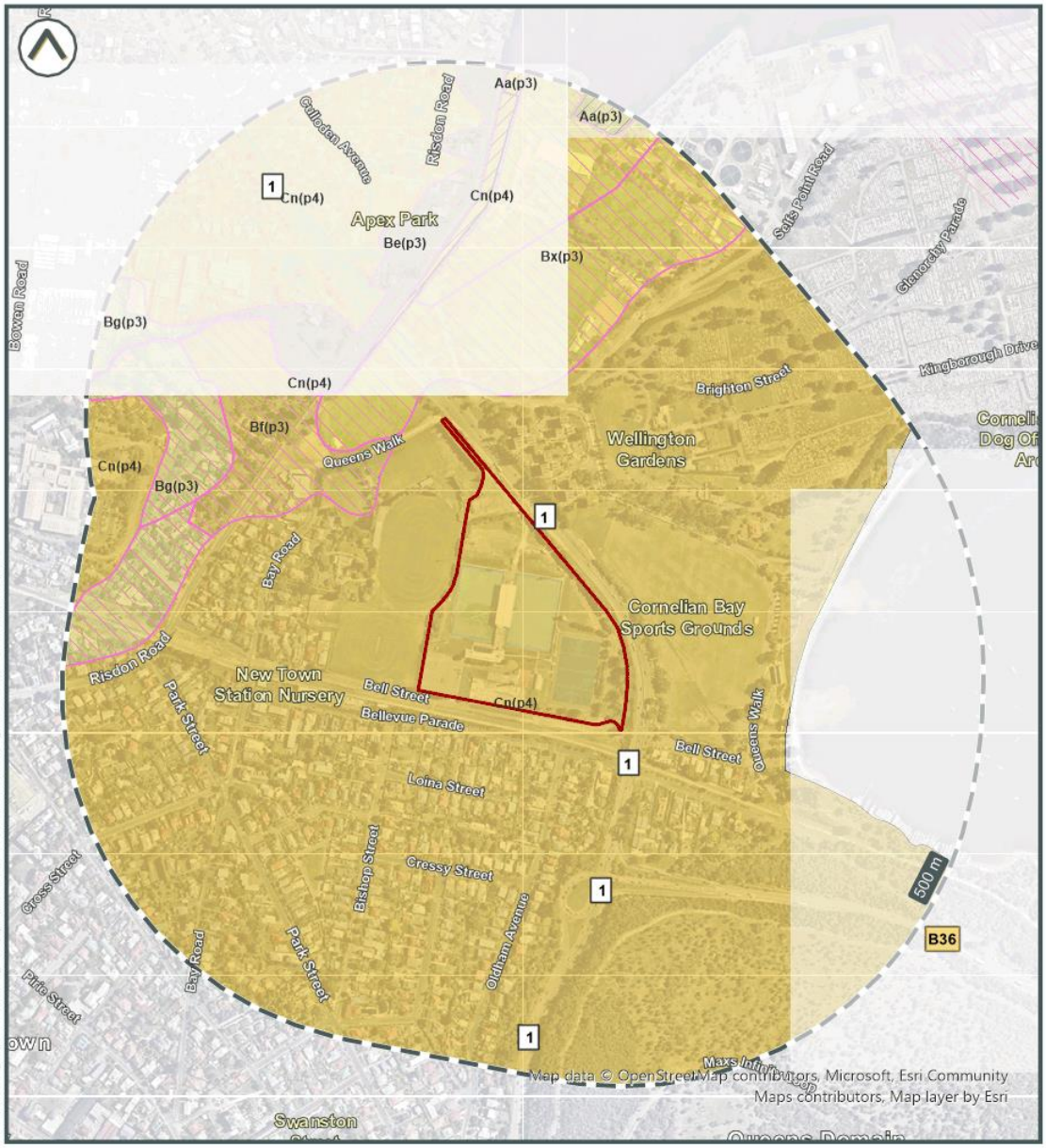
Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

PROPERTY SETTING

MAP 1.4b

Acid Sulfate Soils



Subject area

Acid Sulfate Soils Risk (Inland)
- High
- Low

ASRIS Atlas of Australian Sulfate Soils
- Aa(p3) | ASS in subtidal marine environments
- Be(p3) | ASS in floodplains
- Bf(p3) | ASS in floodplains
- Bg(p3) | ASS in floodplains
- Bx(p3) | Disturbed ASS
- Cn(p4) | ASS in inland lakes, waterways, wetlands and riparian zones

0 50 100 150 200 250m

Land Insight

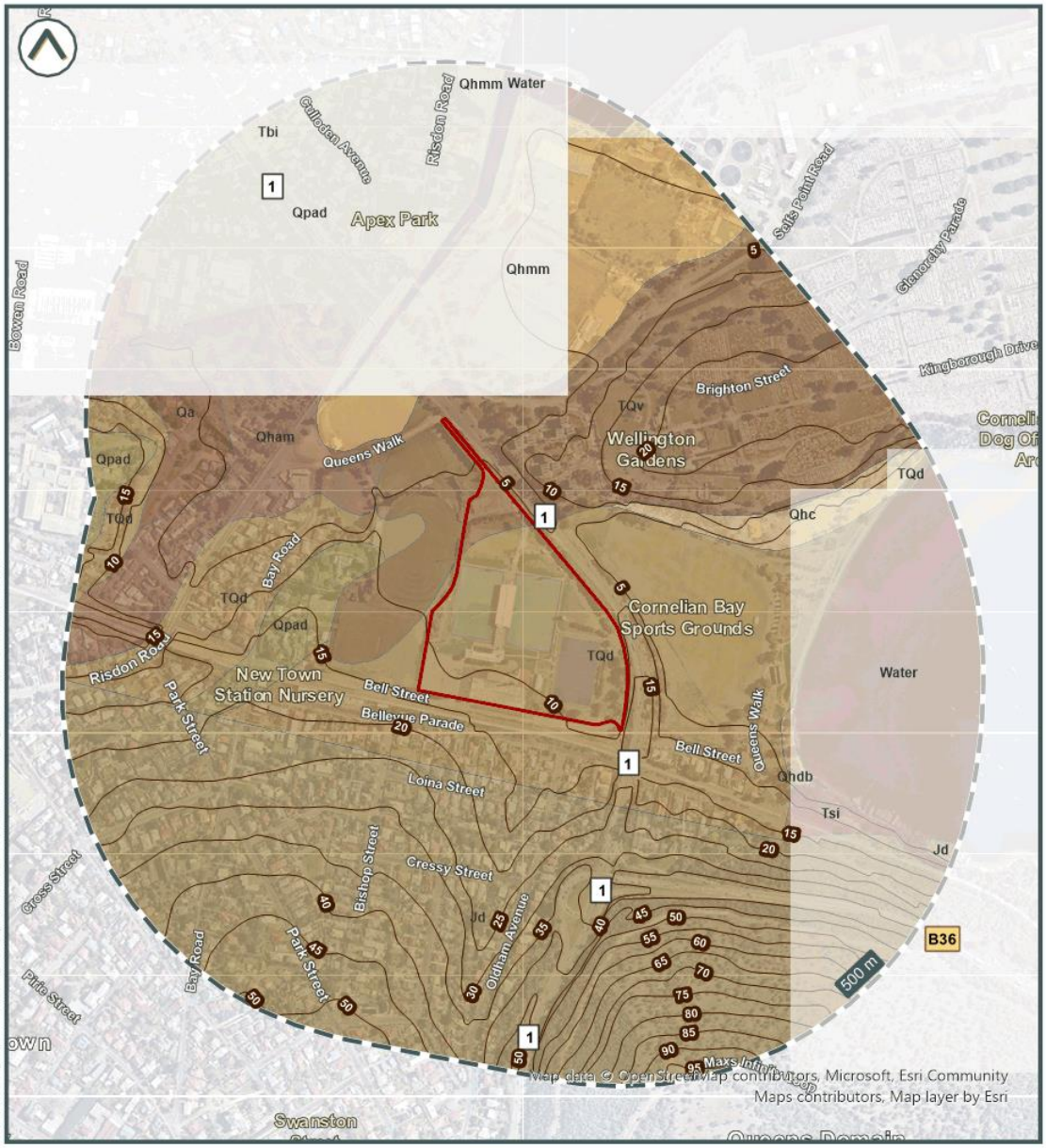
Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

PROPERTY SETTING

MAP 1.5

Geology and Topography



Subject area
Topographic contour (m)

1:25,000 Scale Digital Geology of Tasmania
- Jd |
- Qa | Cenozoic cover sequences
- Qham | Cenozoic cover sequences
- Qhc | Cenozoic cover sequences
- Qhdb | Cenozoic cover sequences
- Qhmm | Cenozoic cover sequences
- Qpad | Cenozoic cover sequences
- TQd | Cenozoic cover sequences
- TQv | Cenozoic cover sequences
- Tbi | Cenozoic cover sequences
- Tsi | Cenozoic cover sequences
- Water |

0 50 100 150 200 250m

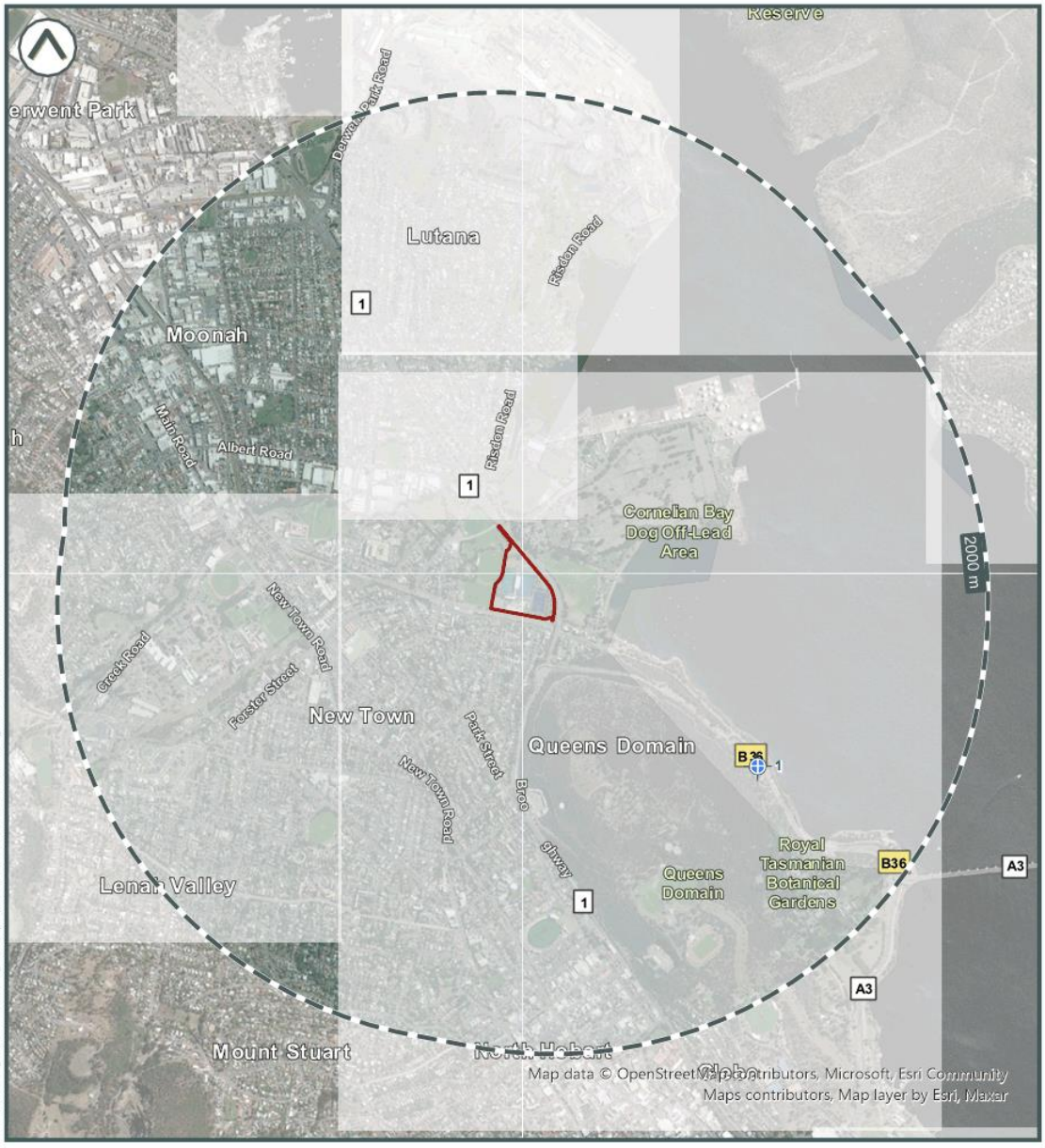
Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

HYDROGEOLOGY

MAP 2.1

Hydrogeology and Groundwater Boreholes



Subject area | Groundwater bores | Aquifer type: Porous, extensive aquifers of low to moderate productivity

0 200 400 600 800 1,000m

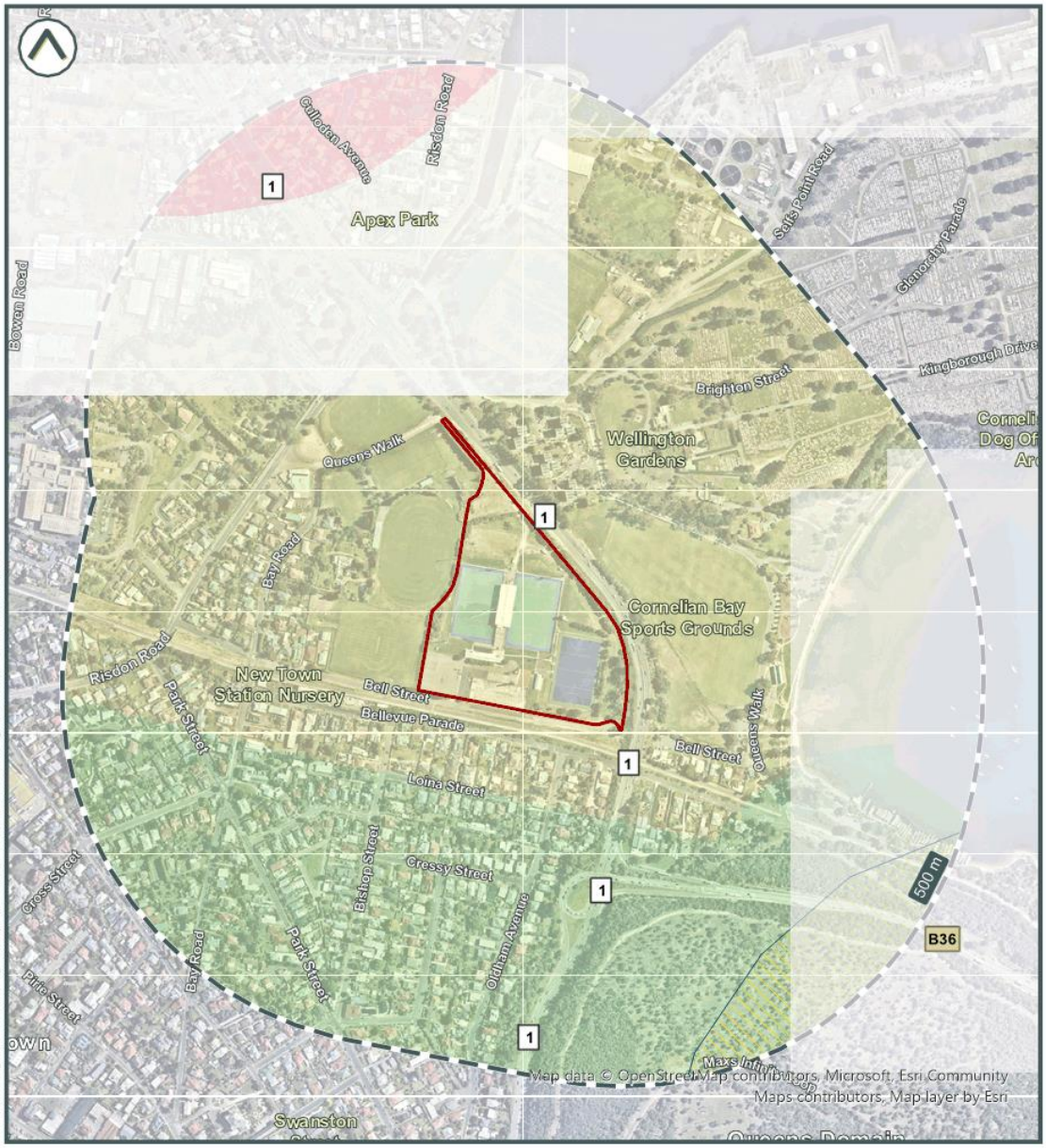
Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

HYDROGEOLOGY

MAP 2.2

Hydrogeology and Other Boreholes



Subject area
Other boreholes
Groundwater Quality (TDS in mg/L)
1500-3000

Hydrogeologic Unit
Surficial Sediment Aquifer (porous media – unconsolidated)
Tertiary Basalt Aquifer (fractured rock)
Mesozoic Fractured Rock Aquifer

0 50 100 150 200 250m

Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

ENVIRONMENTAL REGISTERS LICENSES AND INCIDENTS

MAP 3.1

Contaminated Land Public Register

Subject area

Contaminated Land Register (EPA)
Lutana and Parts of Hobart's Eastern Shore

0 100 200 300 400 500m

Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

ENVIRONMENTAL REGISTERS LICENSES AND INCIDENTS

MAP 3.2

Contaminated Sites Regulated Under the EMPCA Act

Subject area | Underground Petroleum Storage Systems | Wastewater Treatment

0 50 100 150 200 250m

Land Insight

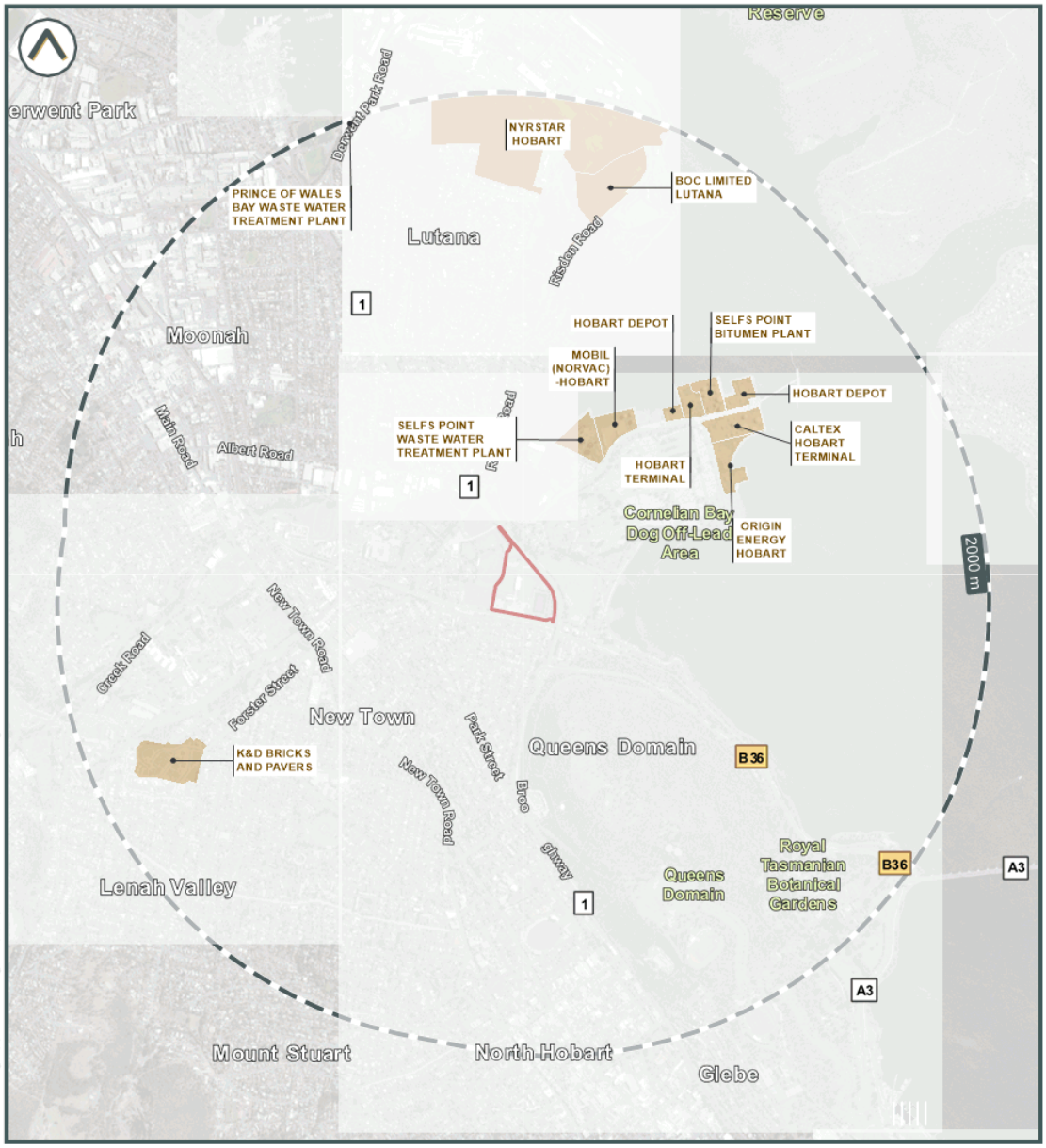
Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

ENVIRONMENTAL REGISTERS LICENSES AND INCIDENTS

MAP 3.3

Sites Regulated by other Jurisdictional Body



Subject area
PFAS sites
NPI Facilities
Former Gasworks
Defence Area / Military Sites
Defence Controlled Area
Unexploded Ordnance (UXO) Areas
Substantial Potential
Slight potential
Sea Dumping of Depth Charges
Sea Dumping of Depth Charges (Chemical munitions sea dumping)
Other Sea Dumping Sites
Other

0 200 400 600 800 1,000m

Land Insight

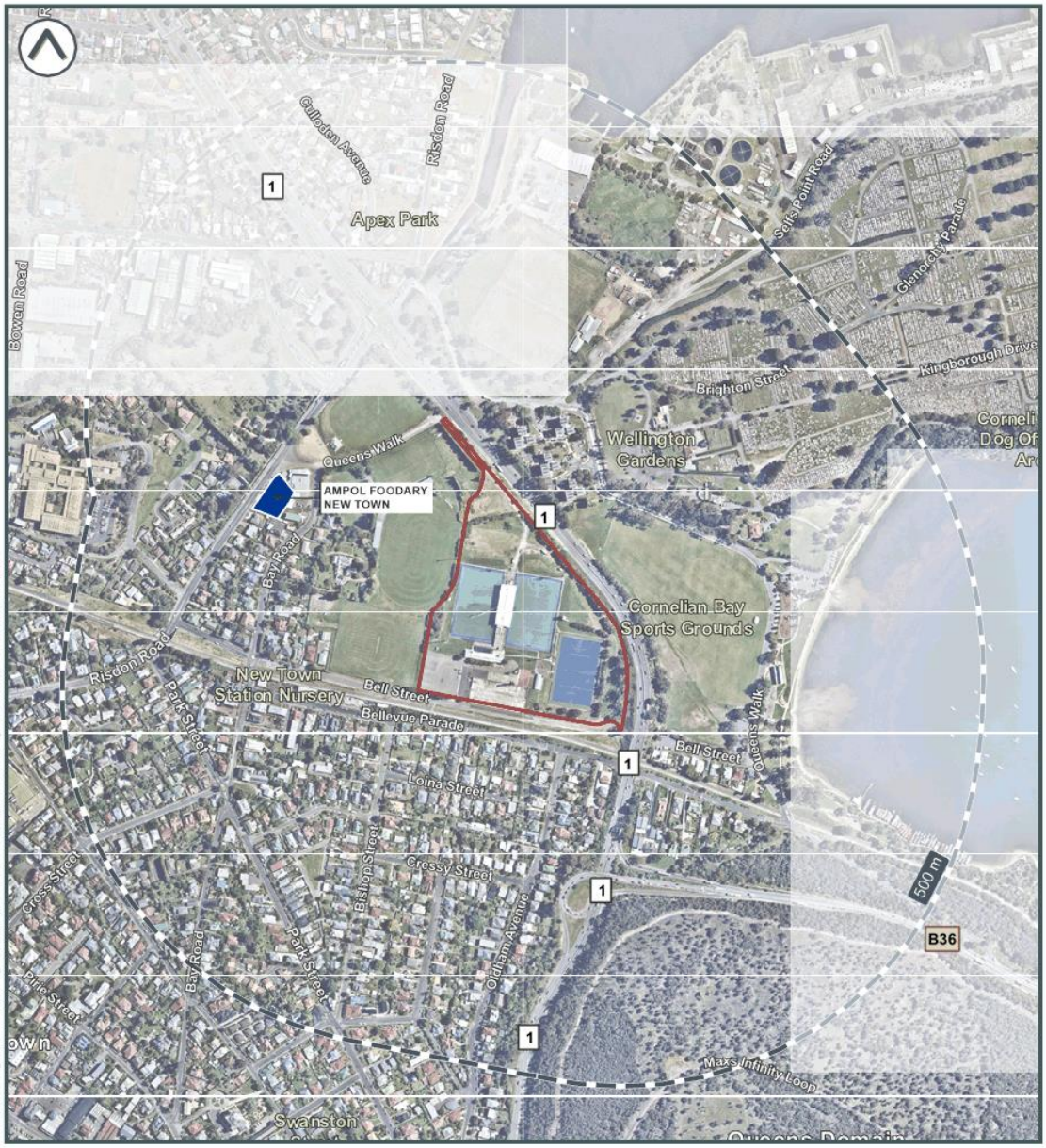
Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

©2022 Land Insight (LI) www.landinsight.co | 8/02/2022 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

POTENTIALLY CONTAMINATED AREAS

MAP 4.1

Potentially Contaminating Activities (PCAs)



Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.

0 100 200 300 400 500m

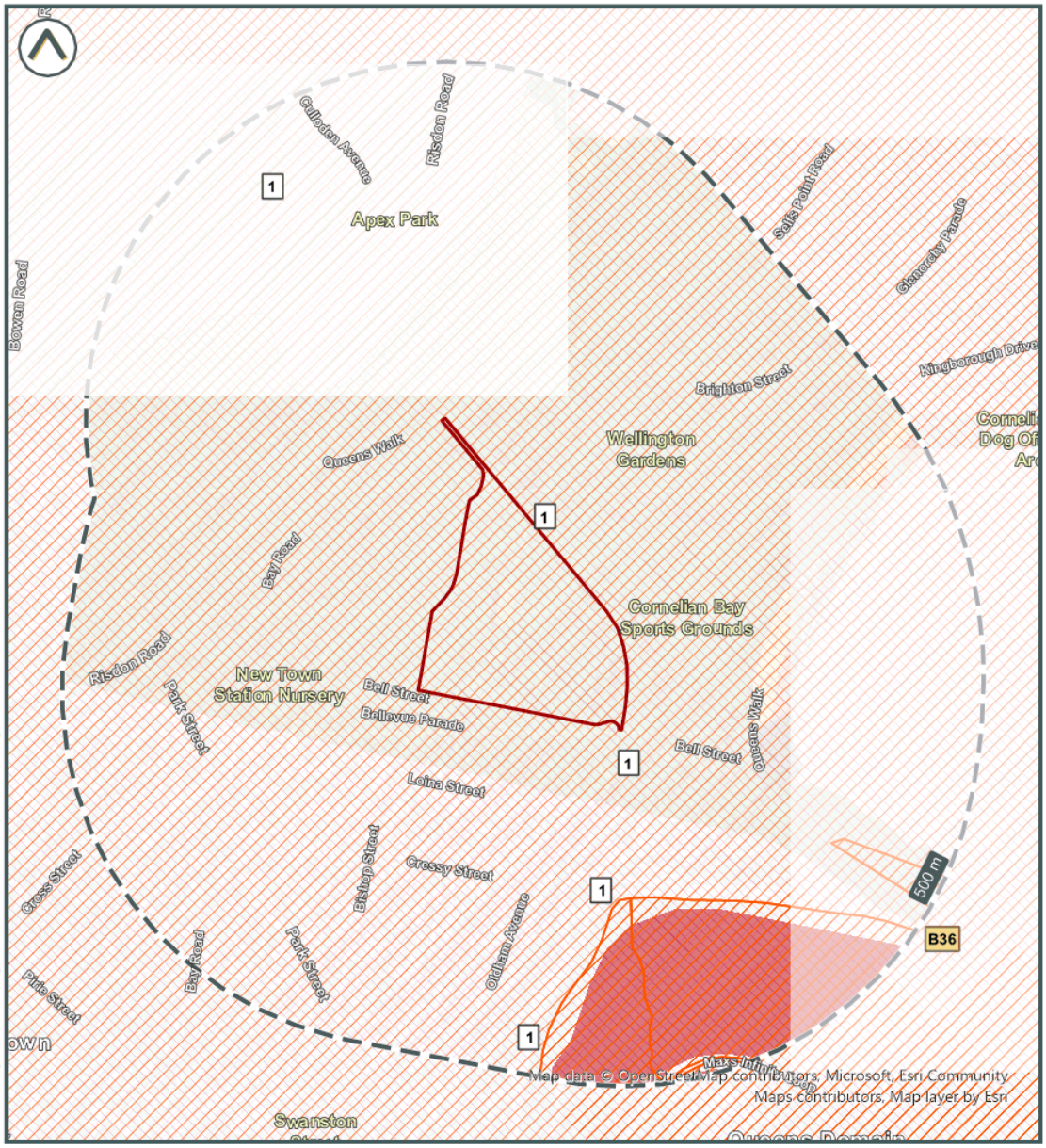
Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

NATURAL HAZARDS

MAP 5.1

Fire and Flood Hazards



Land Insight

Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Land Insight
RESOURCES

Application Referral Environmental Development Planner - Response

From:	Rowan Moore Environmental Development Planner 6 January 2022
Recommendation:	Proposal is acceptable without conditions.
Date Completed:	
Address:	1 BELL STREET, NEW TOWN
Proposal:	Upgrading of Existing Telecommunications Facility and Associated Works
Application No:	PLN-21-823
Assessment Officer:	Liz Wilson,

Referral Officer comments:

Codes Applicable:

Code	Applicable	Exempt	Permitted	Discretionary
E1.0 Bushfire-Prone Areas	No			
E3.0 Landslide	No			
E9.0 Attenuation	No			
E10.0 Biodiversity	No			
E11.0 Waterway & Coastal	No			
E15.0 Inundation Prone Areas	**Yes - Refer to SWU assessment**			
E16.0 Coastal Erosion	No			
E18.0 Wind & Solar Energy	No			
E20.0 Acid Sulfate Soils	No			

Assessment:

Approval is sought to upgrade an existing mobile phone tower near the Bell Street hockey grounds. The proposed upgrade would involve the upgrade of mobile antennas, headframe and ancillary equipment on a flood light pole and associated pole foundation strengthening works.

The proposed development is not exempt under general exemption 5.2.6, and in particular exemption clause 5.2.6(a), as the proposal does not meet the definition of a low-impact facility under the *Telecommunications (Low-Impact Facilities) Determination 2018*.

<u>Telecommunications Code</u>

The Telecommunications Code applies because development for telecommunications facilities is proposed. There are no exemptions from the Code standards.

The proposal complies with E19.7.1 A1 because the new antenna would be located on an existing tower. A2 is not applicable as a new tower is not proposed.

With regard to E19.7.2, the application does not comply with acceptable solution A1 because the new infrastructure would be painted green to match the existing tower, rather than a neutral colour. Performance criterion P1 states the following:

The location of telecommunications infrastructure not complying with A1 must ensure any detrimental impact upon visual amenity is minimised by reducing the prominence of telecommunications infrastructure, and important public views such as vistas to significant public buildings, streetscapes and heritage areas are protected.

This is an upgrade of an existing tower so the location is pre-determined. The tower is one of a group of towers supporting floodlights for the sports fields. The additional height (0.28m) and infrastructure would have no significant additional visual imapct compared with the existing tower. The green colour is not unreasonably prominent in the landscape.

The application is considered consistent with E19.7.2 P1.

The application does not comply with E19.7.2 A2 because the height of the tower would increase slightly and the total height would exceed 20m (36.4m). Performance criterion P2 states the following:

Height above natural ground level not complying with A2 must satisfy all of the following:
(a) the predominant height of existing infrastructure or vegetation in the immediate vicinity is above the specified height limit;
(b) there is no adverse impact on heritage or ecological values, or visual amenity of the locality;
(c) it is critical for the role of the facility within the telecommunications network.

There are 6 existing floodlight towers and a historical chimney stack around the sportsgrounds that exceed 20m in height. The additional 0.28m in height would have no impact on ecological, heritage or visual amenity values. The application has adequately demonstrated that the upgrade is critical for the long-term role of the facility.

The application is considered consistent with E19.7.2 P2.

With regard to E19.7.3, the application complies with A1 as the infrastructure would not be located in an area of environmental significance.

With regard to E19.7.4, the application complies with acceptable solution A1 because the infrastructure would not impede vehicular traffic or other modes of transport (excluding helicopter medical transport which is addressed under the SAP provisions).

With regard to E19.7.5, acceptable solution A1 is not applicable as it would not be located within a Significant Agriculture Zone.

The proposed development complies with the Telecommunications Code.

Recommended Conditions:

N/A

Recommended Advice:

N/A

ServiceStream

23 May 2022

Elizabeth Wilson
Development Appraisal Planner - City Life
City of Hobart
50 Macquarie Street
Hobart Tas 7000

Dear Elizabeth,

Application: PLN-21-823 – Tasmanian Hockey Centre, 1 Bell Street, Newtown

Proposal to Upgrade an existing Telecommunications Facility

Response to Representation - EME, Health Impacts and Safety Compliance

We refer to the representation received in relation to the upgrade of the telecommunications facility at the Tasmanian Hockey Centre, 1 Bell Street, New Town. Please find our response to the key issues raised:

EME, Health Impacts and Safety Compliance

In response to concerns regarding safety and health impacts of the proposed upgraded facility, we can advise that all Telstra facilities must comply with the prescribed health standards developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA is the Federal Government agency charged with responsibility for protecting the health and safety of people, and the environment, from all sources of Radio Frequency Electro-Magnetic Emissions (RF EME).

It is Telstra's responsibility to comply with the mandated standard for RF EME set down by ARPANSA, which is the safety standard recommended by the World Health Organisation (WHO). The safety standard works by limiting the network signal to a level low enough to protect all people, and animals/livestock, in all environments, 24 hours a day. The safety limit itself is precautionary, in that it has a significant safety margin built into it.

In relation to the Telstra facility at the Newtown Hockey Centre, a summary of the estimated EME levels around the proposed facility in the form of an "Environmental EME Report" was included in the planning application and is referred to in the representation. The Environmental Report estimates the maximum cumulative EME emitted from the facility. The estimated levels have been calculated on the maximum mobile call and data capacity anticipated for a particular site. (This estimation does not allow for possible radio signal attenuation due to buildings and the general environment.) Actual EME levels will generally be significantly less than predicted, due to path losses and the facility automatically transmitting power to only serve established phone calls and data transmissions.

We recognise the sensitivity associated with proposals in residential and recreational areas and we try hard to strike a balance between providing services and minimising our impact on the community and the local environment. Distances at which infrastructure must be sited from community sensitive locations based on an arbitrary distance does not necessarily reflect a precautionary approach. For example, infrastructure sited further from a sensitive area may need to operate at greater power to provide mobile phone coverage and may result in higher exposures in the area.

ServiceStream Limited ABN 46 072 369 870
HEAD OFFICE Level 4, 357 Collins Street, Melbourne VIC 3000 | Mailing Address: PO Box 14570, Melbourne VIC 8001
T +61 3 9677 8888 | F +61 3 9677 8877 | E info@servicestream.com.au | www.servicestream.com.au

ServiceStream

The EME Report shows that the maximum cumulative EME level from the Telstra Facility would be 2.18% of the ARPANSA exposure limit (the ARPANSA Standard public exposure limit is represented as 100%). Although there will be an increase in the proposed EME levels resulting from the Telstra upgrade works, these levels will still be within the permissible levels in accordance with the Australian Standard, and still with a significant safety margin built in.

Once a telecommunications facility becomes operational, or in this case will be modified, an updated Site Compliance Certificate is prepared by a National Association of Testing Authorities (NATA) Assessor to certify that the site has been assessed and complies with the Radio Frequency Human Exposure Limits as specified by the Australian Communications and Media Authority (ACMA) Licence Condition Determination (LCD) and the requirements of RPS S-1. A copy of the Site Compliance Certificate for a site can be accessed via the RFNSA.

Telstra relies on the advice of international health authorities such as ARPANSA and the WHO for overall assessments of health and safety impacts. It should be noted that the WHO advises that *"considering the very low exposure levels and research results collected to date, there is no convincing scientific evidence that weak RF signals from base stations and wireless networks cause adverse health effects"*. We would encourage the representor to consult with ARPANSA or WHO for further information on this issue.

The attached AMTA and ARPANSA fact sheets provide a detailed explanation about the operation of mobile telecommunications facilities, community health and 5G technologies. Additional links to documents/websites are also provided:

- AMTA EME Update link & AMTA 5G - https://amta.org.au/eme-update/
- ARPANSA 5 Facts on 5G - https://www.arpansa.gov.au/understanding-radiation/radiation-sources/more-radiation-sources/mobile-phone-base-stations
- Developing ARPANSA's Radiofrequency Safety Standard - https://www.arpansa.gov.au/developing-arpansas-radiofrequency-safety-standard

Cumulative EME Levels and Readings

Cumulative EME levels are difficult to accurately predict from surrounding telecommunications facilities as antennas will vary power output to the minimum required to communicate with mobile phones.

If you want cumulative levels of EME taken, ACMA recommend that for an independent assessment of a site for EME (at your own cost), the National Association of Testing Authorities (NATA) has accredited a number of organisations in Australia that measure and assess radiofrequency field strengths. You can find the list on the RFNSA website homepage or click here.

Need for Facility and Site Selection

There are concerns raised in the representation that a telecommunications facility within the Hockey Centre land is an inappropriate location which will impact adversely on surrounding residential properties.

Telstra constantly monitors its network for usage and performance, and to work effectively, base stations need to be located near to the people who are accessing this technology.

The proposal to upgrade the existing Telstra facility at the Tasmanian Hockey Centre is an important part of Telstra's infrastructure upgrade program at New Town, which includes both adding capacity to the existing sites which serve the area and the introduction of new sites, as required.

ServiceStream

The upgraded facility at New Town will provide added coverage and capacity to the network to ensure the local community can continue to rely on the network for mobile telephony, internet, search and rescue, emergency alerts, 000 calls etc.

Telstra understands some locations where we need to place our facilities are more sensitive than others. Telstra works diligently to find a balance between providing high quality services and minimising our impact on the community and the local environment. In addition to technical requirements, Telstra has considered a number of other important non-technical criteria when selecting a site, including:

- the potential to co-locate at an existing telecommunications facility;
- the potential to locate on an existing building or structure;
- the visual impact on the surrounding area and the need to obtain relevant town planning approvals;
- the proximity to community-sensitive locations and areas of environmental heritage or significance; and
- the type of and ability to secure tenure at the site.

The proposed upgrade of antennas on an existing floodlight pole within the Hockey Centre is deemed an appropriate solution to improving mobile telecommunications services to the local community, with the continued co-location of mobile antennas on an existing structure within the sports ground. The Telstra facility will be viewed in the context of several existing tall structures, including flood lights and another telecommunications facility installed on a flood light pole within the property. The Telstra facility will continue to offer reasonable setbacks from residences in the surrounding area.

The existing flood lights will be reinstalled onto the pole and Telstra antennas will be mounted above the flood lights, such that the visual change in appearance of the structure will be minimized as much as possible.

Moreover, co-locating on existing structures accords with Council's planning policies for the provision of mobile telecommunications infrastructure within the municipality.

Subscribing to the RFNSA

The best way to receive alerts regarding deployment activities is via the Radio Frequency National Site Archive (RFNSA). The RFNSA website can be searched by area and postcode for all technologies including 5G. We recommend the representor take the opportunity to subscribe to updates on the RFNSA so that they can be alerted when any changes are proposed. Click on this link to complete the process.

Conclusion

We consider that, on balance, the proposal offers a reasonable solution with regards to the site selected and the requirement to provide improvements to Telstra's mobile phone coverage for New Town. Furthermore, the proposed upgraded telecommunications facility will comply with the prescribed health standards developed by ARPANSA with the upgraded facility significantly below permissible EME levels. The proposed co-location and design has reduced visual impact as much as practicable on the landscape.

ServiceStream

We trust this explanation and additional information will alleviate some of the concerns expressed in the representation regarding the proposed upgrade works and its proximity to residential uses.

Yours sincerely,

Barbara Grinter
Planning Consultant (on behalf of Telstra)
Service Stream – Telecommunications

Attachments:

- AMTA Fact Sheet – What is 5G?
- ARPANSA Fact Sheet – Mobile Phone Base Stations and Health

ServiceStream Limited ABN 46 072 369 870
HEAD OFFICE Level 4, 357 Collins Street, Melbourne VIC 3000 | Mailing Address: PO Box 14570, Melbourne VIC 8001
T +61 3 9677 8888 | F +61 3 9677 8877 | E info@servicestream.com.au | www.servicestream.com.au

What is 5G?

AMTA
Australian Mobile Telecommunications Association

5G is the 5th generation of mobile networks, a significant evolution of today's 4G networks.

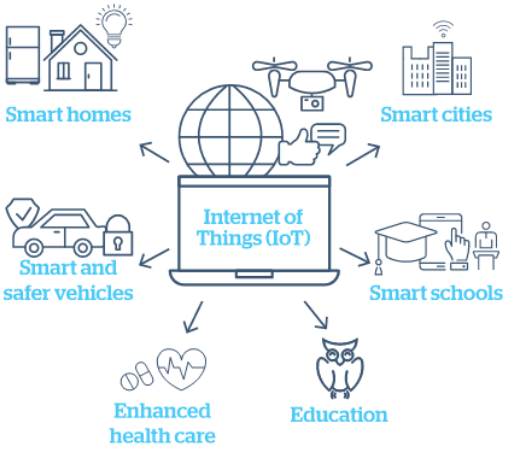
5G is designed to meet the very large growth in data and connectivity of today's modern society, the internet of things with billions of connected devices, and tomorrow's innovations.

5G will initially operate in conjunction with existing 4G networks before evolving to fully standalone networks. The rollout of 5G will help meet Australians' growing demand for more data, with the Australian Communications and Media Authority (ACMA) reporting that the volume of data downloaded on mobiles has increased by 41% from June 2017 to June 2018, and this is set to continue.

What will 5G enable?

5G will enable enhanced mobile broadband, instantaneous connectivity to billions of devices, the Internet of Things (IoT) and a truly connected world.

For communities, 5G will enable real-time connection of billions of devices to provide a safer and more efficient place to live by enabling things like:



For businesses and industry, 5G and IoT will provide a wealth of data allowing them to gain insights into their operations like never before.

Business will increasingly operate and make key decisions driven by data (e.g. parcel tracking), and innovate in different application areas including agriculture, smart farms and manufacturing. All of these will pave the way for cost savings, better customer experience and long-term growth.

5G enabled mobile technology
IS SET TO DELIVER A
$65 billion bigger Australian economy
BY 2023

Mobile Nation 2019 - the 5G Future report by Deloitte Access Economics and AMTA

What is 5G?

What will be the first applications for 5G?

5G-enabled products such as wireless broadband, mobile devices and IoT will be the first applications using 5G.

What will 5G devices offer?

The prime benefits of 5G devices will be significantly faster speeds in data access, downloading and streaming content. In addition, 5G devices will have increased computing power and make use of faster connectivity, meaning that the devices will enjoy virtually instantaneous connections to the network, as well as greater connectivity when on the move. 5G will enable applications such as remote monitoring, automation of production, medical monitoring and even remote surgery.

How does 5G work?

5G will deliver faster speeds, better response times and greater capacity. 5G networks are designed to work in conjunction with 4G networks using a range of macro cells, small cells and dedicated in-building systems.

Small cells will be a feature of 5G networks and will evolve to include the use of millimetre wave (mmWave) frequencies.

Small cells are mini base stations designed for very localised coverage typically from 10 metres to a few hundred metres providing in-fill for the larger macro network. Small cells will be essential for the 5G networks.

5G devices will have increased computing power and make use of faster connectivity, meaning that the devices will enjoy virtually instantaneous connections to the network, as well as greater connectivity when on the move.

5G and EME Safety

Are there safety limits for 5G?

Yes. Comprehensive international guidelines exist governing exposure to radio waves including the frequencies proposed for 5G. The limits have been established by independent scientific organisations, such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and include substantial margins of safety to protect all people including children and the elderly at all times.

These guidelines have been widely adopted in standards around the world, including in Australia by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and are endorsed by the World Health Organization (WHO).

WHAT DO THE EXPERTS SAY ABOUT 5G AND HEALTH?

In relation to radio frequency exposures and wireless technology and health, including frequencies used for 5G, the World Health Organization (WHO) states:

"Despite extensive research, to date there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health."

In relation to 5G frequencies, Dr Sarah Loughran, Director of the Australian Centre for Electromagnetic Bioeffects Research at the University of Wollongong states:

"The higher frequencies [of 5G] actually means that the energy doesn't penetrate as deeply into the body than previous fourth generation and other generation technologies have."

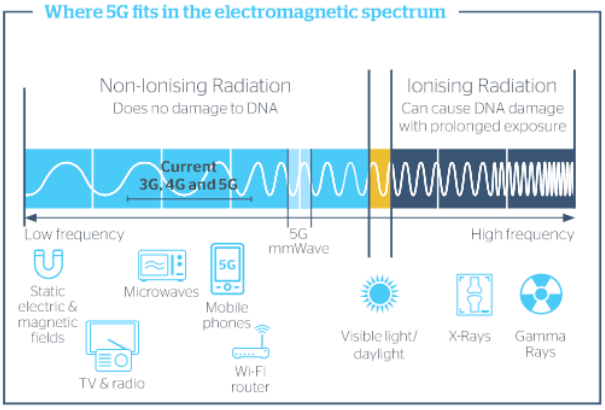
In relation to 5G and health, ARPANSA states:

"There are no established health effects from the radio waves that the 5G network uses."

What research into health effects has been done on 5G?

The electromagnetic frequencies used for 5G are part of the radio frequency spectrum which has been extensively researched in terms of health impacts for decades.

Where 5G fits in the electromagnetic spectrum



5G operates at a higher frequency than previous 4G networks so it can carry more data but can't travel as far. This means it will have less impact on the human body than any previous network.

Over 50 years of scientific research has already been conducted into the possible health effects of the radio signals used for mobile phones, base stations and other wireless services including frequencies planned for 5G and mmWave exposures.

ARPANSA states:

"This network currently runs on radio waves similar to those used in the current 4G network, and in the future will use radio waves with higher frequencies. It is important to note that higher frequencies does not mean higher or more intense exposure. Higher frequency radio waves are already used in security screening units at airports, police radar guns to check speed, remote sensors and in medicine and these uses have been thoroughly tested and found to have no negative impacts on human health."

5G and EME Safety

Testing on Australian 5G networks with commercial devices in real-world settings shows levels similar to 3G, 4G and Wi-Fi, and in many cases around 1,000 times below the safety limits.

Does 5G mean higher power and higher exposure levels?

No – 5G networks are designed to be more efficient and will use less power than current networks for similar services.

The Australian Centre for Electromagnetic Bioeffects Research (ACEBR) states:

"In addition, while more antennas may be required to service areas where demand for the new service is high, users are closer to the mobile phone base station and therefore their devices can operate at a reduced power, reducing their exposure from their personal device."

Dr Sarah Loughran, Director of the Australian Centre for Electromagnetic Bioeffects Research at the University of Wollongong, states:

"Based on the improvements in technology, the level of exposure is expected to be lower [with 5G] than what it has been in previous technologies."

How will 5G be regulated?

All base stations including 5G equipment and devices, must comply with standards set by ARPANSA.

Where can I get more information on 5G?

Australian Communications and Media Authority (ACMA)
1300 850 115
https://www.acma.gov.au/theACMA/a-guide-to-small-cells

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)
(03) 9433 2211
www.arpansa.gov.au

EMF Explained web site
www.emfexplained.info

Mobile Nation 2019 - the 5G future report
https://amta.org.au/new-mobile-nation-report-the-5g-future/

Mobile Carriers Forum
http://amta.org.au/mcf

AMTA
Australian Mobile Telecommunications Association

(02) 8920 3555
contact@amta.org.au
www.amta.org.au

Australian Government
Australian Radiation Protection and Nuclear Safety Agency

Fact Sheet

Mobile Phone Base Stations and Health

. Ăwśŕ Ţţ ľPwśt ⅞śwśĂwľĎ ⅞ś wś Ăwś t Ţśw⅞ĂĽĎwŕ śŕ Ď śĂĎ⅞ś śĎśľ⅞ŵ ⅞ĂŤ⅞ĂŤ Ăţ Ľś ĂΔwľP⅞śŕ ⅞ţ⅞ś ĎţĹ wC9a 9 śŋóţwPwś źwţF Ŧ ţĽĎĞ óĎ ţŤ ś ĽĂwś w⅞ĂĽţ Ăţ ⅞śţ t Ăwś

Introduction

Ď śwś Ăwś Ŧ ţĽĎĞ óĎ ţŤ ś ĽĂwś w⅞ĂĽţ Ăţ ⅞śţ t Ăwţ ⅞ţĹ śwwĂţ ŕ ĽPŤĎŤ Ğw ⅞ŵţPĞ ţP⅞ PwĂĎĂwóţŤPĞ⅞śŕ Ăwś Ăwś Ď śwś Ăţ ⅞śţ t Ăwś Ăwś óĂw⅞ţŤ ⅞śś Ŧ ţĽĎĞ óĎ ţŤ ś t ś⅞ ţwŋ Ăţ ŕ ⅞śśθ śŦ ŕ⅞ĎĹ ĞŋśĞwĂŕ ŕţźwś VPśt ľ θ ˝ wC śĞľ⅞ţwŕ ĂĞ śĂľ śt śwĞB ˝9a 9 ćśĎ ŕw źĂľ⅞ŵŕ śś⅞ówţŤŕ śwŕt źţwŕ ĂĂţ ĂĽţP⅞ ľţ ľśw ţźĂŕ ŋśwś Ť śĂĎ⅞ś ľśľ⅞ŵ Ăwŕwt Ğźwţŕ śŋóţwPwś ⅞ţ wC9a 9 źwţŕ ĽĂwś w⅞ĂĽţ Ăţ ⅞śţ t Ăwś

I ţĹ ŕ ţśw⅞ś Ŧ ţĽĎĞ óĎ ţŤ ś t ś⅞ ţwŋ ţóśwĂ⅞śĹ

í Ť śt ĂľĂĎŤwŦ Ăŕ ś źwţŕ Ă Ŧ ţĽĎĞ óĎ ţŤ śĎ wCwĞ ĂĎwĂwś ⅞ŵĂt wŦ ŤΔśŕ Ľś⅞ śśt Ť⅞ŵĂt ⅞śţ t Ă Ăţ ŕ ⅞ś Ăţ ⅞śţ t Ă Ă⅞ţ t śĂwĹθ ĽĂwś w⅞ĂĽţ ćśĎ ś óĎ ţŤ ś ľĂĎŤw⅞śt wţP⅞śŕ ⅞śwţPĞ ⅞śś óĎ ţŤ ś t ś⅞ ţwŋ ⅞ţ⅞śś ŕ śwĂt ĂĽţ óĎ ţŤ ś ćś . Ăwś w⅞ĂĽţ Ăţ ⅞śţ t ĂwŦ PwĂĽś śĞŋĂ⅞śŕ Ăţ ŕ ĎľĂ⅞śŕ ľĞĂwţźóĎ θwŤľĂÖ ţĽwĂŕ ŕ ŤĂĽţ ⅞ţ śt wPwś í Ťŕ śľţśwĂĞśćś

Ţţ Ăţ Ăwś Ăţźŕţ ľwśĂwŕt ĞŦ ţĽĎĞ óĎ ţŤ ś Pwś ⅞śś t PŦ Ľśw ţźĂŕ ŕ ŤĂĽţ ĂĎĽĂwś w⅞ĂĽţ wt śśŕ śŕ ⅞ţ Ŧ Ăţ ⅞Ăţt wśwŋľ śŕ VPĂĎθ ţŕ ľwśĂwśw śŋśt ţŕ Ăwś Ăwí Ť śwś Ŧ ţĽĎĞ t ś⅞ ţwŋ ľţśwĂĞś ĂĎśĂŕ θ śŋŕwĂćźźŕ⅞ŕwŕwt ţŕ/ś ţŤ ś ⅞śś Ŧ ţĽĎĞ t ś⅞ ţwŋ í ŤĎŤ ţ⅞ţóśwĂ⅞ś ówţóśwĂθ Ăţ ŕ Ť Ăw Ăwś wPĎś Ŧ ţĽĎĞ óĎ ţŤ ś Pwś wŦ Ăθ t ţ⅞ĹŕśĽĞ ⅞ţ ľţ t śľ ⅞ţ ⅞śŕwt ⅞śŕwt ś⅞ ţwŋś

! wś ĽĂwś w⅞ĂĽţ wwś ĞPĎ⅞śŕ ŕţ ! PwĂĎĂĽ

Ď śwC9a 9 śŦ ŕwŕwţ wźwţF Ŧ ţĽĎĞ óĎ ţŤ ś ĽĂwś w⅞ĂĽţ wĂţ ŕ ţ⅞śwľ ţF Ŧ Pt ŤľĂĽţ wŕt w⅞ĂĎĂĽţ w Ăwś wś ĞPĎ⅞śŕ Ľθŕŕ⅞śś ! PwĂĎĂţ / ţF Ŧ Pt ŤľĂĽţ w

Ăţ ŕ a śŕ ŕĂ! P⅞ţ⅞θ ˝! / a ! ˝ćśĎ ś ! / a ! ćwwś ĞPĎ⅞ţ⅞θ ĂwĂţ ĞśŦ śt ⅞ŵ wśVPŕwś ĽĂwś w⅞ĂĽţ w⅞ţ ľţF óĎθ í ŕ⅞ ⅞śś śŋóţwPwś ĎŦ ŕ⅞ŵŕt ⅞śś ! wt ! b{! wC{ ⅞ţt ŕ Ăwŕ ćśĎ ś ! wt ! b{! {⅞ţt ŕ Ăwŕ ŕwŕ śwŕĞ śŕ ⅞ţ ówţ⅞śľ ⅞óśţóĞ ţźĂĎĎ ĂĞśwĂţ ŕ Ť śĂĎ⅞ś w⅞ĂźţwĂĞĂŕt w⅞ĂĎĎ ŋt ţĹ t Ăŕ ŋśwś Ť śĂĎ⅞ś śľśľ⅞ŵźwţF śŋóţwPwś ⅞ţ wC9a 9 ćśĎ ś ! wt ! b{! {⅞ţt ŕ Ăwŕ ŕwźĽĂwśŕ ţĹ wŕśt ćĂľ wśwśĂwŕ ⅞śĂźŵ ţĹ w⅞śś ĞŋśĞwĂ⅞ś í Ť ŕŕ Ť ŤĂwŦ źPĞśľśľ⅞ŵţľ ľPwĂt ŕ ŕ⅞ś wś⅞ŵĞŦ ŕ⅞ŵ ĽĂwśŕ ţĹ ŕt ⅞śwĂ ĂĽţ ĂĎ ĞPŕŕ śĞt śwŕ í śĞĎĽśĞţ ⅞śśwś Ť ĂwŦ źPĎ ĞŋśĞwś

Ď śĽ ! / a ! ĂĞwţ wśVPŕwśwĽĂwś w⅞ĂĽţ w⅞ţ ľţF óĎθ í ŕ⅞ Ăţ ŕt ŕ Pw⅞θ ľţF śţźówĂľ ĂĽ śí Ť ŕŕ Ť wśVPŕwśw ⅞śĞľţF Ŧ Pt ŕľĂĽţ wľ ĂwŦśwŕ⅞ţ ŕt źţwŦ Ăţ ŕ ľţ wPĎ⅞ŕ ŕ⅞ś ⅞śś ĎţĹ ĂĎ ľţF Ŧ Pt ŕ⅞θ í Ť śt óĎţt t ŕt Ğ ŕt w⅞ĂĎĎ Ğ ţwPóĞwĂŕ ŕt ĞĽĂwś w⅞ĂĽţ wś

I ţĹ Ŧ PľŤ wC9a 9 Ăwś óśţóĞ śŋóţwśŕ ⅞ţ źwţF ĽĂwś w⅞ĂĽţ wś

Ď śŦ Ăŋ ŕŦ PŦ ĞŋśĞwţźśŋóţwPwś ţźwC9a 9 źwţF ĽĂwś w⅞ĂĽţ wŦ Ăθ ĽśľĂĎPĎ⅞śŕ źwţF ŕśĂŕĞwţź ⅞śś śVPŕóŦ śt ⅞śt w⅞ĂĎĞŕ ćśĎ śwś ľĂĎPĎ⅞ĂĽţ wĂwś Ŧ Ăŕ ś ĂŕĂĎĞĽĞ ŕt ⅞śś ! wt ! b{! 9a 9 wśóţwĂ⅞ŵ ówţwŋŕ śŕ Ľθ ⅞śś ⅞śĞľţF Ŧ Pt ŕľĂĽţ wľ ţF óĂt ŕśwţź ⅞śś wĂŕ ŕ ţQwśVPśt ľθ b ĂĽţ ĂĎ⅞ŕ ! wŕŕ ŕŋśŕ ŕ śĽwŕ⅞śĺ ŕ ŕ ŕ ćśźt w⅞ĂźţF ćĂPćśĎ ś ĽĂwś w⅞ĂĽţ w⅞śwŦ Ăθ Ľś ĎţľĂ⅞śŕ Ľθ wśĂwŕŕ ŕt ĞĽθ óţwĂ⅞ţŕ ś ţwŕ⅞ţ t ćś

9a 9 śŋóţwPwś ⅞ţ ⅞śś óPĽĎŕ źwţF ĽĂwś w⅞ĂĽţ wŕŕw ⅞θóŕľĂĎĎ ŕ Pt ŕ wśŕ wţźĂŦ śwĽśĎţ ⅞śś ĎŦ ŕ⅞ŵźţ⅞śś ! wt ! b{! wC{ ⅞ţt ŕ Ăwŕ ćś

Do base stations cause any health ś źźśľ ⅞ńŽ

l śĂŐ‰ ĂP⅞‰ ŲŗŽAśẅĂŵŲPŧ ŕ ⅞‰ś í ŲŵĐĺ ŧŧ ľ Đŕŧŧ Ĝ ! wt ! b{! Ăŧ ŕ ⅞‰ś í ŲŵĐ l śĂŐ‰ h ẅĜĂŧ ŧvĂĂAŲŧ ĺ Ĭ Ăŕńś śnńĂŦŧŧ śŕ ⅞‰ś ẅŧŧśt 'Acľ śńŗŕ śt ľ ś ẅśĜĂẅŧŧ Ĝó Ų ẅẅŧL'Ĝ Ĭ śĂŐ‰ śΓśľ ⅞ńźźŵŲŦ L'Ăẅś ẅŽĂAŲŧ ẅś/ Pẅẅŧŧŧ ⅞ńẅśẅśĂẅĬ ŧŧ ŕ ŧľ Ăźśẅ⅞‰Ăź⅞‰śẅś Ăẅś ŧ Ų śẅŽĂL'ŐŐŕ śŕ Ĭ śĂŐ‰ śΓśľ ⅞ńẅ źŵŲŦ ⅞‰ś ŐŲĺ śnńŲŵPẅś ⅞Ų ⅞‰ś wC9a 9 źŵŲŦ Ŧ Ų L'Ĝ óĬ Ŧŧ ś L'Ăẅś ẅŽĂAŲŧ Ăŧ ⅞śŧŧ Ăẅś

l Ŧŧ ĂL'ŲP⅞ńśŲńĜ í Ĭ Ŧŧ í Ŧẅŗ ńśẅθ ľ ŐŲẅś ⅞Ų L'Ăẅś ẅŽĂ⅞‰Ŧŧ Ăŧ ⅞śŧŧ Ăẅ

í Ŧẅŗśẅ ẅĂľ śẅẅŧŧ Ĝẅ ŲĚŲńẅĂŧ ŕ ⅞Ŧŧ śẅẅ⅞‰Ăź⅞ Ų Pẅś L'Ăẅś ẅŽĂAŲŧ Ăŧ ⅞śŧŧ Ăẅ Ŧ Pẅ⅞ľ Ŧŧ ẅP'Ŕ⅞ T⅞‰ L'PTŐŧŧ ĜĂŧ ŕ źĂľ TŐ/θ Ŧ Ăŧ ĂĜśŦ śŧ ⅞‰źŲẅś śŧ ⅞śẅŧŧ Ĝ⅞‰ś ẅ⅞śś! ĜPŕŕ ś ⅞Ŧ í Ŧẅŗŧŧ ĜẅĂźśŐŧŧ śĂẅŦ Ŧ L'Ĝ óĬ Ŧŧ ś L'Ăẅś ẅŽĂAŲŧ ẅẅẅ ĂńĂŧŐL'Ĝ Ăź⅞ Δóẅ⅞ź⅞ í í śĂŕ ŧŲŧ Ŧẅŗẅ ĂźśŧŲŦ śĂP⅞śs

Conclusion

b Ŧ Ăŕ ńśẅẅś Ĭ śĂŐ‰ śΓśľ ⅞ńẅĂẅś śnńóśľ ⅞śŕ źẅŲŦ ľ Ŧŧ 'Ăŧ PŲPẅśnńóŲẅPẅś ⅞Ŧ ⅞‰ś wC9a 9 śŦ ŧΔśŕ L'θ ⅞‰ś Ăŧ ⅞śŧŧ Ăẅŧŧ Ŧ Ŧ Ŧ L'Ĝ óĬ Ŧŧ ś L'Ăẅś ẅŽĂAŲŧ ẅś

! wt ! b{! í ŧŐŐ/ Ŧŧ 'Ăŧ Pś ⅞Ŧ ẅśńŗśí ⅞‰ś ẅśẅśĂẅĬ Ĭ ŧŧ ⅞Ŧ óŲ/śŧ 'ĂĂŐ śĂŐ‰ śΓśľ ⅞ńẅŲźwC9a 9 śŦ ŧẅŗẅŲŧ ẅźẅŲŦ Ŧ Ŧ L'Ĝ óĬ Ŧŧ ś L'Ăẅś ẅŽĂAŲŧ ẅĂŧ ŕ Ŧ⅞‰śẅẅŲPẅśẅẅŧŧ Ŧẅŗ śẅ⅞Ŧ óẅŲńŗŕ ś Ăľ ľ PẅĂźś Ăŧ ŕ Pó⅞Ŧŕ Ăźś Ăŕ ńŗľ śś

Ŭẅśźŕ Ŧŧ ŋẅ

! wt ! b{! źĂľ ⅞ẅĬ śś⅞Ŧ wC9a 9
í í í śĂẅóĂŧ ẅĂśĜŲńŗśĂP⅞ŵĂŕ ŧĂĂAŲŧ ẅŲ⅞śľ 'AŲŧ ⅞L'ĂẅĬ ẅ⅞ẅźśźF

Ŧ śŕ ! wt ! b{! wC{ ⅞Ăŧ ŕ Ăẅẅ
í í í śĂẅóĂŧ ẅĂśĜŲńŗśĂP⅞ŧ PL'ŐŐ/ ĂĂAŲŧ ẅ⅞ľ Ŧŕ śẅ⅞ẅóẅóẅśźF

í l h źĂľ ⅞ẅĬ śś⅞Ŧ L'Ăẅś ẅŽĂAŲŧ ẅ
í í í śŕ Ĭ Ŧŧ ⅞ńśĬ ,śŦ ź⅞óPL'ŐŐ/ ĂĂAŲŧ ẅ⅞źĂľ ⅞ẅ⅞źẅó ẅ⅞śŧ ⅞

! a Ŧ Ĭ ŧźŲẅŦ ĂĂAŲŧ Ŧŧ ! PẅẅĜĂŐŐĂŧ L'Ăẅś ẅŽĂAŲŧ ẅ
í í í śẅŧ ẅĂśŕŲŦ śĂP
í í í śŦ Ŧ Ŧ L'Ĝẅ⅞śẅĂźś⅞ŐŕŲŦ śĂP

ServiceStream

27 May 2022

Elizabeth Wilson
Development Appraisal Planner - City Life
City of Hobart
50 Macquarie Street
Hobart Tas 7000

Dear Elizabeth,

Application: PLN-21-823 – Tasmanian Hockey Centre, 1 Bell Street, Newtown

Proposal to Upgrade an existing Telecommunications Facility

Response to Representation – Hockey Tasmania

We refer to the representation received from Hockey Tasmania (HT) in relation to Application No. PLN-21-823 for the upgrade of the Telstra telecommunications facility which is installed on a flood light pole at the Tasmanian Hockey Centre (THC), 1 Bell Street, New Town.

We have reviewed the items raised by HT management, which are about the potential impacts of proposed construction works, should planning approval be granted for the Telstra upgrade project (rather than planning considerations or merits of the planning application).

We understand that HT management wish to highlight their concerns to Council and Servicestream on behalf of Telstra, and are seeking clarification and assurances the proposed construction process will not unduly impact their use of the hockey centre grounds during the works period.

Please find our response below and reply to each of the issues that have been raised:

Response to Construction Questions

HT require advanced notice of any works on site at the THC, work is only to be done between 7am-3pm weekdays
Servicestream will consult with HT and Council prior to construction commencing on the Hockey Centre grounds to establish mutually agreeable work start and finish times. No build activity will be undertaken on the structure and surrounding area without prior consultation with HT and Council.

There's no disruption to any hockey activity or disruption to any services i.e water/ power
Water Services - Based on an underground service search and discussions with TasWater, there are at least two pipes, water main and a sewer pipe, which are in close proximity to the flood light pole where the Telstra mobile equipment is installed. Servicestream is engaging an accredited plumber to investigate options and provide technical advice regarding the water infrastructure which is to be relocated. Servicestream will consult with HT about any potential disruptions prior to works commencing.

ServiceStream

Power Services - We understand that HT require that the flood lighting be kept operational for use during training and hockey matches whilst Telstra undertake their construction works. The works will be scheduled so as not to disrupt the arena lighting.

We can advise that the hockey lighting switchboard will need to be temporarily removed and relocated with a temporary connection, to enable the Telstra works to be undertaken. After the upgrade works are completed, the switchboard will be reinstated and mounted back onto the new footing. All reasonable measures will be undertaken to minimize disruptions, if any.

Telstra remediate any areas at their cost that maybe effected by the upgrade
The construction works area will be managed and contained as much as is safely practicable to minimize impacts to the hockey grounds and surrounding area. Once construction is completed, all reasonable measures will be undertaken to remediate the works area at Servicestream/Telstra's cost.

As the land is fill, our team will need to use form tubing for bored piers for 2-4m depending on the conditions. The ground will need cutting and filling to level out for drilling and the area reinstated afterwards. As it will not be possible to drive to the footing, it will be necessary to crane the reinforcement into the site.

There is no liability to HT in relation to any part of the upgrade and HT would require compensation for any lost earnings if any of the above was not met.
Servicestream will consult with HT and Council prior to and throughout the construction process until works are fully completed, to ensure there will be minimal disruption, if any, to the use of the Hockey Centre grounds, thus ensuring there will be no loss in earnings incurred by HT.

Planning Scheme Compliance

The Telstra proposal accords with the Hobart Planning Scheme and policies for the provision of efficient, high quality mobile telecommunications infrastructure within the municipality. The proposed works, which will include pole strengthening and upgrading the footings, will enable the continued co-location of the Telstra telecommunications facility on the flood light pole within the Hockey Centre grounds.

Need for the Facility Upgrade

The upgraded telecommunications facility will not only benefit the local New Town residents, business community and service busy traffic corridors in the area, it will also provide improved mobile coverage services for employees, users and visitors to the Tasmanian Hockey Centre.

Conclusion

We trust this explanation addresses the concerns expressed by HT in their representation regarding Telstra's proposed upgrade and construction works on the flood light pole at the Tasmania Hockey Centre. All reasonable measures will be undertaken to consult with HT to minimize and mitigate any potential disruptions.

ServiceStream Limited ABN 46 072 369 870
HEAD OFFICE Level 4, 357 Collins Street, Melbourne VIC 3000 | Mailing Address: PO Box 14570, Melbourne VIC 8001
T +61 3 9677 8888 | F +61 3 9677 8877 | E info@servicestream.com.au | www.servicestream.com.au

ServiceStream

Telstra would be agreeable to the inclusion of a permit condition that a build schedule be prepared in consultation with Hockey Tasmania for management of the construction process for this important telecommunications infrastructure upgrade project.

Yours sincerely,

Barbara Grinter
Planning Consultant (on behalf of Telstra)
Service Stream – Telecommunications

ServiceStream Limited ABN 46 072 369 870
HEAD OFFICE Level 4, 357 Collins Street, Melbourne VIC 3000 | Mailing Address: PO Box 14570, Melbourne VIC 8001
T +61 3 9677 8888 | F +61 3 9677 8877 | E info@servicestream.com.au | www.servicestream.com.au

7.1.6 ETA-21-158 - 209-213 Harrington Street, Hobart - Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire
File Ref: F22/49954

Memorandum of the Manager Development Appraisal of 27 May 2022 and attachments.

Delegation: Council

City of HOBART

MEMORANDUM: CITY PLANNING COMMITTEE

ETA-21-158 - 209-213 Harrington Street, Hobart - Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire

Introduction:

This memorandum relates to a request to extend the time in which to substantially commence planning permit PLN-18-770 for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire at 209-213 and 215-217 Harrington Street, and Adjacent Road Reserve, Hobart.

A copy of the permit granted on 20 May 2019, along with the plans which are incorporated into the permit at **Attachment A**. The original planning report (without attachments) is at **Attachment B.**

Executive Summary:

This application is recommended for approval.

While the proposal does not meet the current planning scheme provisions, taking into account all the circumstances of this application, it is recommended for approval for the following reasons:

(a) it is not an express requirement of the legislation which allows for an extension of time that a proposal must meet the current scheme provisions;
(b) the initial assessment of an earlier version of this proposal led to unforeseeable and unfortunate delays and increases in costs, arising from a change to the assessment process required by a Tribunal decision on another site, which prompted the withdrawal of that application and design changes which formed the proposal for which a permit was granted; and
(c) the previously approved development is considered to demonstrate an acceptable degree of compliance with the majority of the recent Residential Amenity and Waste Storage and Collection standards for the

Commercial Zone, with the exception of the setback requirements in clauses 23.4.8 A2/P2.

In the event that the Council has concerns about the approval of an extension of time, it is recommended that the determination of this application is deferred for the following reasons:

(a) the applicant may wish to propose minor changes to the approved development to address any concerns raised by the Council; and
(b) if this application is refused then the permit will have lapsed and can only be revived by making a new application which will be a much more expensive and time-consuming process for the applicant.

Background:

Application process:

The initial application for a development of this nature was made on 29 November 2017. It was assessed and recommended for approval by Council officers. A report was provided to the City Planning Committee and it was considered on 26 March 2018. The Committee passed the following resolution:

> *That the matter be deferred to a Special City Planning meeting, prior to the Council meeting scheduled for 9 April 2018, to allow for further discussions between Council Officers and the Applicant in relation to a possible ceiling height reduction and further scope for a greater transition in height with the adjacent residential properties.*

Before the proposal was considered by the Council, the Tribunal handed down a decision (*The House Family Office Pty Ltd v Hobart City Council* [2018] TASRMPAT 6) which altered the way that acceptable solutions were required to be taken into account when assessing an application. A copy of the memo from the Manager Development Appraisal at the time is at **Attachment C**. As a result of this change, the application became recommended for refusal. The application was withdrawn.

A further application was lodged on 29 October 2018, having made design changes taking into account the Tribunal decision. The proposal was assessed under the *Hobart Interim Planning Scheme 2015*. There were eleven discretions. The proposal was recommended for approval by Council officers. The analysis of the discretions is contained in paragraph 6.7 and following of

Attachment B.

Nine representations (six objecting, three in support) were received within the statutory advertising period with concerns including the height and form of the building being inappropriate, the building's impact upon surrounding amenity, the reduced amount of car parking not being justified, and the impacts of the additional traffic generated by the proposal upon the surrounding road and footpath network.

On 20 May 2019, planning approval was granted by the full Council for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire at 209-213 and 215-217 Harrington Street, and Adjacent Road Reserve, Hobart.

No appeal was lodged with the Resource Management and Planning Appeal Tribunal, and as such, the planning permit commenced was the date of approval, 20 May 2019.

The applicant has two years from the date of the permit to substantially commence the development, which is 20 May 2021, and six additional months until 20 November 2021 to request a two year extension of time in which to substantially commence. There has been no work undertaken to date. A building application for demolition was lodged with the Council, however this application was refused due to outstanding condition endorsement requirements.

Current application:

The applicant has requested a two year extension of time (until 20 May 2023) within which to substantially commence the work. The request is made under section 53(5A) of the *Land Use Planning and Approvals Act 1993*.

The request was made on 7 April 2021, which is within the initial two year period allowed under this provision. If the request for an extension of time is not granted by the Council, the planning permit will have lapsed (on 20 May 2021) and the applicant will not be able rely on it to undertake the development.

The applicant has indicated that the need for the extension of time in which to substantially commence the planning permit is because they have been 'unable to secure a contractor to progress design documentation and construction in the current building climate.'

Normally, requests for an extension of time to substantially commence a permit are determined at officer level under delegation. However, that officer

delegation can only be exercised when the 'strategic intent of the relevant planning scheme has not significantly changed'.

Since the application was lodged and approved, standards for residential amenity and also waste storage and collection have been introduced to the Commercial Zone. These standards address noise levels, setbacks, windows, private open space, communal open space and storage space, as well as provision for on-site waste storage and collection and the use of either individual or bulk waste bins.

If the new provisions for residential amenity and waste storage and collection represent a significant change in the strategic intent of the previous provisions of the Commercial Zone so far as they are applicable to the development, delegation to determine the request to extend the time in which to substantially commence the permit rests with the Council.

Planning Evaluation:

The strategic intent of the planning scheme:

When the proposal was assessed under the *Hobart Interim Planning Scheme 2015*, there were no development standards for the residential amenity of dwellings or waste storage and collection in the Commercial Zone.

The new standards can be found in **Attachment D** to this memorandum.

Although addressing to an extent some of the fundamental aspects of good design, the proposed development was not designed to the level of detail required to meet these standards, likely because they weren't required to do so as the standards didn't exist and weren't required to be considered at the planning stage. Residential amenity should in any case still have been an important factor, and it is most likely that these considerations would have simply been based on what was required in order to meet building code standards. The level of detail provided for the commercial servicing of the development was also likely just a product of minimum required to address the planning scheme at that stage.

<u>Waste Storage and Collection</u>

With regard to waste storage and collection, the submitted application includes a Traffic Impact Assessment and confirms that commercial vehicle facilities for loading and unloading of goods is not proposed to be located on site and confirms that the site will be serviced on street. A recommendation of the

Traffic Impact Assessment is that some adjacent kerbside space on Harrington Street be dedicated to service vehicles to cater for refuse collection and other services. Internal to the site with the ground floor parking level, a 20m^2 garbage storage space is shown adjacent to the Patrick Street carpark entry/exit point. There is no further detail provided as to how this space would be managed or accessed, other than what appears to be other than via a single roller door opening from the internal driveway.

Permit conditions include that internal connections from both ground floor commercial tenancies to the garbage storage space must be incorporated into the plans, as well as the requirement for a waste management plan for commercial and domestic waste and recycling to be submitted for endorsement. It is presumed that the site would make use of bulk waste bins shared between the commercial tenancies and residential dwellings. As such, the proposal would likely comply with the Acceptable Solution A1 of clause 23.4.9 regarding Waste Storage and Collection.

Although not providing enough detail to meet all of the tests of the Acceptable Solution A2 for bulk waste bins, namely not showing separate areas for storage and management of recycling and compostables and not showing separate storage spaces for commercial and residential bins with separate access to each, it is expected that compliance could be demonstrated by detailing this space further. As such, it is considered that the proposal is capable of compliance with the Acceptable Solution but as shown complies with the corresponding performance criteria P2.

As the proposal confirmed that waste would not be collected from on site, compliance with the Acceptable Solution A3 is not demonstrated. As the corresponding performance criteria P3 requires a waste collection plan, it is contended that as the permit includes a condition for a waste management plan to be submitted for endorsement and to be implemented on an ongoing basis, the desired outcome intended in the performance criteria can still be achieved.

<u>Residential and Visitor Accommodation Amenity</u>

To assist in the assessment of the application against the subsequent amenity provisions now included in the *Hobart Interim Planning Scheme 2015*, the applicant has prepared their own response to determine the proposal's level of compliance with these standards. This response can be found in **Attachment E** to this memorandum. This response has been taken into account in the following consideration of the development's ability to comply with these standards.

A1:
In terms of Acceptable Solution A1 of clause 23.4.8, the level of detail provided

at the time was insufficient to determine whether or not design elements would allow the achievement of internal noise levels in accordance with relevant Australian Standards for acoustics control. That being said however, management of noise levels would have been a practical consideration likely to have been covered in the detailed design phase as part of achieving building code certification.

The applicant has responded stating that architectural advice confirms all residential apartments are capable of being designed to meet the Australian Standard, with compliance achieved with the use of double glazing; application of seals to all sashes and doors; use of internal wall insulation to meet the thermal and acoustic ratings required by the standard. The applicant states that *'In order to comply with the National Construction Code, the building will need to be documented to accord as far as practicable with all applicable Australian Standards. On this basis, documented drawings would include notes and specifications that are the same or similar to the above points.'*

As designed and approved, it appears the development could demonstrate compliance with the Acceptable Solution A1 however with the level of detail provided the development would be discretionary in this regard.

The corresponding Performance Criteria P1 of clause 23.4.8 require:

Residential or visitor accommodation development must demonstrate that design elements are able to achieve internal noise levels in accordance with relevant Australian Standards for acoustics control (including AS3671:1989 – Road Traffic Noise Intrusion (Building Siting and Construction) and AS2107:2016 – Acoustics (Recommended Design Sound Levels and Reverberation Times for Building Interiors)), unless:

(a) alterations required to meet these standards would negatively impact on historic cultural heritage values of an existing building listed as a place, or within a precinct, in the Historic Heritage Code; or

(b) external alterations of an existing building that are required to meet these standards would negatively impact on the streetscape.

The information submitted with this permit extension application suggest that the development can comply with the tests of the Performance Criteria P1.

A2:
Acceptable Solution A2 of clause 23.4.8 requires residential apartment components to maintain setbacks from side and rear boundaries. All three levels of residential apartments include single aspect apartments built up to site boundaries and therefore the development would rely on performance criteria in

this regard. The Performance Criteria P2 require that:

Residential or serviced apartment components of a new building must be designed to allow for reasonable access to daylight into habitable rooms and private open space, and reasonable opportunity for air circulation and natural ventilation, having regard to:

(a) proximity to side and rear boundaries;
(b) proximity to other buildings on the same site;
(c) the height and bulk of other buildings on the same site;
(d) the size of any internal courtyard or void;
(e) the use of light wells or air shafts;
(f) development potential on adjacent sites, considering the zones and codes that apply to those sites; and
(g) any assessment by a suitably qualified person.

The applicant provides the following response:

'Each residential apartment allows for reasonable access to daylight into all habitable rooms and private open space and will allow for opportunity for air circulation and natural ventilation. All habitable rooms will be provided with a glazed window and/or door which will allow daylight to enter into each room. Likewise, each apartment will be provided with multiple external openings which will allow the creation of natural air circulation and ventilation throughout each apartment. All areas of private open space will have an opening that faces a boundary which will allow access to daylight.

'The apartment building (including balconies) will be built to the boundaries of the site and will be the sole building on the site. As it is proposed to be located at the corner of Harrington Street and Patrick Street, it will not obstruct, or be obstructed by buildings to the south-west or south-east. Adjoining lots to the north-west and north-east which comprise a carpark, a single level industrial building and a double level residential building. The finished floor level of each apartment will be located predominantly above adjoining buildings. This is further supported by the falling topography in the surrounding area in a north-easterly direction whereby the roofline of the adjacent two-storey building is level with that of the first floor level of the apartment building.

'Each apartment is provided with external windows and private balcony located at the outer elevations of the building. Consistent with the matters outlined above, it is expected that each apartment will allow for reasonable access to daylight into habitable rooms and private open space with reasonable opportunity for air circulation and natural ventilation.

'Given that the intent of the Commercial zone is to facilitate a variety of uses

ranging in size and scale, the development potential of adjacent sites in relation to the proposed development is not considered to be compromised.'

The applicant's response is not considered to adequately address the performance criteria. Of concern are the apartments on each level that adjoin 221 Harrington Street to the north west, and 247 to 270 Murray Street to the north east. The proposed building is built to these boundaries, and a number of dwellings on each level have their only windows and private open space oriented in the direction of these boundaries. In addition, the proposed building employs no internal courtyards or voids, or light shafts or wells. The development potential of these adjoining sites is considered to be good. Noting that they are not encumbered with any heritage listing (apart from archaeology), and the permitted building height is 15m/four storeys for a residential development (a similar sized building to the approved building, in other words). As such, these dwellings are considered to be particularly susceptible to losing reasonable access to daylight into habitable rooms and private open space directly as a consequence of the design of the proposed building, and the likely development potential on the adjoining sites.

Figure 1: The footprint of the proposed building is shown in blue. The boundaries of concern are shown in red. The boundaries in yellow are not of concern because they adjoin sites that are heritage listed so their development potential is considered to be limited, and therefore dwellings adjoining those boundaries are considered likely to retain adequate access to daylight. Similarly, the boundaries in green are street frontages, and so dwellings facing these boundaries are not at risk of losing access to daylight.

Figure 2: The dwellings of concern are shown highlighted red. This is for dwellings across floors 1, 2 and 3. These dwellings are of concern because they are built to the boundary, have their habitable room windows and areas of private open space oriented towards the boundaries, there are no other design features affording light to the dwellings, and the development potential of the adjoining sites is considered to be good.

It is noted that when this application was referred to the Council's Urban Design Advisory Panel they provided the following relevant comments:

"[The Panel was concerned about] the protection of residential amenity (setback) with the balconies and windows located on the boundary of the site.

The Panel also questions the adequacy of the Planning Scheme in its ability to promote and protect residential amenity in the Commercial Zone as this current proposal basically complies with the Scheme provisions. The Panel sees very little support from within the Scheme to champion a better design outcome."

It was largely in response to this proposal that there are now amenity standards contained in the planning scheme.

Noting the above, if the proposal were submitted today, it is not considered likely that it would comply with clause 23.4.8 P2.

A3:
The Acceptable Solution A3 of clause 23.4.8 requires that every habitable room in a dwelling: (a) must have at least one external window; (b) must have at least one external window visible from all points of the room if a living room; and (c) where the only external window in the room is located within a recess, that recess must be: (i) a minimum width of 1.2m, and (ii) a maximum depth of 1.5 times the width, measured from the external surface of the external window; and (d) must have a room depth from an external window of: (i) not more than 2.5 times the ceiling height; or (ii) If an open plan layout (where the living, dining and kitchen are combined), not more than 8m.

The approved design includes external windows and/or doors for each habitable room of each dwelling. Each living room will include one external window/door to a balcony which would be visible from all points of that living room. Recessed windows exceed the minimum specifications of the Acceptable Solution. Each bedroom within the approved development has a maximum room depth from a window of 5.5m, which based on a finished ceiling height of 2.9m is less than the allowable depth of 7.25m.

All dwellings have open plan, combined living, dining and kitchen areas. If not measuring beyond the internal face of kitchen benches, room depths for open plan elements do not exceed eight metres. The development complies with the requirements of Acceptable Solution A3.

A4:
Acceptable Solution A4 of clause 23.4.8 is met by the proposal as each of the thirty-nine dwellings is allocated private open space in the form of a balcony.

A5:
Acceptable Solution A5 of clause 23.4.8 requires one bedroom dwellings to be allocated no less than 8m^2 of private open space with a minimum horizontal dimension of 1.5m. Two bedroom dwellings must be allocated a minimum of 10m^2 of private open space and three bedroom dwellings a minimum of 12m^2. Minimum horizontal dimensions of two and three bedroom private open spaces is 2m. Further, private open space areas must not include plant and equipment such as outdoor components for air conditioning. Unless drying facilities are provided elsewhere, spaces must include a clothes drying area of

at least 2m^2 in addition to the minimum area for the dwelling size, and this may be in a separate location, screened from public view. Compliant private open space areas above ground level must not be located within five metres of the private open space of any other dwelling in another building; and private open space areas must be screened visually and acoustically from mechanical plant and equipment, service structures and lift motor rooms.

The applicant confirms that the westernmost one bedroom dwelling on the second and third floors have a private open space area of 7m^2. All other one bedroom dwelling have areas above 8m^2. Each two bedroom dwelling has an area ranging in size from 11m^2 to 25m^2. Each three bedroom dwelling has an area of 17m^2 to 23m^2. All private open space areas except for the three central two bedroom dwellings abutting Harrington Street on exceed minimum horizontal dimension standards. The minimum horizontal dimensions for the private open spaces for these dwellings is 1.75m.

The applicant declares that no private open space area will include plant or equipment, and mechanical drying facilities are capable of being provided within the laundry of each dwelling. The dwellings are conjoined, and as such the five metre separation requirement is not applicable.

The applicant concludes in stating that as each area of private open space is located to the outer edges of the building they will be screened visually and acoustically from service structures and lift motor rooms by the apartment itself. Mechanical plant and equipment are not proposed to be located in proximity to an area of private open space, though balconies will be screened with glass and balustrade from any mechanical plant and equipment external to the site.

The Performance Criteria P5 of clause 23.4.8 state:

Private open space for dwellings or serviced apartments must provide reasonable amenity and be capable of meeting the projected outdoor recreation requirements of occupants, having regard to:

(a) the size and minimum dimensions of the space, excluding space occupied by plant and equipment such as outdoor components of an air conditioning unit;

(b) the amount of space available for furniture or plantings; (c) the potential for significant noise intrusion;

(d) proximity and overlooking to the private open space of existing adjacent residential and serviced apartment developments;

(e) screening where necessary for privacy that does not unreasonably restrict access to daylight;

(f) screening where necessary for noise and wind protection that does not unreasonably restrict access to daylight;

(g) screening from public view for clothes drying areas; and

(h) any advice from a suitably qualified person.

The proposed areas of private open space are for the most part exceed the minimum area and dimension standards of the Acceptable Solution. Where non-compliant, there is only minimal deviation below the minimum standard. On balance the proposed areas of private open space are considered to meet the performance criteria.

A6:
Acceptable Solution A6 of clause 23.4.8 requires sites with ten or more dwellings to provide communal open space on the site. The proposal does not include communal open space area. The corresponding Performance Criteria P5 requires communal open space to be provided on site unless *(iii) private open space is provided for all dwellings or serviced apartments on the site, provides a reasonable level of amenity in terms of access to sunlight and outlook, and sufficiently caters for flexible outdoor recreation needs including relaxation, entertainment, planting, outdoor dining and children's play.*

As previously discussed, each dwelling is allocated an area of private open space, and there is only a minimal degree of variation from the acceptable solution for six of the thirty-nine dwellings. Given the scale of the dwellings, the allocated private open space is considered to provide a reasonable level of amenity through access to sunlight and outlook, and will sufficiently cater for flexible outdoor recreation needs including relaxation, entertainment, planting, outdoor dining and children's play. The Performance Criteria P5 is therefore considered met by the proposal.

A7:
Acceptable Solution A7 of clause 23.4.8 requires that each multiple dwelling must be provided with a dedicated and secure storage space of no less than $6m^3$, located externally to the dwelling. Where the Acceptable Solution is not met, the corresponding Performance Criteria P7 of the clause require each multiple dwelling to be provided with adequate storage space.

The applicant states that laundries within the dwellings are capable of providing a $12.1m^3$ area of storage space. Apart from limited internal storage space within wardrobes, kitchens and laundries, there is no externally located area of secure storage space provided for the dwellings in the development.

Summary:

The previously approved development is considered to demonstrate an acceptable degree of compliance with the majority of the recent Residential Amenity and Waste Storage and Collection standards for the Commercial Zone, with the exception of the setback requirements in clauses 23.4.8 A2/P2.

Conclusion:

The strategic intent of the *Hobart Interim Planning Scheme 2015* has significantly changed in respect of 209-213 Harrington Street, Hobart as the Commercial Zone still applicable to the site now includes standards for residential and visitor accommodation amenity and waste storage and collection, relevant to the development but not part of the scheme at the time of approval. Therefore delegation to determine the request to extend the time in which to substantially commence the permit rests with the Council.

As a consequence of the change in strategic intent of the planning scheme provisions applicable to the site, if this proposal for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire at 209-213 and 215-217 Harrington Street, and Adjacent Road Reserve, Hobart was submitted under the current planning scheme, it is considered that it would not be recommended for approval because it would likely not be considered to meet the setback requirements in clause 23.4.8 A2/P2.

Despite this, the application for an extension of time in which to substantially commence the planning permit is recommended for approval. This is in recognition of the efforts made by the applicant to meet the scheme which was applicable at the time that the permit was granted.

The legislation does not expressly require that an extension may only be granted in circumstances where an approved use and development would meet the current scheme provisions.

It is noted that there has been a recent change to the *Land Use Planning and Approvals Act 1993* so that the scheme which exists at the time an application is made (not the date of the decision) which is the relevant scheme to be taken into account by the planning authority. This acknowledges that schemes change and this can have costly implications for applicants if the change occurs during the approval process.

The same approach could be taken to a request for an extension of time – the use and development met the scheme at the time it was approved and by

allowing for two extensions of time (up to a total of six years to substantially commence), it is almost inevitable that there will be some changes to the scheme within that time.

In the event that the Council has concerns about the approval of an extension of time, it is recommended that the determination of this application is deferred for the following reasons:

(a) the applicant may wish to propose minor changes to the approved development to address any concerns raised by the Council; and
(b) if this application is refused then the permit will have lapsed and can only be revived by making a new application which will be a much more expensive and time-consuming process for the applicant.

RECOMMENDATION

That:

1. ***The Council approves the application for an extension of time in which to substantially commence planning permit PLN-18-770.***

2. ***The Council delegates the power to grant a further extension of time to substantially commence planning permit PLN-18-770 pursuant to section 53 of the Land Use Planning and Approvals Act 1993 to the Director City Life.***

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Karen Abey
MANAGER DEVELOPMENT APPRAISAL

Date: 27 May 2022
File Reference: F22/49954

Attachment A: ETA-21-158 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Attachment A - Planning Permit Approved (including documents) - PLN-18-770 ⇩

Attachment B: ETA-21-158 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Attachment B - Original Planning Report PLN-18-770 ⇩

Attachment C: ETA-21-158 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Attachment C - Memorandum by Manager Development Appraisal ⇩

Attachment D: ETA-21-158 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Attachment D - Commercial Zone Residential and Visitor Accommodation Amenity and Waste Storage and Collection standards of the Hobart Interim Planning Scheme 2015 ⇩

Attachment E: ETA-21-158 - 209-213 HARRINGTON STREET HOBART TAS 7000 - Attachment E - Applicant's assessment of the development against the Residential and Visitor Accommodation Amenity standards of the Hobart Interim Planning Scheme 2015 ⇩

Hobart Interim Planning Scheme 2015

Land Use Planning and Approvals Act 1993

Planning Permit

APPLICATION NO	**PLN-18-770**
ADDRESS	**209 - 213 HARRINGTON STREET, HOBART & 215 - 217 HARRINGTON STREET & ADJACENT ROAD RESERVE**
PROPOSAL	**DEMOLITION AND NEW BUILDING FOR 39 MULTIPLE DWELLINGS, FOOD SERVICES AND GENERAL RETAIL AND HIRE**
PERMIT DATE	**20 May 2019**

The following conditions and restrictions apply to this permit:

The use/development of the land for the purpose of Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire subject to the following conditions and restrictions.

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-18-770 209-217 HARRINGTON STREET HOBART TAS 7000 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2018/01768-HCC dated 14/12/2018 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

PLN s1

Internal access must be provided between the two retail tenancies and the ground floor garbage area prior to the commencement of use, and must be maintained for the life of the building.

Reason for condition

To avoid the operators of the retail tenancies using public footpaths and streets to access the ground floor garbage area

PLN s2

The palette of exterior colours and materials must reflect those within the local streetscape to the satisfaction of the Council's Director City Planning.

Prior to the issue of any approval under the *Building Act 2016* (excluding demolition), plans showing exterior colours and materials in accordance with the above requirement must be submitted and approved.

All work required by this condition must be undertaken in accordance with the approved plans.

Reason for condition

To ensure that the development is undertaken in a manner that is sympathetic with the local streetscape.

PLN s3

The outdoor area at first floor level adjacent to the rear (northwestern) boundary of 81-83 Patrick Street must be landscaped to the satisfaction of the Council's Director City Planning prior to the commencement of the residential use of the building.

A landscaping plan must be submitted and approved by the Council's Director City Planning prior to the issue of any building permit (excluding demolition). The landscaping plan must:

1. **show the species and location of proposed trees and shrubs, and other structures, finishes, and the like for the outdoor area.**

All work required by this condition must be undertaken in accordance with the approved landscaping plan and maintained by the building owners for the life of the building.

Advice:

Once the landscaping plan has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Reason for condition

To provide landscaping on an area of the building with an unspecified use

ENG 12

A construction waste management plan must be implemented throughout construction.

A construction waste management plan must be submitted and approved, prior to commencement of work on the site. The construction waste management plan must include:

1. **Provisions for commercial waste services for the handling, storage, transport and disposal of post-construction solid waste and recycle bins from the development; and**
2. **Provisions for the handling, transport and disposal of demolition material, including any contaminated waste and recycling opportunities, to satisfy the above requirement.**

All work required by this condition must be undertaken in accordance with the approved construction waste management plan.

Advice:

- *Once the construction waste management plan has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*
- *It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill. Further information can also be found on the Council's website.*

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG sw1

All stormwater from the proposed development (including but not limited to: roofed areas, ag drains, retaining wall ag drains and impervious surfaces such as driveways and paved areas) must be drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

ENG sw4

The development must be drained to Council infrastructure taking into account the limited receiving capacity of Council's infrastructure. Any new stormwater connection(s) required must be constructed, and existing redundant connections must be sealed, by the Council at the owner's expense prior to issue of a Certificate of Completion / first occupation/ sealing of the final plan, whichever comes first.

Detailed design drawings showing both existing and proposed services and calculations must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The detailed design drawings must be checked and certified by a qualified and experienced engineer and include:

1. **The location of the proposed connections and all existing connections;**
2. **The size and design of the connection(s) such that they are appropriate to safely service the development given the limited receiving capacity of Council infrastructure (e.g backflow prevention, temporary stormwater storage, overflows);**
3. **Long-sections of the proposed connection(s) clearly showing any nearby services, cover, size, material and delineation of public and private infrastructure; and**
4. **A clear distinction between public and private infrastructure.**

All work required by this condition must be undertaken in accordance with the approved detailed design drawings.

Advice:

- *Once the detailed design drawings have been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*
- *Please note that once the condition endorsement has been issued you will need to contact Council's City Infrastructure Division to initiate an application for service connection.*

Reason for condition

To ensure the site is drained adequately

ENG sw7

Stormwater pre- treatment from the development car park must be installed prior to issue of a certificate of completion or first occupancy.

A stormwater management report and design must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The stormwater management report and design must:

1. **Be prepared by a suitably qualified engineer;**
2. **Include detailed design of the proposed treatment train, including final estimations of contaminant removal; and**
3. **Include a Stormwater Management Summary Plan that outlines the obligations for future property owners to stormwater management, including a maintenance plan which outlines the operational and maintenance measures to check and ensure the ongoing effective operation of all systems, such as: inspection frequency; cleanout procedures; descriptions and diagrams of how the installed systems operate; details of the life of assets and replacement requirements.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

- *Once the stormwater management report and design has been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*

OR

A stormwater management report and design must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The stormwater management report and design must:

1. **Be prepared by a suitably qualified engineer; and**
2. **Include detailed design of the car park area draining to sewer, including approval from Taswater.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

- *Once the stormwater management report and design has been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To avoid the possible pollution of drainage systems and natural watercourses, to comply with relevant State legislation.

ENG sw8

Stormwater detention for stormwater discharges from the development must be installed prior to issue of a certificate of completion or first occupancy, whichever comes first.

A stormwater management report and design must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The stormwater management report and design must be prepared by a suitably qualified engineer and include:

1. **Detailed design and supporting calculations of the detention tank, sized such that there is no increase in flows from the developed site up to 16 l/s for a worst case 5% AEP storm event. All assumptions must be clearly stated.**
2. **Design drawings of the detention tank showing the layout, the inlet and outlet (including long section), and the overflow mechanism.**
3. **Clarification of the emptying times and outlet size.**
4. **A supporting maintenance plan.**
5. **A Stormwater Management Summary Plan that outlines the obligation for future property owners to stormwater management.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

- *Once the stormwater management report and design has been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
  Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure the development's stormwater system takes into account limited receiving capacity of Council's infrastructure.

ENG 13

An ongoing waste management plan for all commercial and domestic waste and recycling must be implemented post construction.

A waste management plan must be submitted and approved, prior to commencement of work on the site. The waste management plan must include provisions for commercial waste services for the handling, storage, transport and disposal of domestic waste and recycle bins from the development.

All work required by this condition must be undertaken in accordance with the approved waste management plan.

Advice:

- *Once the waste management plan has been approved Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG tr2

A construction traffic and parking management plan must be implemented prior to the commencement of work on the site (including demolition).

The construction traffic (including cars, public transport vehicles, service vehicles, pedestrians and cyclists) and parking management plan must be submitted and approved, prior to commencement work (including demolition). The construction traffic and parking management plan must:

1. **Be prepared by a suitably qualified person.**
2. **Develop a communications plan to advise the wider community of the traffic and parking impacts during construction.**
3. **Include a start date and finish dates of various stages of works.**
4. **Include times that trucks and other traffic associated with the works will be allowed to operate.**
5. **Nominate a superintendent, or the like, to advise the Council of the progress of works in relation to the traffic and parking management with regular meetings during the works.**

All work required by this condition must be undertaken in accordance with the approved construction traffic and parking management plan.

Advice:

- *Once the construction traffic and parking management plan has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*
- *A separate construction traffic and parking management plan may be submitted for each stage of the proposed development (i.e. demolition, excavation, construction).*

Reason for condition

To ensure the safety of vehicles entering and leaving the development and the safety and access around the development site for the general public and adjacent businesses.

ENG 3a

The access driveway, and parking module (parking spaces, aisles and manoeuvring area) must be designed and constructed prior to the first occupation and in accordance with Australian Standard AS/NZS2890.1:2004, unless approved otherwise by Council.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 3b

The access driveway and parking module (parking spaces, aisles and manoeuvring area) design must be submitted and approved, prior to

the issuing of any approval under the *Building Act 2016*.

The access driveway and parking module (parking spaces, aisles and manoeuvring area) design must:

1. **Be prepared and certified by a suitably qualified engineer.**
2. **Be generally in accordance with the Australian Standard AS/NZS2890.1:2004.**
3. **Demonstrate safe and efficient access, and use, where the design deviates from AS/NZS2890.1:2004.**
4. **Show all class 1A car parking spaces.**
5. **Show the locations of all structural columns and obstruction with regard to car parking spaces and provide clearance in accordance with Figure 5.2 of AS/NZS 2890.1:2004.**
6. **Show all bicycle parking spaces.**
7. **Show dimensions, levels, gradients & transitions, and other details as Council deem necessary to satisfy the above requirement.**

Advice:

- *A minimum of one (1) bicycle parking space must be provided that is accessible to the customers and a minimum of three (3) bicycle spaces must be provided that is accessible for employees of the commercial use component of the development.*
- *The maximum number of bicycle parking spaces should be provided to offset the deficiency in car parking spaces. Bicycle parking spaces accessible by visitors of the residential component of the development should be provided and may be located in areas such as lobby and/or entrance alcoves, however should not create a hazard for pedestrians or obstruct pedestrian access. Bicycle parking spaces for residents for the residential component of the development should be provided and may be located in any available spaces accessible by residents such as the on-site car park, however should not impact on any of the car parking spaces. All areas that can practically provide for bicycle parking spaces are to be utilised and clearly shown on the design. All bicycle parking spaces are to be fully contained within the property boundaries of the subject site and not to encroach on to the highway reservation. A statement should also be provided describing the amount and location of the bicycle parking spaces to be provided.*
- *There is no requirement to provide an on-site carparking space for people with disabilities for the residential use component of the development. The on-site car park will only be able to provide car parking for the residents and there will be no on-site car parking for customers or employees of the commercial component of the development. There is no on-site car parking for customers or employees of the commercial component of the development and therefore no requirement to provide an on-site car parking space for people with disabilities for the commercial component of the development. The car parking space for people with disabilities may be removed to accommodate the minimum number of class 1A car parking spaces to be provided.*
- *Once the design has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement)*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 3c

The access driveway and parking module (parking spaces, aisles and manoeuvring area) must be constructed in accordance with the design drawings approved by Condition ENG 3b.

Prior to the first occupation, documentation by a suitably qualified engineer certifying that the access driveway and parking module has been constructed in accordance with the above drawings must be lodged with Council.

Advice:

- *Certification may be submitted to Council as part of the Building Act 2016 approval process or via condition endorsement (see general advice on how to obtain condition endorsement)*

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

The access driveway and parking module (car parking spaces, aisles and manoeuvring area) approved by this permit must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior to the first occupation.

Reason for condition

To ensure the safety of users of the access driveway and parking module, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

The minimum number of class 1A car parking spaces to be provided on the site for the residential use component of the development is thirty nine (39), unless approved otherwise by Council. All car parking spaces must be in accordance with Australian Standards AS/NZS 2890.1:2004 or a Council approved alternate design.

All parking spaces must be delineated by means of white or yellow lines 80mm to 100mm wide, or white or yellow pavement markers in accordance with Australian Standards AS/NZS 2890.1:2004, prior to first occupation.

Advice:

- *There is no requirement to provide an on-site car parking space for people with disabilities for the residential use component of the development. The on-site car park will only be able to provide car parking for residents and there will be no on-site car parking for customers or employees of the commercial component of the development. There is no on-site car parking for customers or employees of the commercial component of the development and therefore no requirement to provide an on-site car parking space for people with disabilities for the commercial component of the development. The car parking space for people with disabilities may be removed to accommodate the minimum number of class 1A car parking spaces to be provided.*

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 6

The minimum number of bicycle parking spaces to be provided on the site for the commercial use (general retail and hire, and food services) component of the development is four (4), unless approved otherwise by Council. A minimum of one (1) bicycle parking space must be accessible to the customers and a minimum of three (3) bicycle spaces must be accessible for employees of the commercial use component of the development.

All bicycle parking spaces must be in accordance with Australian Standards AS 2890.3: 2015 or a Council approved alternate design and provided prior to commencement of use.

Advice:

- *The maximum number of bicycle parking spaces should be provided on site to offset the deficiency in car parking spaces. Bicycle parking spaces accessible by visitors of the residential component of the development should be provided and may be located in areas such as lobby and/or entrance alcoves, however should not create a hazard for pedestrians or obstruct pedestrian access. Bicycle parking spaces for residents of the residential component of the development should be provided and may be located in any available spaces accessible by residents such as the on-site car park, however should not impact on any of the car parking spaces. All areas that can practically provide for bicycle parking spaces are to be utilised. All bicycle parking spaces are to be fully contained within the property boundaries of the subject site and not to encroach on to the highway reservation.*

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 11

Prior to the first occupation, the driveway crossovers to be abandoned must be reinstated and the proposed crossover on the Patrick Street highway reservation must be designed and constructed in general accordance with the following Tasmanian Standard Drawings:

1. **Urban - TSD-R09-v1 – Urban Roads Driveways and TSD R14-v1 Type KC vehicular crossing; and**
2. **Footpath - Urban Roads Footpaths TSD-R11-v1.**

Advice:

- *Any deviation from the Tasmanian Standard Drawings will require Council City Amenity Division approval.*
- *Redundant crossovers are required to be reinstated under the Hobart City Council's Highways By -law.*
- *You will require a Permit to Open Up and Temporarily Occupy a Highway (for works within the road reserve) in order to reinstate the existing and construct the proposed crossovers.*

Reason for condition

In the interests of vehicle user safety and the amenity of the development.

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. **Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or**
2. **Be repaired and reinstated by the owner to the satisfaction of the Council.**

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council's infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council's infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council's infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full cost.

ENG s1

An adequate overland flow path must be maintained through the site, such that flows are excluded from the dwelling and not redirected onto third-party land, for the 1% AEP as at 2100 (including climate change loading) storm event.

Plans certified by a suitably qualified and experienced engineer as meeting the above requirement must be submitted prior to issue of any consent under the *Building Act 2016* or commencement of works (whichever occurs first).

All work required by this condition must be undertaken and maintained in accordance with the certified design drawings.

Advice:

- *Overland flow paths will need to demonstrate the excess flows caused from 1% AEP with climate change comply with the above condition, and are direct to public infrastructure.*

Reason for condition

To ensure that the risks associated with inundation are adequately managed.

ENG s2

A loading zone on Harrington Street (or equivalent Council approved location) must be installed prior to the commencement of use of the commercial use (general retail and hire, and food services) components of the development.

Advice:

- *Approval will be required from Council's City Planning Division Manager Traffic Engineering in a process separate to the planning process. All works will be at the developer's expense. Please contact Council's City Planning Division Manager Traffic Engineering with regard to the application for any proposed loading zone and/or other changes to on-street parking.*

Reason for condition

To ensure facilities for commercial vehicles are provided within 50m of the site.

ENV 2

Sediment and erosion control measures, in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.

A SWMP must be submitted prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008), available here.

All work required by this condition must be undertaken in accordance with the approved SWMP.

Advice: Once the SWMP has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Reason for condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

HER 6

All onsite excavation and disturbance must be monitored by a qualified archaeologist. Should any features or deposits of an archaeological nature be discovered on the site during excavation or disturbance:

1. **All excavation and/or disturbance must stop immediately; and**
2. **The qualified archaeologist must provide advice and assessment of the features and/or deposits discovered and make recommendations on further excavation and/or disturbance; and**
3. **All and any recommendations made by the archaeologist engaged in accordance with (2) above must be complied with in full; and**
4. **All features and/or deposits discovered must be reported to the Council with five days of the discovery; and**
5. **A copy of the archaeologist's advice, assessment and recommendations obtained in accordance with paragraph (2) above must be provided to Council within five days of receipt of the advice, assessment and recommendations.**

Excavation and/or disturbance must not recommence unless and until approval is granted from the Council.

Reason for condition

To ensure that work is planned and implemented in a manner that seeks to understand, retain, protect, preserve and manage significant archaeological evidence.

HER 7

In the event of the Statement of Archaeological Potential (see HER s3 below) confirming the likelihood of nineteenth century structures remaining on the site, archival quality annotated photographs and drawings of the building and features to be demolished must be recorded prior to commencement of work.

The photographs and drawings must be submitted and approved, prior to the commencement of work. The photographs and drawings must include:

1. **Each elevation of the building;**
2. **The interior of the building;**
3. **Architectural design detailing of the building;**
4. **Both electronic and hard copy colour images;**
5. **Photographs of any detail that may be of historical or architectural interest; and**
6. **Cross referencing of all photographs to an "as existing" plan showing the location and orientation of the camera.**

Advice:

- *Once the annotated photographs and drawings have been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure recognition of the historic cultural heritage significance of the place.

HER 8

Salvage must be undertaken to ensure the protection and/or reuse of heritage fabric.

Documentation must be submitted and approved, prior to the commencement of work. The documentation must outline the proposed salvage, retrieval and recycle options of the following building fabric, to satisfy the above requirement.

All work required by this condition must be undertaken in accordance with the approved documentation.

Advice:

- *Once the documentation has been approved the Council, will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure that demolition in whole or part of a heritage place does not result in the loss of historic cultural heritage values unless there are exceptional circumstance.

HER s3

A certified Statement of Archaeological Potential, a certified Archaeological Impact Assessment, and a certified Archaeological Method Statement, all prepared by a suitably qualified archaeologist, must be provided to the Council prior to the commencement of work.

All works, required by this condition must be undertaken in accordance with the certified Archaeological Method Statement.

Reason for condition

To ensure that the works is done to the satisfaction of the Council, and to comply with Clause E13.10, requiring protection of historical archaeological values.

HER s4

Prior to the issue of any approval under the *Building Act 2016*, revised plans must be submitted and approved showing:

1. **Compliance with all recommendations of the Archaeological Method Statement.**
2. **Any design amendments required to mitigate impact upon historical archaeological values, in accordance with the Archaeological Method Statement.**

All work required by this condition must be undertaken in accordance with the approved revised plans.

Reason for condition

To comply with clause E13.10, by protecting historical archaeological values.

ENVHE 1

Recommendations in the report *Environmental Site Assessment 209 - 215 Harrington Street, Hobart September 2018 by Geo Environmental Solutions* must be implemented, for the duration of the building works.

Reason for condition

To ensure that the risk to future occupants of the building remain low and acceptable.

SURV 8

The applicant, at no cost to the Council, must have prepared, entered into, and have registered at the Land Titles Office, a deed pursuant to Section 75CA of the *Conveyancing and Law of Property Act 1884* for the awning encroachments over Harrington and Patrick Streets, prior to the issue of a completion certificate.

Advice:

- A Section 75CA Conveyancing & Law of Property Act 1884 certificate for the occupation of a Highway requires that the encroachment is a minimum 2.40 metres above the footpath or 4.25 metres above the road carriageway. A 600mm set back from the back of kerb may also be required.
- The applicant must prepare and forward the required instrument pursuant to section 75CA Conveyancing & Law of Property Act 1884, including a survey plan of the encroachment (certified by a registered surveyor), the associated $230 Council application fee and the Land Titles Office registration fee, to the Council for execution and subsequent registration within the Land Titles Office.

Reason for Condition

To ensure that the proposed or existing building encroachments over Harrington and Patrick Streets are formalised in accordance with statutory provisions.

SUB s1

The titles comprising the development site (CT 197488/1, CT 247958/1, CT 203787/1, CT 232390/1, CT 52395/1 and CT 52394/1) must be adhered in accordance with the provisions of section 110 of the *Local Government (Building & Miscellaneous Provisions) Act 1993*, to the satisfaction of the Council prior to the issue of any occupancy permit.

Advice:

- *The application for an adhesion order to the Council has a fee of $230. Evidence will be required that the owners and mortgagees do not object to the adhesion and the condition is considered completed when a copy of the engrossed receipt of the Land Titles Office lodgement slip for the adhesion order has been received by the Council.*

Reason for condition

To ensure compliance with statutory provisions.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT PLANNING

If a condition endorsement is required by a planning condition above, you will need to submit the relevant documentation to satisfy the condition via the Condition Endorsement Submission on Council's online services e-planning portal.

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied). Detailed instructions can be found here.

CONDITION ENDORSEMENT ENGINEERING

All engineering drawings required to be submitted and approved by this planning permit must be submitted to the City of Hobart as a CEP (Condition Endorsement) via the City's Online Service Development Portal. When lodging a CEP, please reference the PLN number of the associated Planning Application. Each CEP must also include an estimation of the cost of works shown on the submitted engineering drawings. Once that estimation has been confirmed by the City's Engineer, the following fees are payable for each CEP submitted and must be paid prior to the City of Hobart commencing assessment of the engineering drawings in each CEP:

Value of Building Works Approved by Planning Permit Fee:

- Up to $20,000: $150 per application.
- Over $20,000: 2% of the value of the works as assessed by the City's Engineer per assessment.

These fees are additional to building and plumbing fees charged under the Building and Plumbing Regulations.

Once the CEP is lodged via the Online Service Development Portal, if the value of building works approved by your planning permit is over $20,000, please contact the City's Development Engineer on 6238 2715 to confirm the estimation of the cost of works shown on the submitted engineering drawings has been accepted.

Once confirmed, pleased call one of the City's Customer Service Officers on 6238 2190 to make payment, quoting the reference number (ie. CEP number) of the Condition Endorsement you have lodged. Once payment is made, your engineering drawings will be assessed.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016*. Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require a permit for the occupation of the public highway for construction or special event (e.g. placement of skip bin, crane, scissor lift etc). Click here for more information.

You may require a road closure permit for construction or special event. Click here for more information.

You may require a Permit to Open Up and Temporarily Occupy a Highway (for work in the road reserve). Click here for more information.

GENERAL EXEMPTION (TEMPORARY) PARKING PERMITS

You may qualify for a General Exemption permit for construction vehicles i.e. residential or meter parking/loading zones. Click here for more information.

BUILDING OVER AN EASEMENT

In order to build over the service easement, you will require the written consent of the person on whose behalf the easement was created, in accordance with section 74 of the *Building Act 2016.*

PERMIT TO CONSTRUCT PUBLIC INFRASTRUCTURE

You may require a permit to construct public infrastructure, with a 12 month maintenance period and bond (please contact the Hobart City Council's City Infrastructure Division to initiate the permit process).

NEW SERVICE CONNECTION

Please contact the Hobart City Council's City Infrastructure Division to initiate the application process for your new stormwater connection.

STORM WATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Hydraulic Services By law. Click here for more information.

STRUCTURES CLOSE TO COUNCILS' STORMWATER MAIN

The design of structures (including footings) must provide protection for the Council's infrastructure. For information regarding appropriate designs please contact the Council's City Infrastructure Division.

WORK WITHIN THE HIGHWAY RESERVATION

Please note development must be in accordance with the Hobart City Council's Highways By law. Click here for more information.

CBD AND HIGH VOLUME FOOTPATH CLOSURES

Please note that the City of Hobart does not support the extended closure of public footpaths or roads to facilitate construction on adjacent land.

It is the developer's responsibility to ensure that the proposal as designed can be constructed without reliance on such extended closures.

In special cases, where it can be demonstrated that closure of footpaths in the CBD and/or other high volume footpaths can occur for extended periods without unreasonable impact on other businesses or the general public, such closures may only be approved by the full Council.

For more information about this requirement please contact the Council's Traffic Engineering Unit on 6238 2804.

DRIVEWAY SURFACING OVER HIGHWAY RESERVATION

If a coloured or textured surface is used for the driveway access within the Highway Reservation, the Council or other service provider will not match this on any reinstatement of the driveway access within the Highway Reservation required in the future.

REDUNDANT CROSSOVERS

Redundant crossovers are required to be reinstated under the Hobart City Council's Highways By law. Click here for more information.

ACCESS

Designed in accordance with LGAT- IPWEA – Tasmanian standard drawings. Click here for more information.

CROSS OVER CONSTRUCTION

The construction of the crossover can be undertaken by the Council or by a private contractor, subject to Council approval of the design. Click here for more information.

STORM WATER / ROADS / ACCESS

Services to be designed and constructed in accordance with the (IPWEA) LGAT – standard drawings. Click here for more information.

TITLE ADHESION

An adhesion of your titles is required because a portion of your development is across one or more title boundaries. Contact your solicitor or a registered land surveyor to initiate the process.

WORK PLACE HEALTH AND SAFETY

Appropriate occupational health and safety measures must be employed during the works to minimise direct human exposure to potentially-contaminated soil, water, dust and vapours. Click here for more information.

PROTECTING THE ENVIRONMENT

In accordance with the *Environmental Management and Pollution Control Act 1994*, local government has an obligation to "use its best endeavours to prevent or control acts or omissions which cause or are capable of causing pollution." Click here for more information.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

RESIDENTIAL PARKING PERMITS ELIGIBILITY

It is advised that this development will not be eligible for residential parking permits for on-street parking.

URBAN DESIGN ADVISORY PANEL

The Council's Urban Design Advisory Panel considered this application at its meeting of 22 March 2019 and made the following recommendations which are provided for the applicant's consideration:

- The protection of residential amenity (setback) with the balconies and windows located on the boundary of the site. The Panel raised concern that the design is unlikely to comply with the Building Code of Australia and that the applicant should seek advice from a building surveyor before proceeding further with the Application.

- The Panel felt that the design of the lobby was awkward as it lacked a linkage to the stairs. It was also noted that the split floor levels incorporating steps leading to alternate fire exits may raise concerns around the adequacy of disability access and fire safety.

- The first floor of the proposal above the car park shows an outdoor area of vacant space. The Panel raised the opportunity for landscaping within this space and suggested this could be utilised as a common area for residents.

- The ground floor shows no internal access to garbage disposal area. The Panel felt that there should be an internal connection to the garbage disposal area for both residents and the occupiers of the retail space.

- The Panel notes that the proposal includes no external common spaces or landscaping and suggests that consideration be given to the provision of outdoor dining, landscaping and greenery that would encourage interaction from the street and where possible with neighbouring properties. The canopy/awning projection over the footpath was also noted as being very shallow.

- The Panel did consider the elevational treatment patterns to be an improvement on the previous application however believes that the lobby / entrance section to the north-west end of the building could be improved with a glazed panel or similar for additional natural light.

- Concerns were raised regarding the colour palette and finishes. The Panel believed that the black, white and grey concrete finishes were particularly austere for a prominent residential complex in this location.

---

20 May 2019

Approved Date **Senior Statutory Planner**

IMPORTANT INFORMATION ABOUT THE ATTACHED PERMIT

WHAT HAS BEEN DECIDED?

The Council has granted a permit subject to conditions.

WHEN DOES A PERMIT TAKE EFFECT?

The permit takes effect:

- If there is a right of appeal against the granting of a permit, 14 days from the day on which notice of the granting of the permit was served on the person who has a right appeal.
- Where an appeal has been made against the Council's decision to grant a permit, the determination or abandonment of the appeal.
- Where any other approvals are required under the *Land Use Planning and Approvals Act 1993* or any other Act, when all those approvals have been granted.

WHEN DOES A PERMIT LAPSE?

A permit lapses 2 years from the date on which it was granted if the use or development is not substantially commenced. An application can be made to extend the planning permit for a further 4 years. Such application must be made every 2 years up to 6 months following the expiry date.

WHAT ABOUT APPEALS?

An applicant for a permit may appeal against Council's decision to grant a permit. An appeal must be made within 14 days after the day on which notice of Council's decision was served on them.

Any person who has made a valid representation may appeal against the grant of a permit. Any appeal must be made within 14 days after the day on which notice of the granting of the permit was served on them.

An appeal may only be lodged with the Resource Management and Planning Appeal Tribunal. Please note that the Tribunal will not directly notify representors if an appeal is lodged by an applicant. You may either look for the notice of appeal, which will be published in The Mercury; or contact the Tribunal directly.

Details about appeals and the fees payable can be obtained from the Tribunal.

The Tribunal's contact details are as follows:

Telephone No: (03) 6165 6794
Postal Address:
GPO Box 2036
HOBART 7001

Street Address:
Level 6
144-148 Macquarie Street
HOBART

Email address: rmpat@justice.tas.gov.au **Web page:** www.rmpat.tas.gov.au

Submission to Planning Authority Notice

Council Planning Permit No.	PLN-18-770		Council notice date	30/10/2018
TasWater details				
TasWater Reference No.	TWDA 2018/01768-HCC		Date of response	14/12/2018
TasWater Contact	Anthony Cengia	Phone No.	(03) 6237 8243	
Response issued to				
Council name	HOBART CITY COUNCIL			
Contact details	coh@hobartcity.com.au			
Development details				
Address	209-213 HARRINGTON ST, HOBART		Property ID (PID)	5665239
Description of development	Residential Apartment and Retail Complex (52394/1, 52395/1, 232390/1, 203787/1, 197488/1 & 247958/1)			

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Date of Issue
6ty◦	17.275 Sheets Ap01, Ap02, Ap05, Ap06, Ap07		06/12/2018
6ty◦	17.275 Sheets Ap03, Ap09, Ap10, Ap11, Ap12	A	06/12/2018
6ty◦	17.275 Sheets Ap03	B	06/12/2018

Conditions

SUBMISSION TO PLANNING AUTHORITY NOTICE OF PLANNING APPLICATION REFERRAL

Pursuant to the *Water and Sewerage Industry Act* 2008 (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:

CONNECTIONS, METERING & BACKFLOW

1. A suitably sized water supply with metered connections / sewerage system and connection to the development must be designed and constructed to TasWater's satisfaction and be in accordance with any other conditions in this permit.

   Advice: TasWater will not accept direct fire boosting from the network unless it can be demonstrated that the periodic testing of the system will not have a significant negative effect on our network and the minimum service requirements of other customers serviced by the network. To this end break tanks may be required with the rate of flow into the break tank controlled so that peak flows to fill the tank do not also cause negative effect on the network.

2. Any removal/supply and installation of water meters and/or the removal of redundant and/or installation of new and modified property service connections must be carried out by TasWater at the developer's cost.

3. Prior to commencing construction/use of the development, any water connection utilised for construction/the development must have a backflow prevention device and water meter installed, to the satisfaction of TasWater.

TRADE WASTE

4. Prior to the commencement of operation the developer/property owner must obtain Consent to discharge Trade Waste from TasWater.

5. The developer must install appropriately sized and suitable pre-treatment devices prior to gaining Consent to discharge.

6. The Developer/property owner must comply with all TasWater conditions prescribed in the Trade Waste Consent.

INFRASTRUCTURE WORKS

7. Plans submitted with the application for Certificate(s) for Certifiable Work (Building and/or Plumbing) / Engineering Design Approval must, to the satisfaction of TasWater show, all existing, redundant and/or proposed property services and mains.

    a. Where 31 or more apartments are connected to the TasWater sewer system this minimum DN150mm connection must be to a suitable sewer maintenance structure; *Advice: Review standard Plan MRWA-S-104A*

8. The application for Certificate(s) for Certifiable Work (Building and/or Plumbing) / Engineering Design Approval must include engineering design plans prepared by a suitably qualified person showing the hydraulic servicing requirements for water and sewerage to TasWater's satisfaction.

9. The developer must take all precautions to protect existing TasWater infrastructure. Any damage caused to existing TasWater infrastructure during the construction period must be promptly reported to TasWater and repaired by TasWater at the developer's cost.

FINAL PLANS, EASEMENTS & ENDORSEMENTS

10. Prior to the Sealing of the Final Plan of Survey, a Consent to Register a Legal Document must be obtained from TasWater and the certificate must be submitted to the Council as evidence of compliance with these conditions when application for sealing is made.

DEVELOPMENT ASSESSMENT FEES

11. The applicant or landowner as the case may be, must pay a development assessment and Consent to Register a Legal Document fee to TasWater, as approved by the Economic Regulator and the fees will be indexed, until the date they are paid to TasWater, as follows:

    a. $1,139.79 for development assessment; and

    b. $149.20 for Consent to Register a Legal Document

    The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit http://www.taswater.com.au/Development/Development-Standards

For application forms please visit http://www.taswater.com.au/Development/Forms

Water Connection

This proposed development is in the Hobart City Low Level zone supplied from the Domain reservoirs with a top water level (TWL) of 106m AHD. The proposed connection point from the DN150 CICL main in Harrington is an approximate elevation of 33m. With the flows specified the total boundary heads at this point are:

	Total boundary head (m)
Domestic demand	87

Domestic+10 L/s Fire	87

It should be noted that these are the boundary heads in the water main itself at the proposed connection point and do not include losses through the actual connection or associated pipework

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.

- A permit is required to work within TasWater's easements or in the vicinity of its infrastructure. Further information can be obtained from TasWater
- TasWater has listed a number of service providers who can provide asset detection and location services should you require it. Visit www.taswater.com.au/Development/Service-location for a list of companies
- TasWater will locate residential water stop taps free of charge
- Sewer drainage plans or Inspection Openings (IO) for residential properties are available from your local council.

Trade Waste

Prior to any Building and/or Plumbing work being undertaken, the applicant will need to make an application to TasWater for a Certificate for Certifiable Work (Building and/or Plumbing). The Certificate for Certifiable Work (Building and/or Plumbing) must accompany all documentation submitted to Council. Documentation must include a floor and site plan with:

Location, type and if applicable, volume, of all pre-treatment devices as specified within and that satisfy the requirements of the Commercial Customers Pre-treatment Guidelines which is available from www.TasWater.com.au

Plumbing layout showing all fixtures connected to sewer and the pre-treatment; and

Note to specify basket strainers will be fitted to floor wastes, wash-up and food prep sinks; and

Location of an accessible trade waste sampling point; and

Location of a hose tap within 6m of any grease arrestor/s to facilitate of cleaning the pre-treatment device. Backflow protection is required as per the relevant Australian Standard.

Details of the types of food that will be prepared and estimated number of meals on a daily basis.

At the time of submitting the Certificate for Certifiable Work (Building and/or Plumbing) a Trade Waste Application form is also required; available from http://www.taswater.com.au/Your-Account/Forms

If the nature of the business changes or the business is sold, TasWater is required to be informed in order to review the pre-treatment assessment.

For more information: http://www.taswater.com.au/Customers/Liquid-Trade-waste/Commercial

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

Authorised by

Jason Taylor

Development Assessment Manager			
TasWater Contact Details			
Phone	13 6992	Email	development@taswater.com.au
Mail	GPO Box 1393 Hobart TAS 7001	Web	www.taswater.com.au

Planning: #164687

Property

209-213 HARRINGTON STREET HOBART TAS 7000

People

Applicant
*
6ty Pty Ltd

PO Box 63
RIVERSIDE TAS 7250
0363323300
gwalker@6ty.com.au

Owner
*
Chau Nominees

149 Macquarie Street
HOBART TAS 7000
0409311556
steve@verdant.com.au

Entered By
GEORGE WALKER
6332 3300
gwalker@6ty.com.au

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Use

Cafe

Details

Have you obtained pre application advice?

- ☐ No

If YES please provide the pre application advice number eg PAE-17-xx

Are you applying for permitted visitor accommodation as defined by the State Government Visitor Accommodation Standards? Click on help information button for definition. If you are not the owner of the property you MUST include signed confirmation from the owner that they are aware of this application.
*

- ☐ No

Is the application for SIGNAGE ONLY? If yes, please enter $0 in the cost of development, and you must enter the number of signs under Other Details below.
*

- ☐ No

If this application is related to an enforcement action please enter Enforcement Number

Details

What is the current approved use of the land / building(s)?
*

Car Parking + Business and Professional Services

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage)
*

Please Refer to Planning Submission

Estimated cost of development
*

6000000.00

Existing floor area (m2) | Proposed floor area (m2) | Site area (m2)

Carparking on Site

N/A

Total parking spaces | Existing parking spaces | ☐ Other (no selection chosen)

Hours of Business

Are the proposed hours of business different from the existing? •

What days and hours of operation are proposed for the business?

	Existing From	Existing To	Proposed From	Proposed To
Monday to Friday				
Saturday				
Sunday				

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Number of Employees

List the total number of people who will be working on the site.

Proposed number of employees | Existing number of employees

Goods Deliveries

Will there be any commercial vehicles accessing the site? •

Type of Vehicle	Trips per Week
Very Large (Semi trailer)	
Large	
Medium	
Small	

Outdoor storage / seating / number of beds

Is outdoor storage proposed? •

Other Details

Does the application include signage?
*

No

How many signs, please enter 0 if there are none involved in this application?
*

0

Tasmania Heritage Register

Is this property on the Tasmanian Heritage Register?

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements)
*
Appendix A - Titles.pdf

Plans (proposed, existing)
*
Appendix B - Development Plans.pdf

Covering Letter
17.275 - Cover Letter - October 2018.pdf

Supporting Documents

Archaeological Report
Appendix E - SoHAP.pdf

Planning Report
17.275 - Planning Submission - October 2018.pdf

environmental site assessment
Appendix D - Environmental Site Assessment.pdf

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

City of HOBART

Enquiries to: Emily Burch
☎: (03) 6238 2108
✉: coh@hobartcity.com.au
Our Ref: R0554; R0743 (F18/128282)
EB:SLW
DA-18-59549

27 November 2018

Mr George Walker
6ty°
Tamar Suite 103, The Charles
287 Charles Street
LAUNCESTON TAS 7250

Via Email: gwalker@6ty.com.au

Dear Mr Walker

NOTICE OF LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION

Site Address:	**Harrington Street and Patrick Street Highway Reservations at 209-215 Harrington Street, Hobart**
Description of Proposal:	**Awnings over Harrington Street and Patrick Street**
Applicant Name:	**Mr George Walker – 6ty°**
PLN *(if applicable)*:	**N/A**

I write to advise that pursuant to Section 52 of the *Land Use Planning and Approvals Act 1993*, I grant my consent on behalf of the Hobart City Council as the owner/administrator of the above land for you to make application to the City for a planning permit for the development described above and as per the attached documents.

Please note that the granting of the consent is only for the making of the application and in no way should such consent be seen as prejudicing any decision the Council is required to make as the statutory planning authority or as the owner/administrator of the land.

Yours sincerely

(N. D. Heath)
GENERAL MANAGER

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Attachments: Site Plan Ap03 and Elevation Plan Ap10 by 6ty°
Land Owner Consent Memo

City of HOBART

R0554; R0743
EB:SLW
DA-18-59549

LAND OWNER CONSENT TO LODGE A PLANNING APPLICATION

Site Address:	**Harrington Street and Patrick Street Highway Reservations at 209-215 Harrington Street, Hobart**
Description of Proposal:	**Awnings over Harrington Street and Patrick Street**
Applicant Name:	**Mr George Walker – 6ty°**
PLN *(if applicable)*:	**N/A**

The land indicated above is owned or is administered by the Hobart City Council.

The applicant proposes to lodge an application for a permit, pursuant to the *Land Use Planning and Approvals Act 1993,* in respect to the proposal described above.

Part or all of the application proposes use and/or development on land owned or administered by the City located at Harrington Street and Patrick Street as shown on the attached plans.

Being and as General Manager of the Hobart City Council, I provide written permission to the making of the application pursuant to Section 52(1B)(b) of the *Land Use Planning and Approvals Act 1993.*

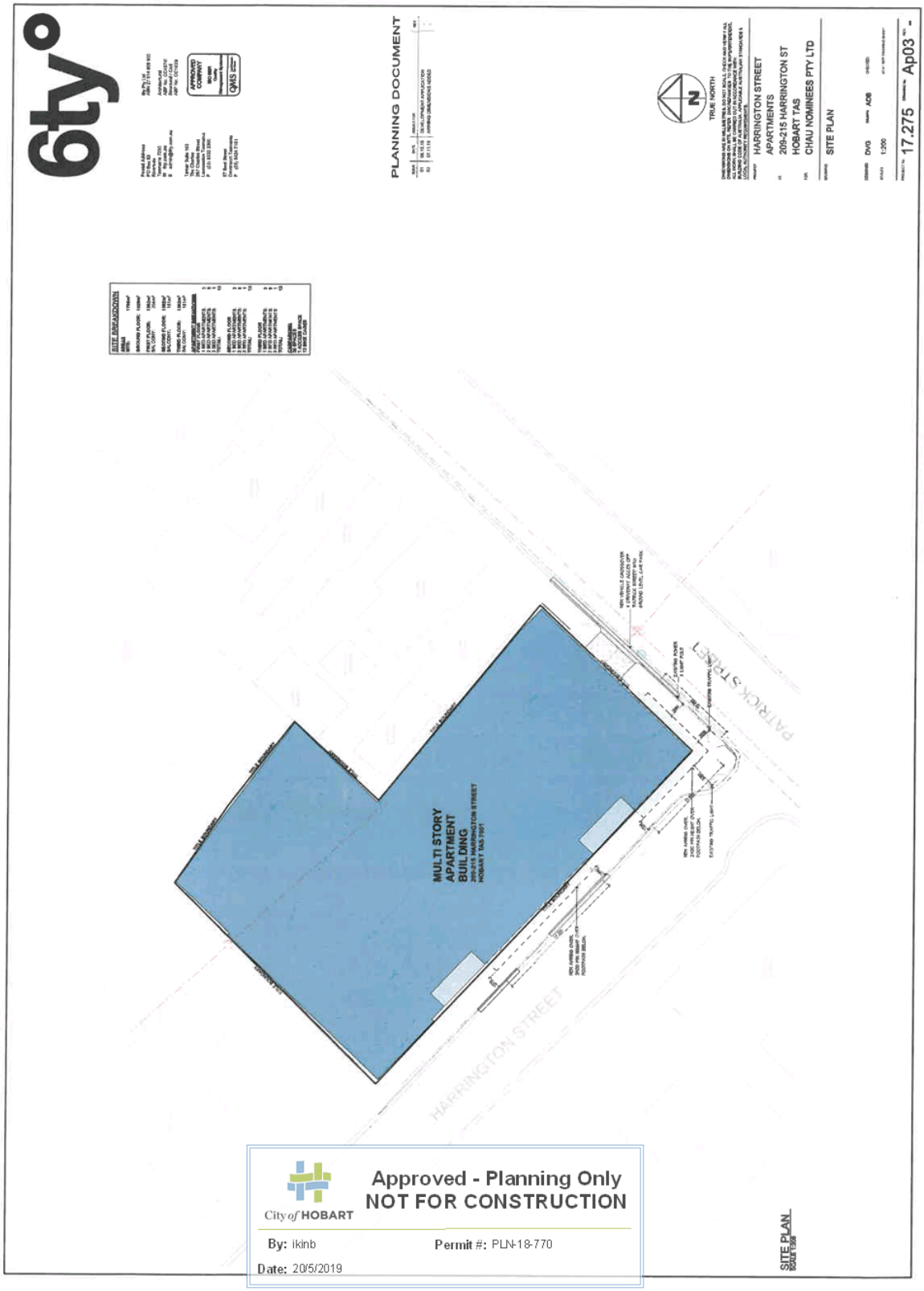
(N. D. Heath)
GENERAL MANAGER

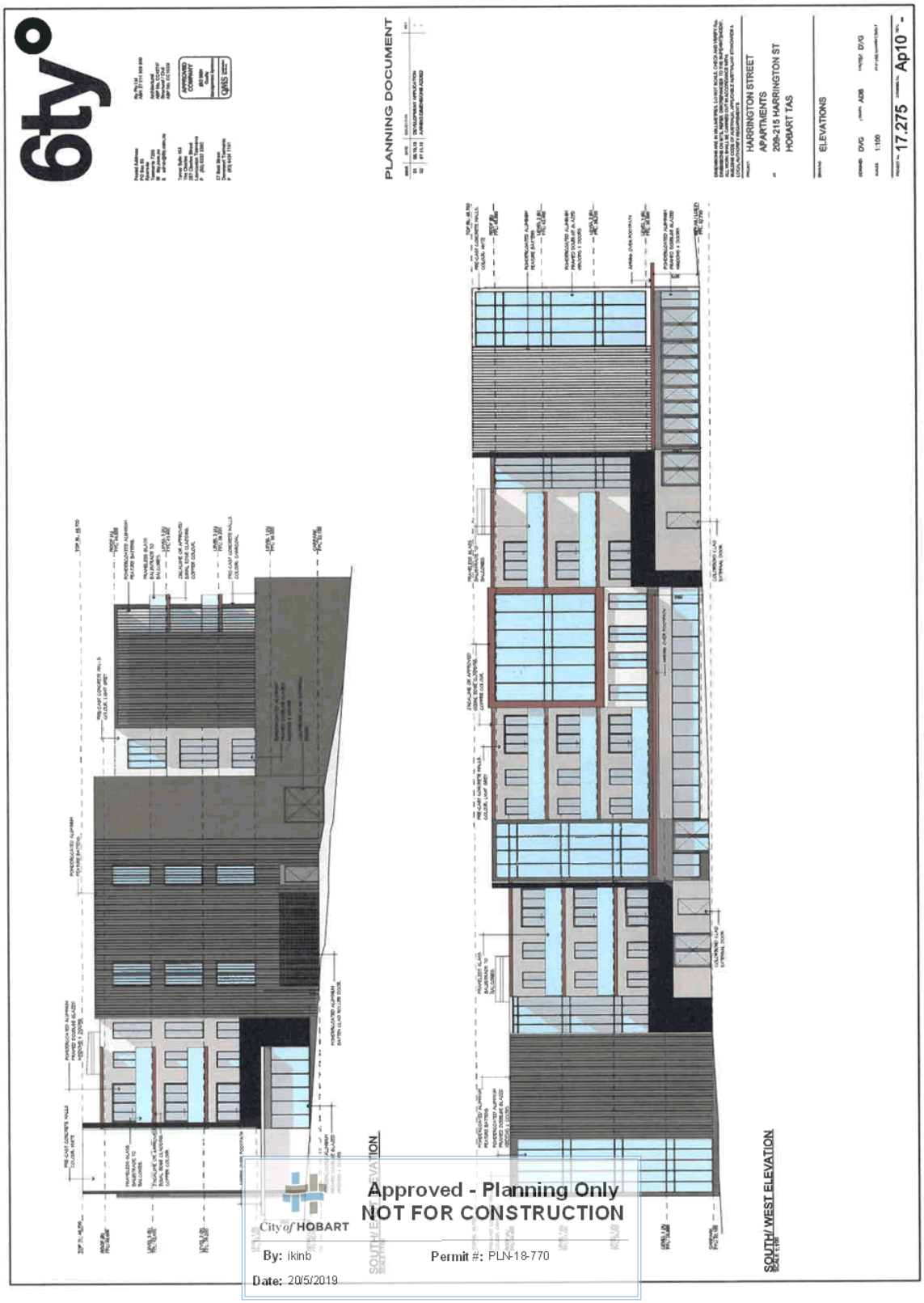
Date: 26/11/18

This consent is for the making of a planning application only, and does not constitute landlord consent for the development to occur.

Attachments/Plans: Site Plan Ap03 and Elevation Plan Ap10 by 6ty°

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019


6ty°
PLANNING DOCUMENT
TRUE NORTH
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
CHAU NOMINEES PTY LTD
SITE PLAN
17.275
Ap03
MULTI STORY
APARTMENT
BUILDING
209-215 HARRINGTON STREET
HOBART TAS 7001
PATRICK STREET
HARRINGTON STREET
SITE PLAN
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019


6ty°
PLANNING DOCUMENT
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
ELEVATIONS
17.275
Ap10
SOUTH / WEST ELEVATION
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Date: 20/5/2019
Permit #: PLN-18-770

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
52394	1
EDITION	DATE OF ISSUE
8	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.58 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Diagram 52394
Derivation : Part of 0A-0R-24Ps Granted to R. Everett
Prior CT 4835/42

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

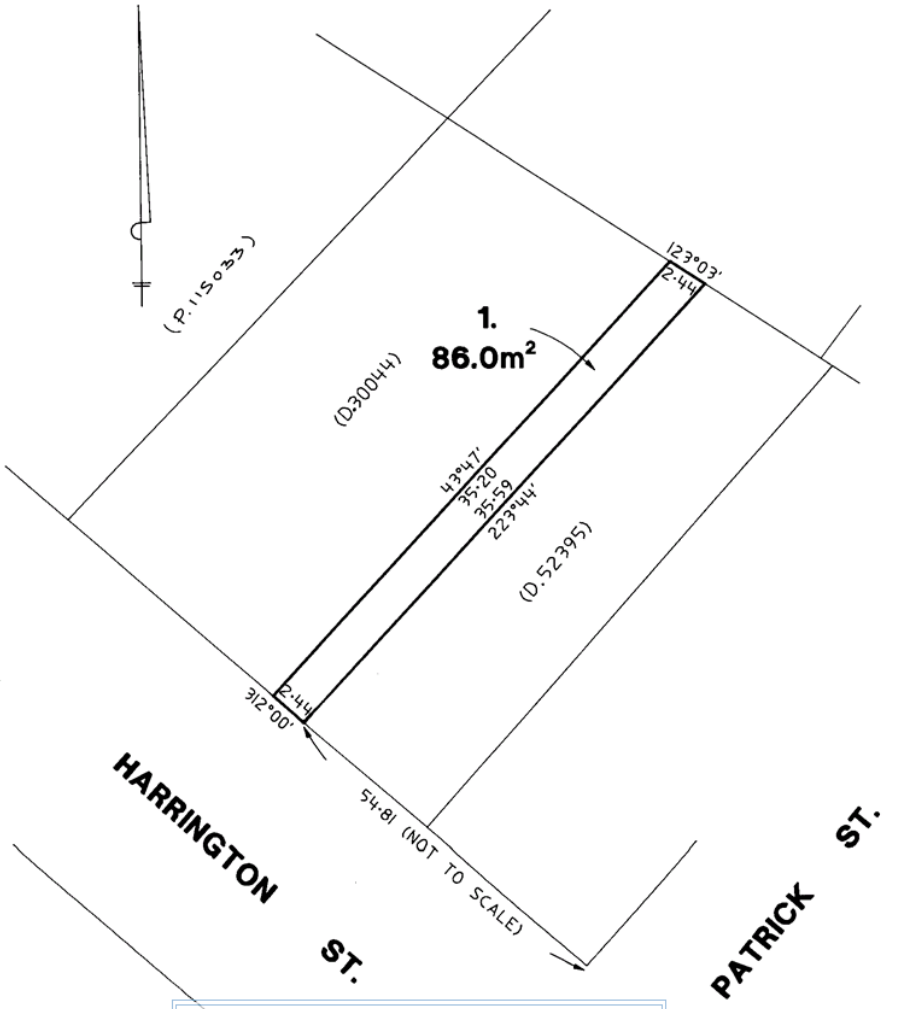
FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

Owner: L.T.ACT 1980	PLAN OF TITLE of land situated in the CITY OF HOBART SEC Ww	Registered Number: D.52394
Title Reference: A.10007	COMPILED FROM 37/84 D. O.	2 DEC 1991 Approved
Grantee: PART OF 0-0-24 GTD. TO ROBERT EVERETT.	SCALE 1: 250 MEASUREMENTS IN METRES	Recorder of Titles



City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
52395	1
EDITION	DATE OF ISSUE
8	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.57 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Diagram 52395
Derivation : Part of 0A-0R-13.1/2Ps Granted to J. Palsley
Prior CT 4835/43

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

Owner: L.T.ACT 1980	PLAN OF TITLE of land situated in the CITY OF HOBART SEC Ww	Registered Number: D.52395
Title Reference: A.10007	COMPILED FROM S.B.P28 L.O.	Approved 2 DEC 1991 Recorder of Titles
Grantee: WHOLE OF 0-0-13½ GTD. TO JOHN PALSLEY.	SCALE 1: 250 MEASUREMENTS IN METRES	

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
197488	1
EDITION	DATE OF ISSUE
5	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.53 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 197488
Derivation : part of 31.1/2Ps, Section Ww Gtd to H Wright & Anor
Prior CT 2073/49

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
BENEFITING EASEMENT: a right of carriageway over the land marked "Roadway" on Plan No. 197488

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

FOLIO PLAN

RECORDER OF TITLES

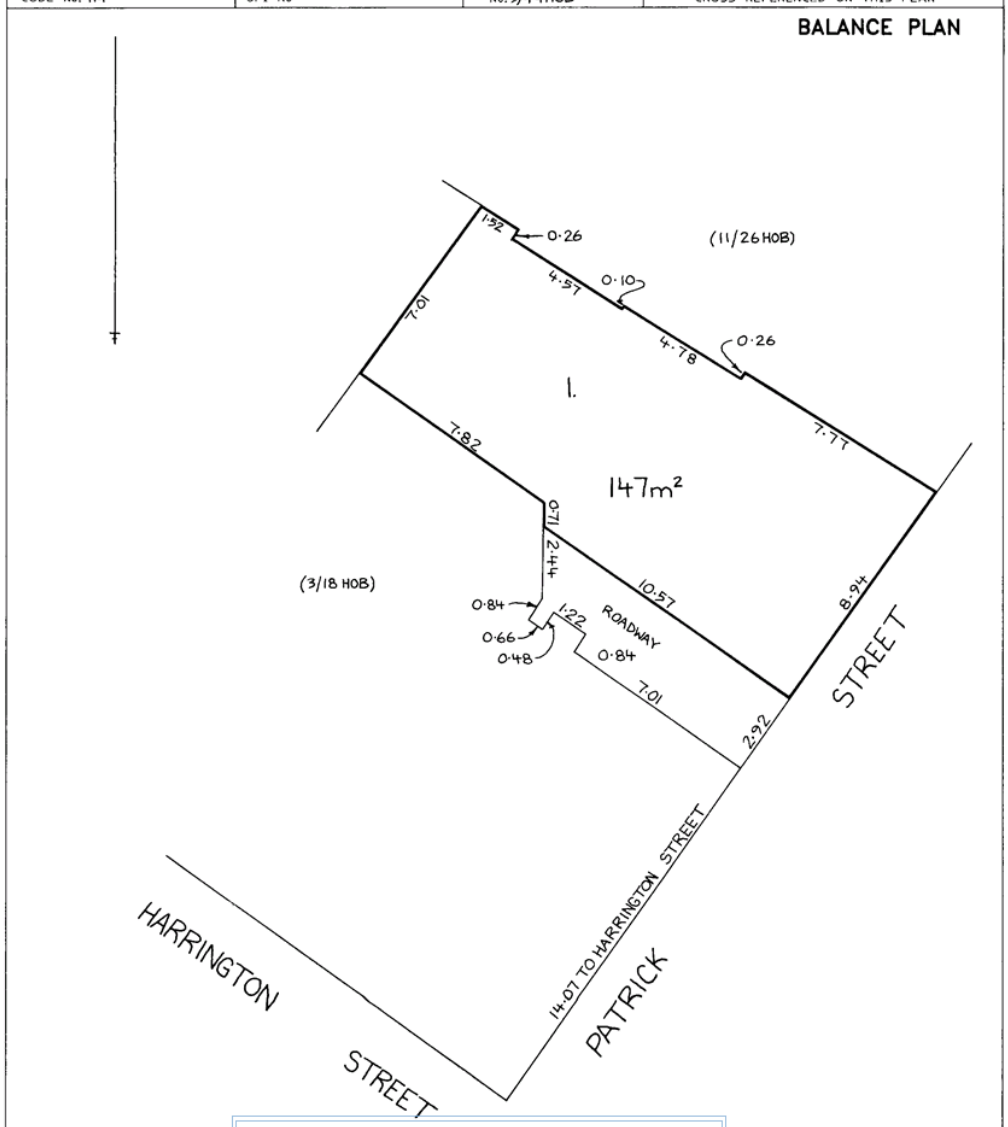
Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

OWNER FOLIO REFERENCE FR 2073/49 GRANTEE	PLAN OF TITLE LOCATION CITY OF HOBART (SEC. Ww) FIRST SURVEY PLAN No. 5/44 HOB COMPILED BY LTO SCALE 1:125 LENGTHS IN METRES	Registered Number P197488 APPROVED 12 DEC 1996 Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 114	LAST UPI No	LAST PLAN No. 5/44 HOB	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

BALANCE PLAN



Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

A-143

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
203787	1
EDITION	DATE OF ISSUE
5	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.56 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 203787
Derivation : Portion of 31 1/2P Sec. W.w. Gtd. to H. Wright & Anr.
Prior CT 2262/54

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

ORIGINAL – NOT TO BE REMOVED FROM TITLES OFFICE

54

12294 03

TASMANIA

REAL PROPERTY ACT, 1862, as amended

CERTIFICATE OF TITLE

Register Book

Vol. 2262 Fol. 54

I certify that the person described in the First Schedule is the registered proprietor of an estate in fee simple in the land within described together with such interests and subject to such encumbrances and interests as are shown in the Second Schedule. In witness whereof I have hereunto signed my name and affixed my seal.

~~Witness~~

Recorder of Titles.

RECORDER OF TITLES TASMANIA

DESCRIPTION OF LAND

CITY OF HOBART

TWELVE PERCHES AND SEVEN TENTHS OF A PERCH on the Plan hereon.

FIRST SCHEDULE (continued overleaf)

NEIL BERG BASSTIAN of Sandy Bay, Tyre Retreader.

ENTRY CANCELLED

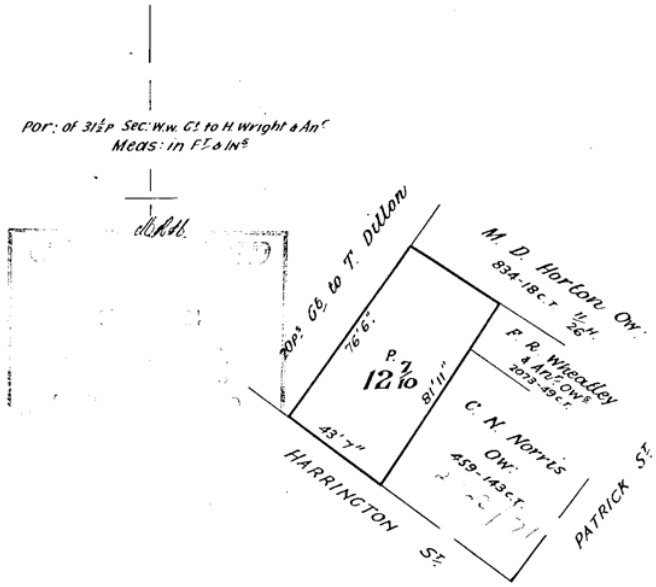
SECOND SCHEDULE (continued overleaf)

NIL

RE OF THE RECORDER OF TITLES ARE NO LONGER SUBSISTING.

REGISTERED NUMBER 203787

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register



1st Edition. Registered 25 AUG 1887

Derived from C.T. 2262 Fol. 99 Application Sec. 80 11910 R.P.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
232390	1
EDITION	DATE OF ISSUE
8	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.56 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 232390
Derivation : Whole of 20Ps. in (Section W.w.) Gtd. to T. Dillon
Prior CT 3190/3

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

ORIGINAL – NOT TO BE REMOVED FROM TITLES OFFICE

R.P. 1469
TASMANIA
REAL PROPERTY ACT, 1862, as amended
NOTE—REGISTERED FOR OFFICE CONVENIENCE TO REPLACE

CERTIFICATE OF TITLE

Register Book
Vol. 3190 Fol. 3

Cert. of Title Vol. 691 Fol. 12.

I certify that the person described in the First Schedule is the registered proprietor of an estate in fee simple in the land within described together with such interests and subject to such encumbrances and interests as are shown in the Second Schedule. In witness whereof I have hereunto signed my name and affixed my seal.

Recorder of Titles.

DESCRIPTION OF LAND

CITY OF HOBART
TWENTY PERCHES on the Plan hereon.

FIRST SCHEDULE (continued overleaf)

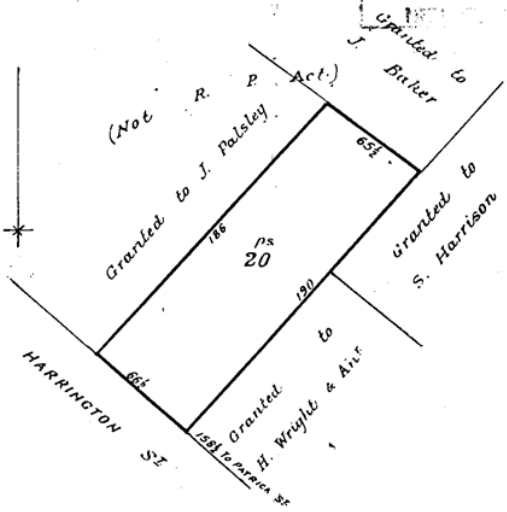
ELLA MILLIE MYRA LUCAS of Hobart, Widow

SECOND SCHEDULE (continued overleaf)
NIL

RECORDER OF TITLES ARE NO LONGER SUBSISTING.

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.

REGISTERED NUMBER 232390



Whole of 20 Perches in Section W.w. Gtd. to T.Dillon. Meas. in Links.
FIRST Edition. Registered
Derived from C.T.Vol.691 Fol.12. Transfer A55458- Perp. Trustees Execs. Co. of Tas.Ltd.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
247958	1
EDITION	DATE OF ISSUE
5	10-Jul-2017

SEARCH DATE : 11-Nov-2017
SEARCH TIME : 02.54 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Plan 247958
Derivation : Part of 31 1/2 perches Gtd to H Wright and Anor.
Prior CT 2768/71

SCHEDULE 1

M639371 TRANSFER to CHAU NOMINEES PTY LTD Registered 10-Jul-2017 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
BURDENING EASEMENT: a right of way and carriage for William Langford over the land marked Right of Way on D89852
BURDENING EASEMENT: the right for the owners and occupiers for the time being of the land comprised in Certificate Title Volume 31 Folio 79 to use the drain one foot wide shown on D89852 running through the said land within described with the right at all times to repair the said drain for that purpose to enter with workmen and others upon such part of the said land within described as may be necessary to effect such repairs but doing so unnecessary damage thereby.

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

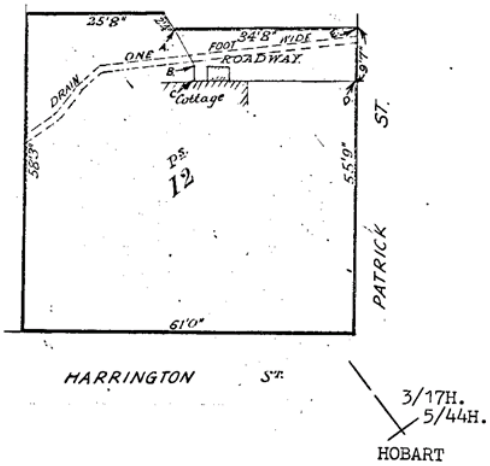
ANNEXURE TO CERTIFICATE OF TITLE VOL. 2768 FOL. 71

Recorder of Titles

REGISTERED NUMBER

247958

Lot 1 of this plan consists of all the land comprised in the above-mentioned cancelled folio of the Register.



Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Our Ref: 17.275

Measured form and function 6ty°

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

22 October 2018

Planning Department
Hobart City Council
Town Hall, Macquarie Street
HOBART TAS 7001

Dear Sir/Madam,

HARRINGTON STREET RESIDENTIAL APARTMENT AND RETAIL COMPLEX

Please find enclosed a development application for an apartment and retail complex located at 209-215 Harrington Street, Hobart.

Please be advised that a Traffic Impact Assessment is being prepared and will be provided to Council as soon as it is complete.

Yours faithfully
6ty Pty Ltd

George Walker
Planning Consultant

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS Certification Services

C:\Users\gwalker\Desktop\Images\17.275 - Cover Letter - October 2018.docx

Our Ref: 17.275

Measured form and function

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

6 December 2018

Mr Ben Ikin
Senior Statutory Planner
Hobart Council Centre
16 Elizabeth Street
HOBART TAS 7000

Dear Ben,

RESPONSE TO ADDITIONAL INFORMATION REQUEST - APPLICATION NO. PLN-18-770 - 209-213 HARRINGTON STREET AND 215-217 HARRINGTON STREET, HOBART

I refer to your request for additional information dated 27 November 2018 in relation to development application PLN-18-770.

This letter responds to each of the items listed within the additional information request.

TasWater

1. Sewer Main and Servicing

   The Site Plan has been revised to:

   a. show the location of the existing DN150mm sewer main;

   b. indicate how the sewer main is proposed to be treated;

   The Ground Floor Plan has been revised to detail the proposed location and size of water and sewer connections relative to site boundaries.

2. Flow Calculations

   The proposal is for 39 residential units which will comprise the following configurations:

   – 3 three-bedroom units;

   – 27 two-bedroom units; and

   – 9 single bedroom units.

   There will also be approximately 212m² of retail space at ground level over two separate tenancies.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Using the rates from Appendix A of the Supplement, the following Equivalent Tenements (ET) can be calculated:

Development	No.	Water	Sewer	Water ET	Sewer ET
3-bedroom	3	0.67	1	2.01	3
2-bedroom	27	0.50	0.75	13.5	20.25
1-bedroom	9	0.33	0.50	2.97	4.5
Retail (m^2)	212	0.002	0.003	0.424	0.636
Total				**18.904**	**28.386**

The potable simultaneous water demand (PSD) calculation for the proposed development is structured on Table 3.2.3 of AS/NZS 3500.1 which for 39 dwellings gives a peak flow rate of 0.54 l/sec.

There is to be internal fire hydrants for the building with the highest floor level being at 42.4 AHD. That is, we require a fire flow rate of 10.0 l/sec at 330 kPa at the Harrington Street frontage for an un-boosted supply. However, provision for booster connections have been made. The intention is to have the water meter connection and meter assembly inside the Patrick Street driveway access.

Planning

3. PLN Fi 1

Each elevation and section plan has been updated to depict a line 15m above natural ground level. The plans indicate that each elevation will be under the 15m maximum building height limit required by clause 23.4.1 A1(a).

3D Mass Representation images from various perspectives have also been prepared. The envelope is depicted by a transparent surface which is projected 15m above natural ground level. The selected perspectives show pertinent sections of the building that are proximate to the envelope but do not extend past the envelope.

4. PLN Fi 2

We can confirm that the street trees and on-street dining illustrated within the visualisations are indicative features only and are not proposed to be installed.

5. PLN Fi 3

All proposed external materials and finishes have been annotated on each Elevation Plan. Images showing examples of the proposed materials and finishes have also been included.

Parking and Access

6. PA 2.1 and PA 2.2

A Traffic Impact Assessment has been prepared by Howarth Fisher and Associates for the proposal which addresses the matters raised in points PA2.1 and PA2.2. A copy of the TIA was submitted to Council via the ePlanning portal on 27 November 2018.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: tkinb Permit #: PLN-18-770
Date: 20/5/2019

Our Ref: 17.275 Measured form and function 6ty°

The Ground Floor Plan has bee revised to provide sight triangles on either side of the garage door. This has been achieved by recessing the garage door into the building.

Stormwater Code

7. Sw 1, Sw 5 and Sw 6

The Ground Floor Plan has been revised to:

a. show that stormwater from the building will be disposed via gravity to a new DN225 connection at the Patrick Street boundary. All other existing stormwater connections will be abandoned;

b. include a note detailing that the surface of the internal car park will be drained to sewer infrastructure.

The surface of the site is currently 100% impervious. The proposed building will not create any additional impervious area on the site. Stormwater runoff from the site following the construction of the building will therefore be no greater than pre-existing levels.

Please feel free to contact me should any additional information be required.

Yours faithfully
6ty° Pty Ltd

George Walker
Planning Consultant

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Our Ref: 17.275

Measured form and function 6ty°

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

25 February 2018

Mr Ben Ikin
Senior Statutory Planner
Hobart Council Centre
16 Elizabeth Street
HOBART TAS 7000

Dear Ben,

RESPONSE TO ADDITIONAL INFORMATION REQUEST - APPLICATION NO. PLN-18-770 - 209-213 HARRINGTON STREET AND 215-217 HARRINGTON STREET, HOBART

I refer to your request for additional information dated 17 December 2018 in relation to development application PLN-18-770.

Please find enclosed a Stormwater Management Report which addresses the outstanding matters relating to stormwater management. Our response has been guided by discussions with Council's Senior Development Engineer.

Please feel free to contact me should any additional information be required.

Yours faithfully
6ty° Pty Ltd

George Walker
Planning Consultant

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Project: HARRINGTON STREET APARTMENTS Measured form and function

At: 209-215 HARRINGTON ST

HOBART TAS

For: CHAU NOMINEES PTY LTD

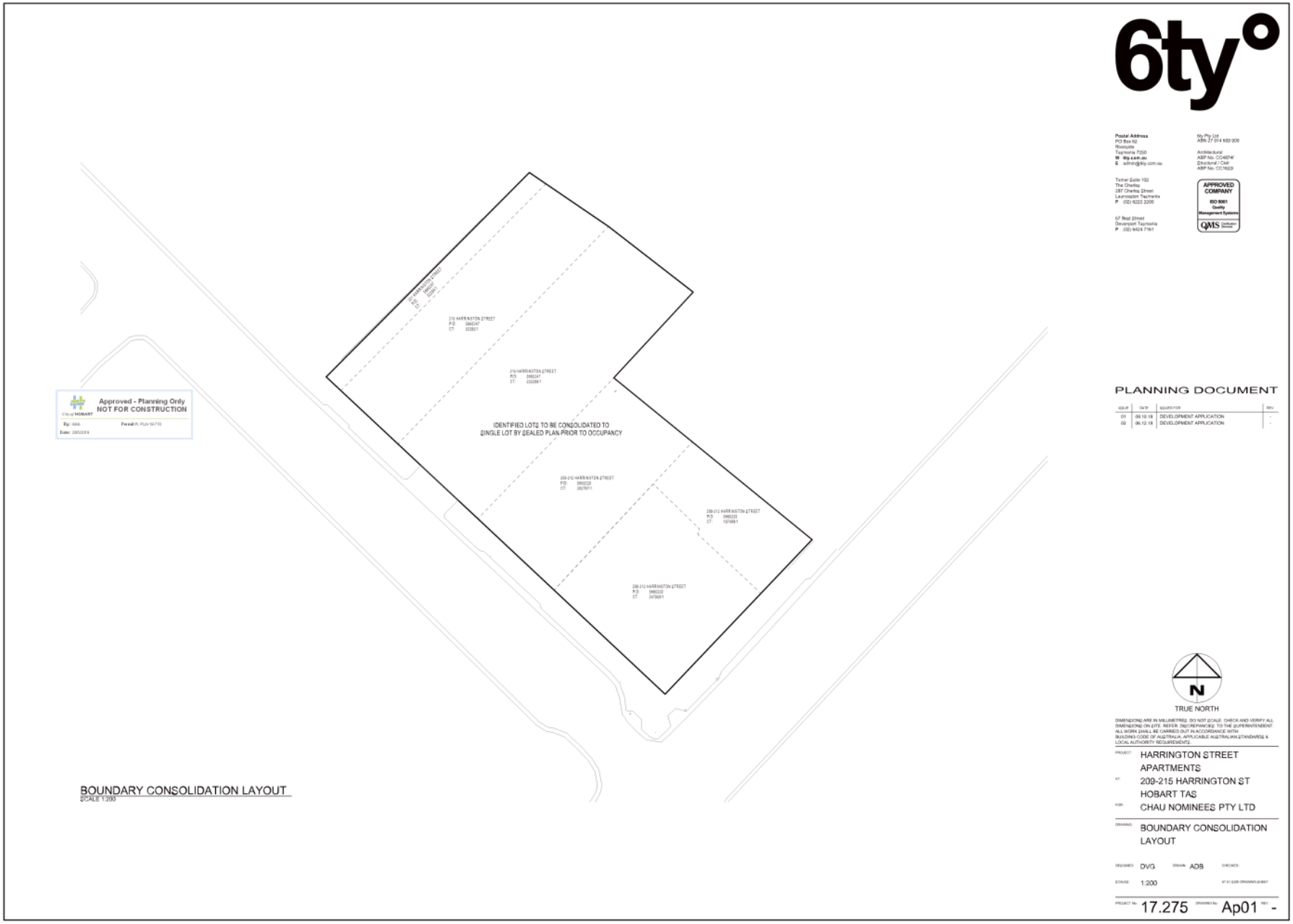
Project: 17.275

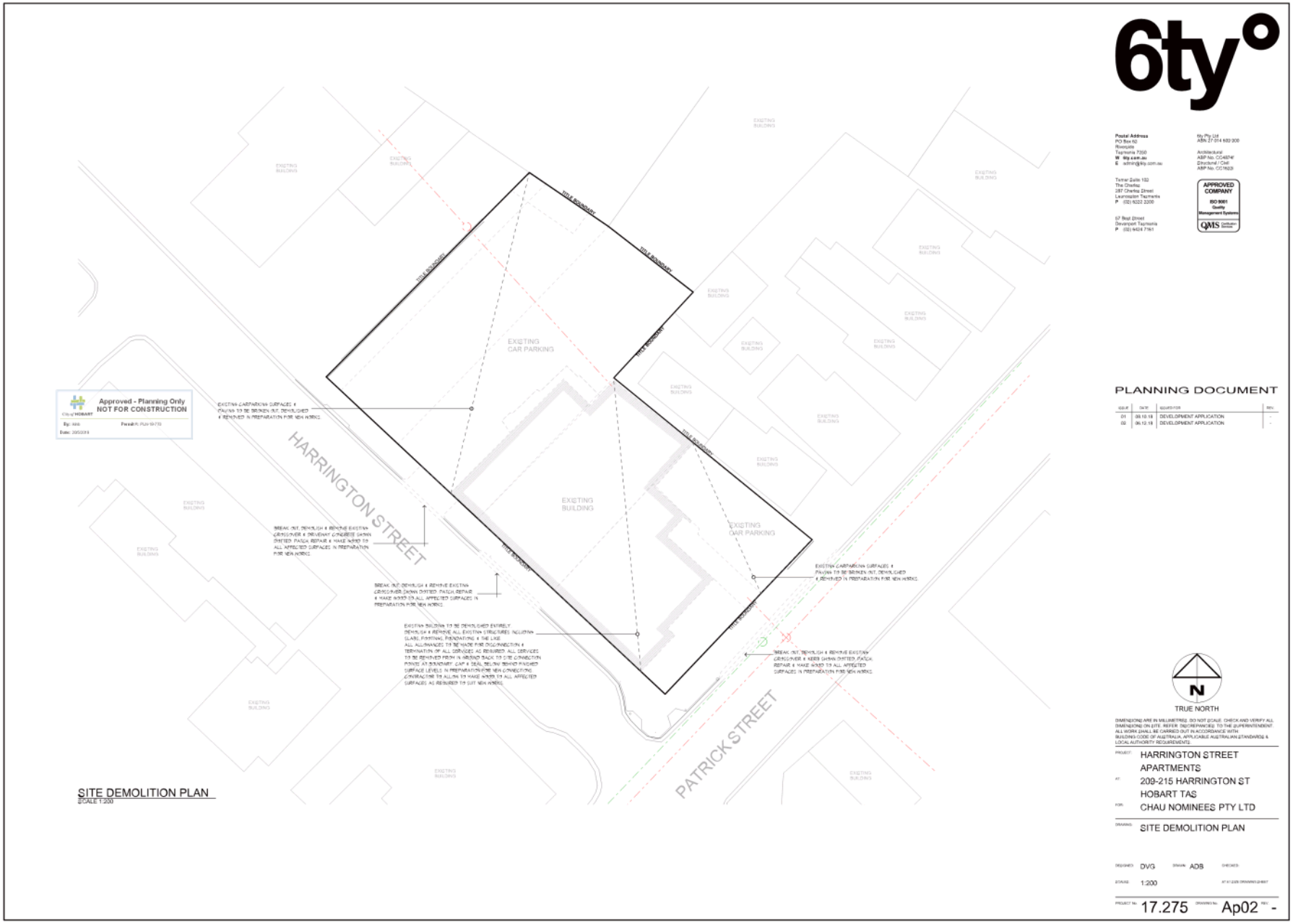
Approved - Planning Only
NOT FOR CONSTRUCTION

Cover Sheet
Ap01 BOUNDARY CONSOLIDATION LAYOUT
Ap02 SITE DEMOLITION PLAN
Ap03 SITE PLAN
Ap04 GROUND FLOOR PLAN
Ap05 FIRST FLOOR PLAN
Ap06 SECOND FLOOR PLAN
Ap07 THIRD FLOOR PLAN
Ap08 ROOF PLAN
Ap09 ELEVATIONS
Ap10 ELEVATIONS
Ap11 SECTIONS
Ap12 SECTIONS
Ap13 VISUALISATIONS
Ap14 3D MASS REPRESENTATION

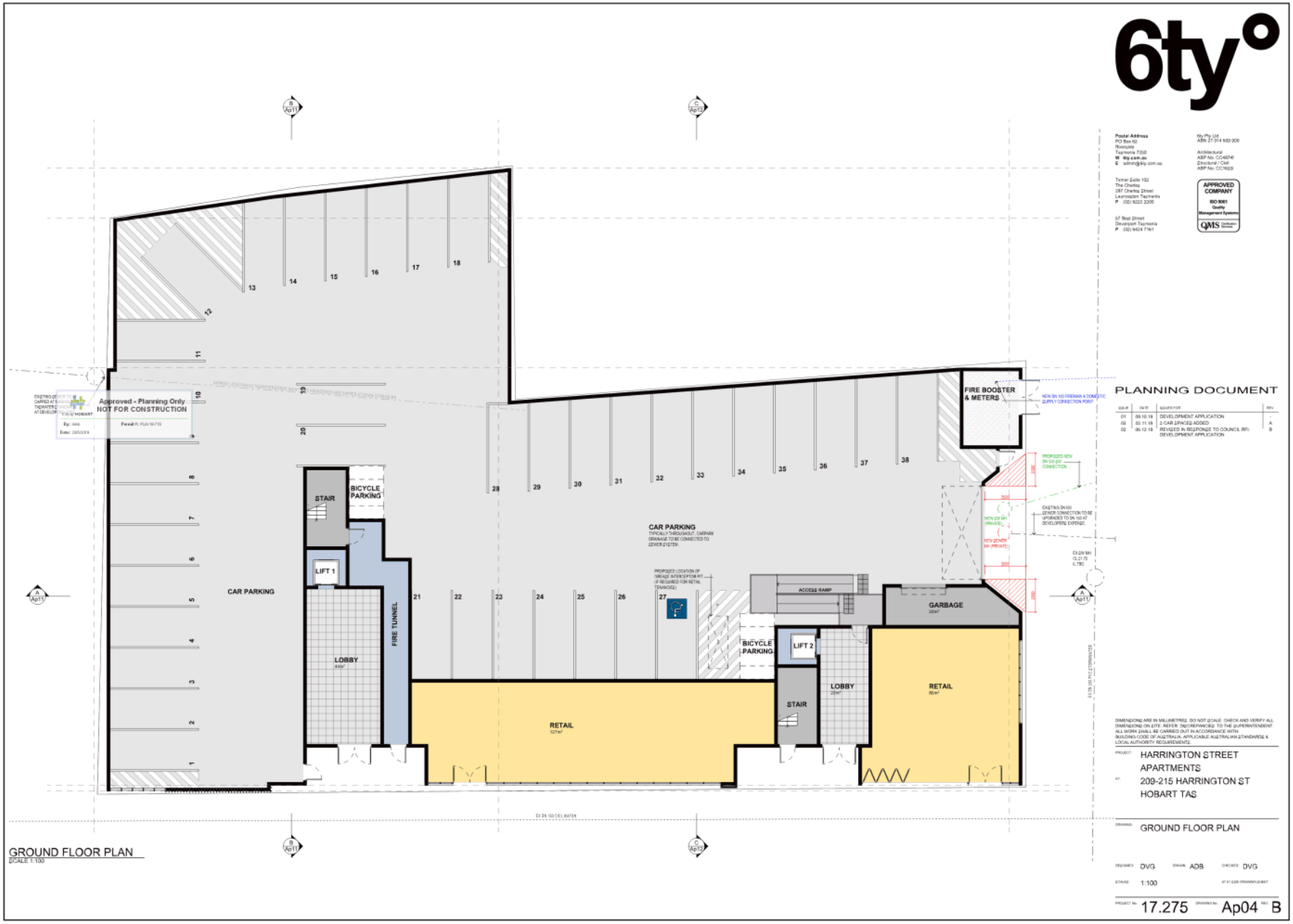
DEVELOPMENT APPLICATION

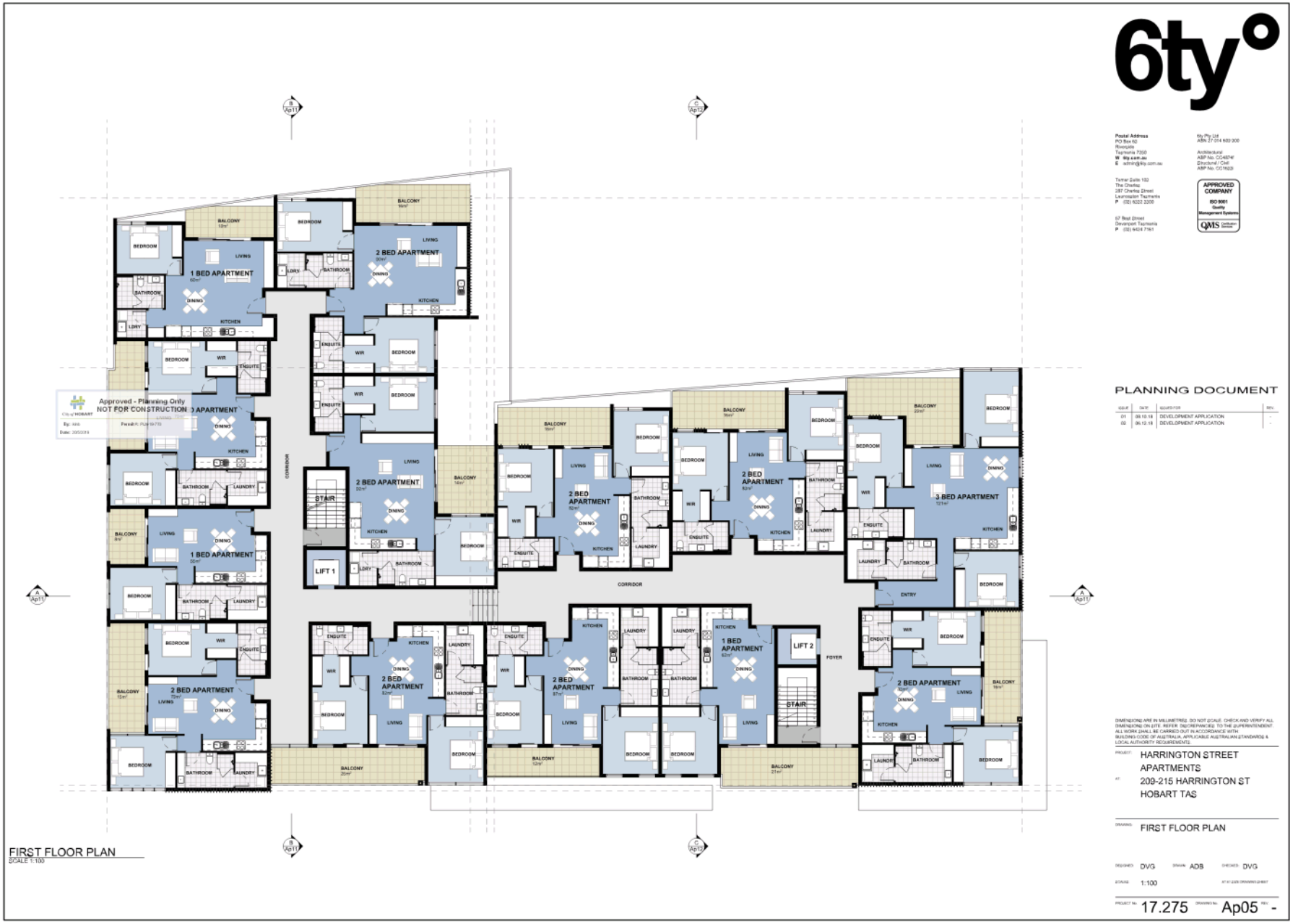
Issue date: 06.12.2018


6ty°
Approved - Planning Only
NOT FOR CONSTRUCTION
IDENTIFIED LOTS TO BE CONSOLIDATED TO
SINGLE LOT BY SEALED PLAN PRIOR TO OCCUPANCY
BOUNDARY CONSOLIDATION LAYOUT
SCALE 1:200
PLANNING DOCUMENT
01 06.10.18 DEVELOPMENT APPLICATION -
02 06.12.18 DEVELOPMENT APPLICATION -
N
TRUE NORTH
DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.
PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS
FOR: CHAU NOMINEES PTY LTD
DRAWING: BOUNDARY CONSOLIDATION LAYOUT
DESIGNED: DVG
DRAWN: ADB
CHECKED:
SCALE: 1:200
PROJECT No. 17.275
DRAWING No. Ap01
REV. -

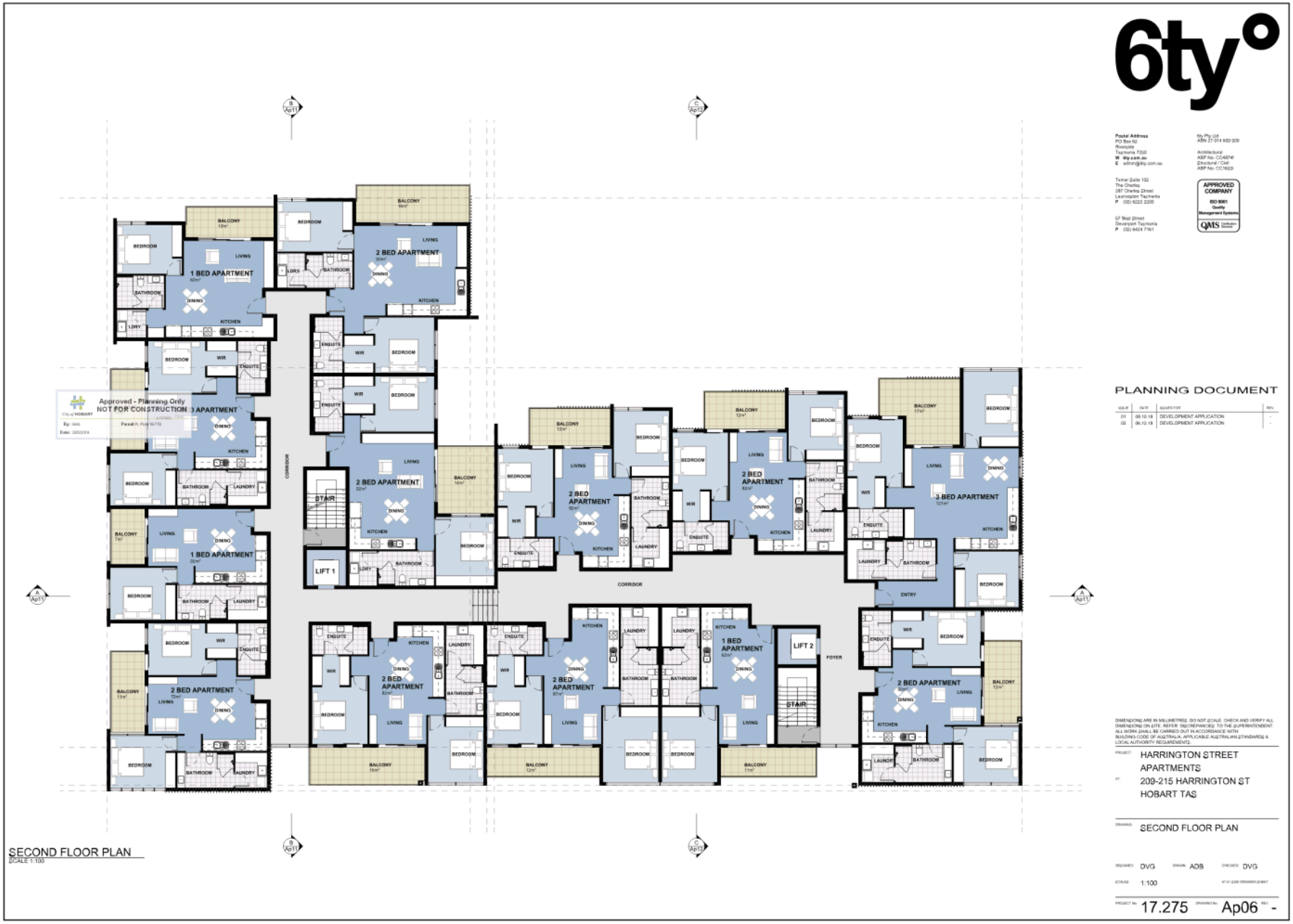

6ty°
Approved - Planning Only
NOT FOR CONSTRUCTION
HARRINGTON STREET
PATRICK STREET
EXISTING BUILDING
EXISTING CAR PARKING
TITLE BOUNDARY
SITE DEMOLITION PLAN
SCALE 1:200
PLANNING DOCUMENT
TRUE NORTH
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
CHAU NOMINEES PTY LTD
SITE DEMOLITION PLAN
DVG
ADB
1:200
17.275
Ap02
-

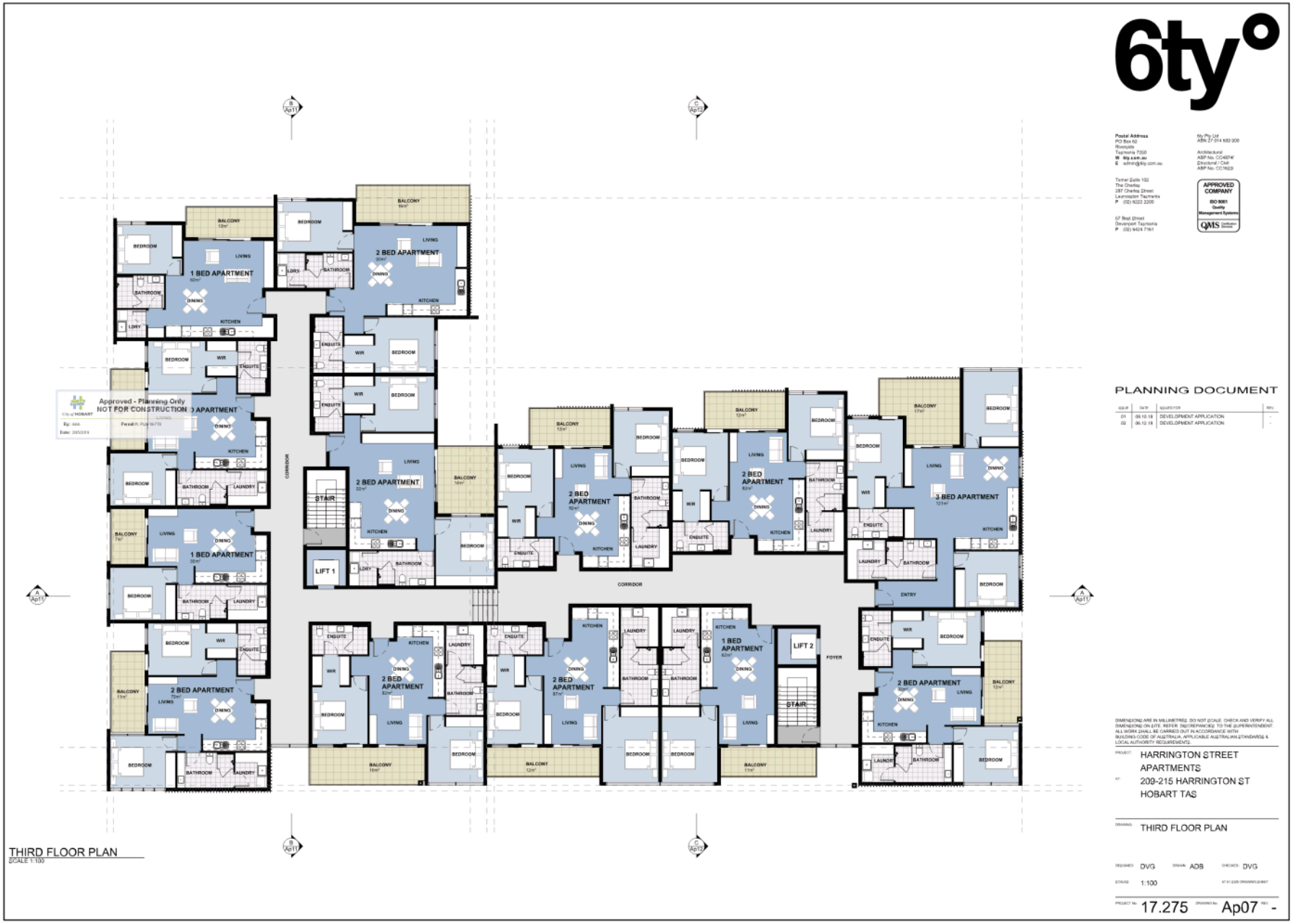
6ty°
SITE BREAKDOWN
AREAS
SITE: 1795m²
GROUND FLOOR: 1520m²
FIRST FLOOR: 1393m²
BALCONY: 244m²
SECOND FLOOR: 1393m²
BALCONY: 161m²
THIRD FLOOR: 1293m²
BALCONY: 161m²
APARTMENT BREAKDOWN
FIRST FLOOR
1 BED APARTMENTS: 3
2 BED APARTMENTS: 9
3 BED APARTMENTS: 1
TOTAL: 13
SECOND FLOOR
1 BED APARTMENTS: 3
2 BED APARTMENTS: 9
3 BED APARTMENTS: 1
TOTAL: 13
THIRD FLOOR
1 BED APARTMENTS: 3
2 BED APARTMENTS: 9
3 BED APARTMENTS: 1
TOTAL: 13
CARPARKING
13 APARTS
1 ACCESS SPACE
13 BIKE CAGES
Approved - Planning Only
NOT FOR CONSTRUCTION
MULTI STORY
APARTMENT
BUILDING
209-215 HARRINGTON STREET
HOBART TAS 7001
HARRINGTON STREET
PATRICK STREET
TITLE BOUNDARY
EXISTING BUILDING
PLANNING DOCUMENT
DEVELOPMENT APPLICATION
AWNING DIMENSIONS ADDED
REVISED IN RESPONSE TO COUNCIL RFI
DEVELOPMENT APPLICATION
TRUE NORTH
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
CHAU NOMINEES PTY LTD
SITE PLAN
DVG
A08
1:200
17.275
Ap03
A
SITE PLAN
SCALE 1:200


6ty°
Approved - Planning Only
NOT FOR CONSTRUCTION
CAR PARKING
STAIR
BICYCLE PARKING
LIFT 1
LOBBY
FIRE TUNNEL
CAR PARKING
RETAIL
ACCESS RAMP
BICYCLE PARKING
LIFT 2
STAIR
LOBBY
RETAIL
GARBAGE
FIRE BOOSTER & METERS
PLANNING DOCUMENT
HARRINGTON STREET APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
GROUND FLOOR PLAN
DVG
ADB
DVG
1:100
17.275
Ap04
B
GROUND FLOOR PLAN
SCALE 1:100



FIRST FLOOR PLAN
SCALE 1:100


6ty°
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
1 BED APARTMENT
2 BED APARTMENT
3 BED APARTMENT
BEDROOM
LIVING
DINING
KITCHEN
BATHROOM
LAUNDRY
LDRY
WIR
ENSUITE
BALCONY
CORRIDOR
STAIR
LIFT 1
LIFT 2
FOYER
ENTRY
PLANNING DOCUMENT
DEVELOPMENT APPLICATION
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
SECOND FLOOR PLAN
DVG
A08
1:100
17.275
Ap06
SECOND FLOOR PLAN
SCALE 1:100


6ty°
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
1 BED APARTMENT
2 BED APARTMENT
3 BED APARTMENT
BEDROOM
LIVING
DINING
KITCHEN
BATHROOM
LAUNDRY
LDRY
WIR
ENSUITE
BALCONY
CORRIDOR
STAIR
LIFT 1
LIFT 2
FOYER
ENTRY
THIRD FLOOR PLAN
SCALE 1:100
PLANNING DOCUMENT
01 08.10.18 DEVELOPMENT APPLICATION
02 06.12.18 DEVELOPMENT APPLICATION
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
THIRD FLOOR PLAN
DVG
A08
DVG
1:100
17.275
Ap07
-

6ty°
Postal Address
PO Box 62
Rosegate
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au
6ty Pty Ltd
ABN 27 014 680 000
Architectural
ABP No. CC4874
Structural / Civil
ABP No. CC1623
Tamar Suite 102
The Charles
287 Charles Street
Launceston Tasmania
P (02) 6322 3200
57 Bept Street
Davenport Tasmania
P (02) 6424 7161
APPROVED COMPANY
ISO 9001
Quality
Management Systems
QMS
Approved - Planning Only
NOT FOR CONSTRUCTION
PLANNING DOCUMENT
01 08.10.19 DEVELOPMENT APPLICATION -
02 06.12.19 DEVELOPMENT APPLICATION -
DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.
PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS
DRAWING: ROOF PLAN
DESIGNED: DVG
DRAWN: ADB
CHECKED: DVG
SCALE: 1:100
PROJECT No. 17.275
DRAWING No. Ap08
REV. -
ROOF PLAN
SCALE 1:100

NORTH/ EAST ELEVATION
SCALE 1:100

Approved - Planning Only
NOT FOR CONSTRUCTION

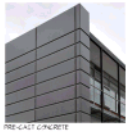
NORTH/ WEST ELEVATION
SCALE 1:100

EXTERNAL FINISHES
REFER ELEVATIONS FOR LOCATIONS

- ZINCALUME OR EQUAL COLOUR: COPPER
- GLASS LOCATION: WINDOWS & BALUSTRADE
- POWDERCOATED ALUMINIUM FEATURE BATTENS COLOUR: TO BE CONFIRMED
- PRE-CAST CONCRETE COLOUR: CHARCOAL
- PRE-CAST CONCRETE COLOUR: LIGHT GREY
- PRE-CAST CONCRETE COLOUR: WHITE

EXTERNAL FINISHES
EXAMPLE IMAGES

PRE-CAST CONCRETE COLOUR: WHITE — GLASS



PRE-CAST CONCRETE COLOUR: LIGHT GREY

POWDERCOATED ALUMINIUM FEATURE BATTENS COLOUR: TO BE CONFIRMED

PRE-CAST CONCRETE COLOUR: CHARCOAL

ZINCALUME OR EQUAL COLOUR: COPPER

6ty°

Postal Address
PO Box 63
Rosny
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

6ty Pty Ltd
ABN 27 014 680 309

Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1623

Turner Suite 102
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6223 2200

57 Best Street
Devonport Tasmania
P (03) 6424 7161

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS

PLANNING DOCUMENT

ISSUE	DATE	ISSUED FOR	REV.
01	08.10.18	DEVELOPMENT APPLICATION	-
02	06.12.18	REVISED IN RESPONSE TO COUNCIL RFI. DEVELOPMENT APPLICATION	A

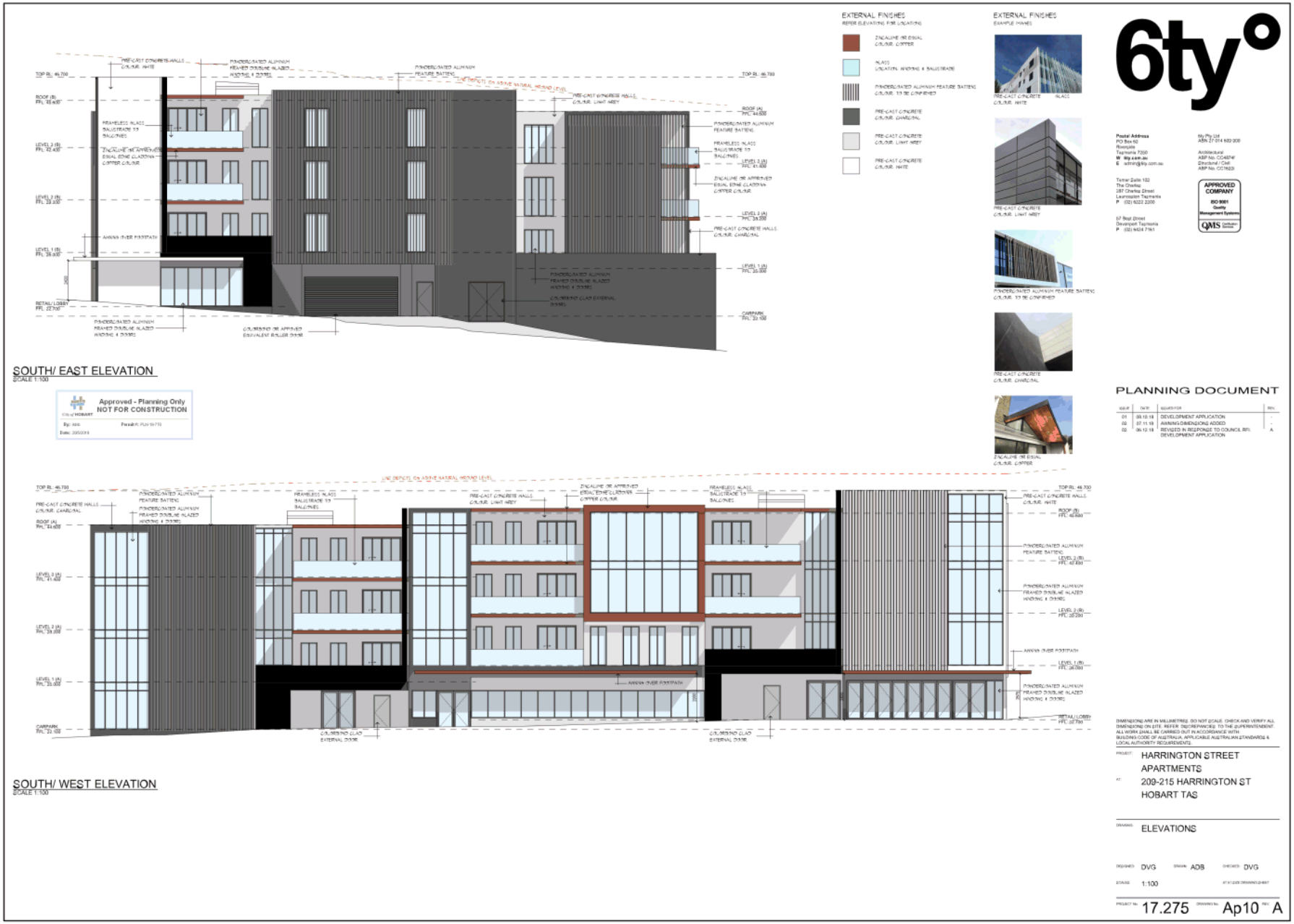
DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

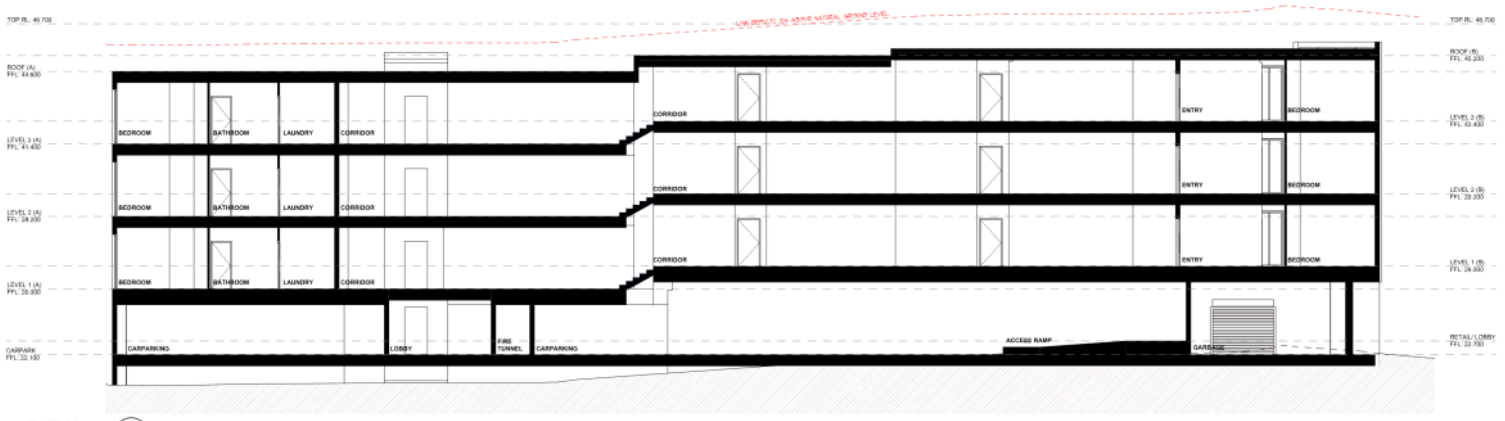
PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS

DRAWING: ELEVATIONS

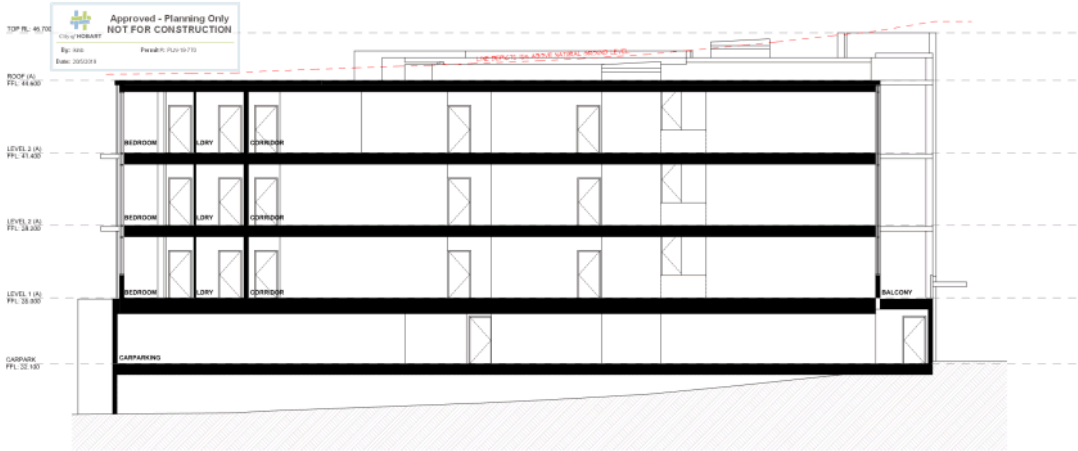
DESIGNED: DVG DRAWN: AOB CHECKED: DVG
SCALE: 1:100

PROJECT No. 17.275 DRAWING No. Ap09 REV. A


SOUTH/ EAST ELEVATION
SCALE 1:100
Approved - Planning Only
NOT FOR CONSTRUCTION
SOUTH/ WEST ELEVATION
SCALE 1:100
EXTERNAL FINISHES
EXTERNAL FINISHES
6ty°
PLANNING DOCUMENT
HARRINGTON STREET
APARTMENTS
209-215 HARRINGTON ST
HOBART TAS
ELEVATIONS
DVG
1:100
17.275
Ap10
A



SECTION A
SCALE 1:100



SECTION B
SCALE 1:100

6ty°

Postal Address
PO Box 62
Rosny
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

6ty Pty Ltd
ABN 27 014 680 308

Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1623

Tarner Suite 102
The Cherbug
287 Charles Street
Launceston Tasmania
P (03) 6223 2200

57 Best Street
Devonport Tasmania
P (03) 6424 7161

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS Certification

PLANNING DOCUMENT

ISSUE	DATE	ISSUED FOR	REV
01	08.10.19	DEVELOPMENT APPLICATION	-
02	06.12.19	REVISED IN RESPONSE TO COUNCIL RFI. DEVELOPMENT APPLICATION	A

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS

DRAWING: SECTIONS

DESIGNED: DVG DRAWN: ADB CHECKED: DVG
SCALE: 1:100 AT A1 SIZE DRAWING SHEET

PROJECT No. 17.275 DRAWING No. Ap11 REV. A

SECTION C
SCALE 1:100

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: [illegible]
Date: 20/5/2019
Permit #: PLN-19-710

6ty°

Postal Address
PO Box 62
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 102
The Charles
287 Charles Street
Launceston Tasmania
P (02) 6322 2200

67 Best Street
Devonport Tasmania
P (02) 6424 7161

6ty Pty Ltd
ABN 27 014 680 000

Architectural
ABP No. CC4874
Structural / Civil
ABP No. CC1623

APPROVED COMPANY
ISO 9001
Quality
Management Systems
QMS

PLANNING DOCUMENT

ISSUE	DATE	ISSUED FOR	REV.
01	08.10.18	DEVELOPMENT APPLICATION	-
02	06.12.18	DEVELOPMENT APPLICATION	-

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS

DRAWING: SECTIONS

DESIGNED: DVG DRAWN: ADB CHECKED: DVG
SCALE: 1:100 AT A1 SIZE DRAWING SHEET

PROJECT No. 17.275 DRAWING No. Ap12 REV. -

6ty°

Postal Address
PO Box 62
Riverside
Tasmania 7250
W: 6ty.com.au
E: admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston Tasmania
P: (03) 6322 2200

57 Bept Street
Devonport Tasmania
P: (03) 6424 7161

6ty Pty Ltd
ABN 27 014 692 200

Architectural
ABP No. CC4874/
Structural / Civil
ABP No. CC1623/

APPROVED COMPANY
ISO 9001
Quality
Management Systems
QMS

PLANNING DOCUMENT

ISSUE	DATE	ISSUED FOR	REV.
01	08.10.18	DEVELOPMENT APPLICATION	-
02	06.12.18	REVISED IN RESPONSE TO COUNCIL RFI. DEVELOPMENT APPLICATION	A

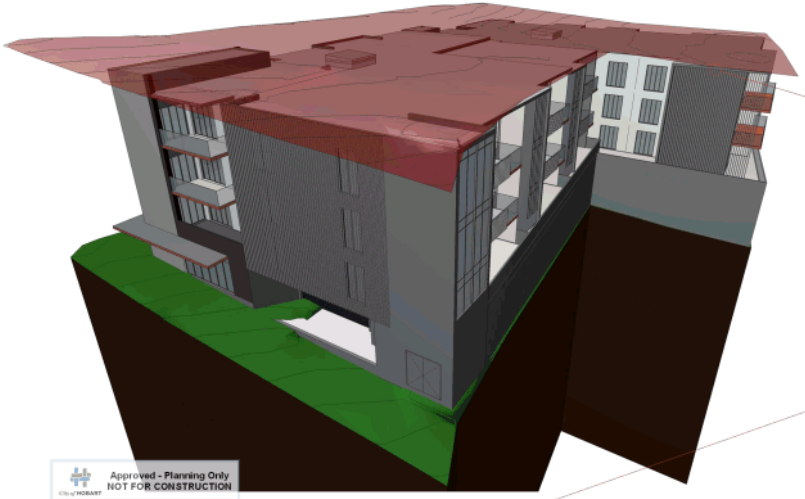
DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

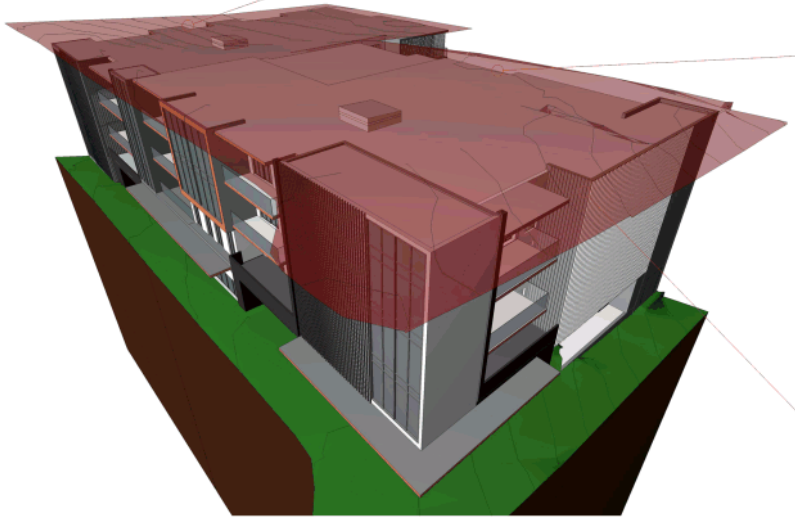
PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS

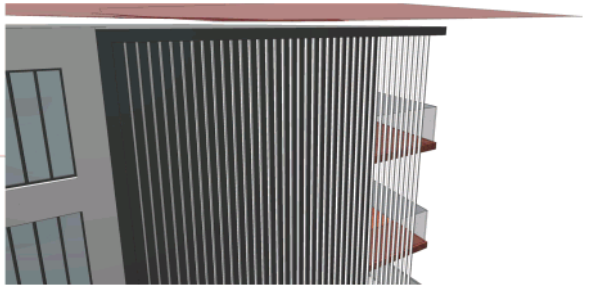
DRAWING: VISUALISATIONS

DESIGNED: DVG DRAWN: ADB CHECKED: DVG
SCALE: NTS

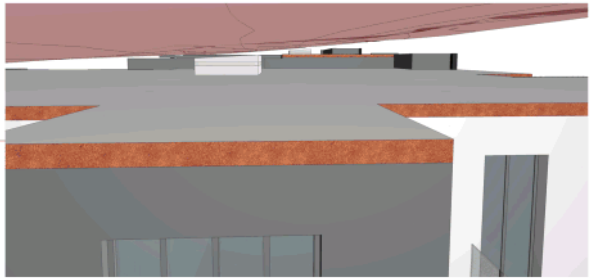
PROJECT No. 17.275 DRAWING No. Ap13 REV. A





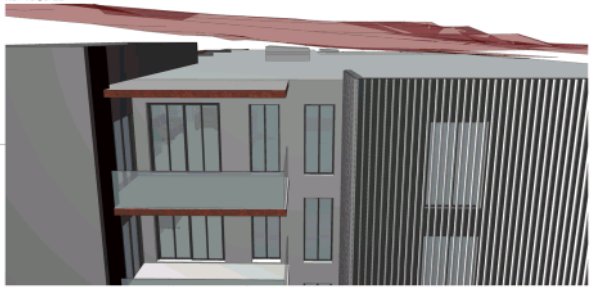


LOOKING NORTH
NOT TO SCALE



LOOKING SOUTH EAST
NOT TO SCALE

LOOKING SOUTH
NOT TO SCALE



LOOKING NORTH WEST FROM PATRICK STREET
NOT TO SCALE

6ty°

Postal Address
PO Box 62
Rosegate
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

6ty Pty Ltd
ABN 27 014 680 309

Architectural
ABP No. CC4874F
Structural / Civil
ABP No. CC1623I

Terrace Suite 132
The Charles
287 Charles Street
Launceston Tasmania
P (03) 6322 3200

57 Best Street
Devonport Tasmania
P (03) 6424 7161

APPROVED COMPANY
ISO 9001 Quality Management Systems
QMS Certification

PLANNING DOCUMENT

ISSUE	DATE	ISSUED FOR	REV
01	06.12.18	DEVELOPMENT APPLICATION	-

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

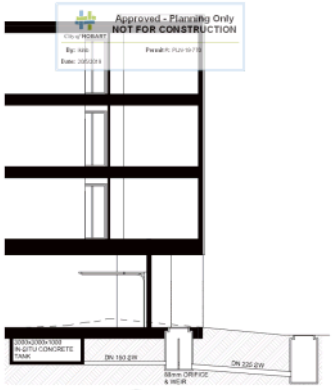
PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS

DRAWING: 3D MASS REPRESENTATION

DESIGNED: DVG DRAWN: ADB CHECKED: DVG
SCALE: NTS AT A1 SIZE DRAWING SHEET

PROJECT No. 17.275 DRAWING No. Ap14 REV. -

SECTION C
SCALE 1:100



SECTION D
SCALE 1:100

6ty°

Postal Address
PO Box 62
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 102
The Charles
287 Charles Street
Launceston Tasmania
P (02) 6322 3200

57 Bept Street
Devonport Tasmania
P (02) 6424 7161

6ty Pty Ltd
ABN 27 014 680 000

Architectural
ABP No. CC4874
Structural / Civil
ABP No. CC1623

APPROVED COMPANY
ISO 9001
Quality
Management Systems
QMS

PLANNING DOCUMENT

ISSUE	DATE	ISSUED FOR	REV.
01	08.10.18	DEVELOPMENT APPLICATION	-
02	06.12.18	DEVELOPMENT APPLICATION	-
02	21.02.19	DEVELOPMENT APPLICATION	-

DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE. CHECK AND VERIFY ALL DIMENSIONS ON SITE. REFER DISCREPANCIES TO THE SUPERINTENDENT. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING CODE OF AUSTRALIA, APPLICABLE AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS.

PROJECT: HARRINGTON STREET APARTMENTS
AT: 209-215 HARRINGTON ST HOBART TAS

DRAWING: SECTIONS

DESIGNED: DVG DRAWN: ADB CHECKED: DVG
SCALE: 1:100 AT A1 SIZE DRAWING SHEET

PROJECT No. 17.275 DRAWING No. Ap12 REV. -

6ty°

Planning Submission

Residential Apartment and Retail Complex

209-215 Harrington Street, Hobart

Prepared for:

Hobart City Council

Measured form and function

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

Issue	01
Date	22 October 2018
Project Name	Harrington Street Residential Apartments
Project Number	17.275
Author	George Walker
Document	

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

6ty Pty Ltd ©

Contents

1.0 Introduction **3**
1.1 Planning Overview 3
1.2 Proposed Use and Development 4
1.3 Residential Apartments 4
1.4 Retail Tenancies and Car Parking 4
1.5 Incidental Matters 5
2.0 Location **6**
2.1 Subject Site 6
2.2 Description of the Surrounding Area 6
2.3 Site Access 6
2.4 Site Servicing 6
3.0 Planning Assessment **8**
3.1 Commercial Zone 8
3.2 Categorisation of Use 8
3.3 Purpose Statements 8
3.4 Use Standards 10
3.5 Development Standards 13
3.6 Development Standards - Subdivision 20
3.7 Potentially Contaminated Land Code 24
3.8 Road and Railway Assets Code 27
3.9 Car Parking and Sustainable Transport Code 34
3.10 Stormwater Management Code 48
3.11 Historic Heritage Code 49

Appendix A
Certificate of Title
Appendix B
Development Plans
Appendix C
Traffic Impact Assessment
Appendix D
Potentially Contaminated Land Report
Appendix E

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Statement of Historic Archaeological Potential

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

1.0 Introduction

Planning approval is sought for the construction of a residential apartment and retail complex on land located at the corner of Patrick Street and Harrington Street, Hobart (the site - refer to Image 1).

Image 1 - aerial photo of identifying the site.

1.1 Planning Overview

Element	Overview
Location	209-215 Harrington Street, Hobart
Title Information	*52394/1, 52395/1, 232390/1, 203787/1, 197488/1 and 247958/1*
Land Area	1,705 m^2
Planning Instrument	*Hobart Interim Planning Scheme 2015* (the Scheme)
Proposed Use	Residential, Food Services, General Retail and Hire
Proposed Development	Consolidation of lots, demolition of existing buildings, construction of [illegible]
Zone(s)	23.0 - Commercial
Applicable Code(s)	E2.0 - Potentially Contaminated Lands Code

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

	E5.0 - Road and Railway Assets Code E6.0 - Parking and Sustainable Transport Code E7.0 - Stormwater Management Code E13.0 - Historic Heritage Code
Status of Application	Discretionary

1.2 Proposed Use and Development

It is proposed to construct a residential apartment and retail complex on land located at 209-2015 Harrington Street, Hobart. The building will be constructed to all property boundaries which will result in a total footprint of 1,670m^2 and will comprise 4 levels. The building will have a maximum height of approximately 14.2m.

1.3 Residential Apartments

The residential apartments will be contained within 3 levels commencing above the ground floor level. The floor plan will be a mirror image over the 3 levels, aside from some of the first floor balconies having a slightly larger area due to the space that is created by the ground floor roof. The configuration of each residential apartment level is summarised as follows:

- 9 x 2-bedroom apartments (27 in total)
- 3 x 1-bedroom apartments (9 in total)
- 1 x 3-bedroom apartments (3 in total)
- access corridors
- 2 separate lift shafts and stairwells which will be located to the north-western and south-eastern end of the building.

In total, the building will support 39 apartments. Pedestrian access will be available from the Harrington Street footpath and from the internal car parking area.

1.4 Retail Tenancies and Car Parking

The ground floor will incorporate 2 retail tenancies, car parking, lobby and pedestrian access and vehicular access. One retail tenancy will be located on the corner of Harrington Street and Patrick Street which will have a floor area of 85m^2. The other retail tenancy will be located parallel to Harrington Street between the two entrance lobbies. The tenancy will have a floor area of 127m^2. Each tenancy will incorporate glazing into the façade elevations. The lobby entrances have been recessed into the building which provides an alcove for weather protection.

Vehicular access to the car park will be from Patrick Street only. A total of 36 car parking spaces will be provided. A [illegible] parking area will be located in the northern corner of the building.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

1.5 Incidental Matters

It is proposed to remove all existing buildings that are located in the south-eastern section of the site. All current titles will be consolidated into one lot to facilitate the proposed use and development. Furthermore, an awning will extend from the Harrington Street and Patrick Street facades over the footpath.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

2.0 Location

2.1 Subject Site

The subject site is a large distended 'L' shaped parcel approximately 1,705m^2 in area and is bound by Harrington Street to the south, Patrick Street to the east, an established residential dwelling and commercial buildings to the north and a commercial carpark to the west. The subject site has a gradient of approximately 5% downhill to the north-west and comprises an existing multi-tenancy single store building within the south-eastern section and a large hardstand car parking area within the western section.

2.2 Description of the Surrounding Area

The subject site is zoned Commercial under the Scheme and is located within a broader Commercial zoned area which encompasses the entire block between Melville Street, Harrington Street, Murray Street and Warwick Street and includes land located on the north-eastern side of Murray Street. The Commercial precinct is located on the south-western outskirts of the Hobart Central Business District (CBD) at the interface with the Inner Residential zone to the south-west.

The subject site is situated on the corner of Harrington Street and Patrick Street and is diagonally opposite St Marys Cathedral and St Virgil's College and within walking distance to several key attractions and facilities around the City including the CBD, Salamanca, Sullivan's Cove waterfront, and the North Hobart retail and commercial strip.

The broader area is charactered by a mix of business, office, café, school and residential use and development which is reflective of the interface between the CBD and residential areas. Built form within the surrounding area comprises a diverse range of building types and styles of varying heights, bulk and massing which, coupled with the undulating topography of the surrounding area, creates an eclectic transition between buildings.

Overall, the site is well located for a mixed use residential and retail development in terms of being within walking distance of the CBD and other key facilities and attractions and for its contribution to the transition between the commercial area within the peri-urban interface of the CBD.

2.3 Site Access

Vehicular access will be provided from the Patrick Street frontage. A Traffic Impact Assessment has been prepared by Howarth Fisher and Associates which addresses the adequacy of the access points in terms of traffic safety and operational efficiency. A copy of the Traffic Impact Assessment is contained within ***Appendix C***.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: kind Permit #: PLN-18-770
Date: 20/5/2019

2.4 Site Servicing

The subject site is located within a fully serviced urban area. Reticulated water and sewerage mains are located along Harrington Street and Patrick Street. It is observed

that an existing sewerage main is located diagonally through the north-western section of the subject site. It is expected that this main will be removed as part of development of the site.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

3.0 Planning Assessment

3.1 Commercial Zone

The site is zoned Commercial in accordance with the Scheme.

3.2 Categorisation of Use

Pursuant to clause 8.2.1 the proposed use and development is categorised into the following use classes:

1. The residential apartments which will be located above ground level are categorised as 'Residential' which the Scheme defines as follows:

   "*use of land for self-contained or shared living accommodation. Examples include an ancillary dwelling, boarding house, communal residence, home-based business, hostel, residential aged care home, residential college, respite centre, retirement village and single or multiple dwellings.*"

   Specifically, the residential apartments fit within the multiple dwelling sub-use class.

2. Approval is sought for the three ground floor level tenancies to be used interchangeably for the dual uses of 'Food Services' and 'General Retail and Hire' which the Scheme defines as follows:

   Food Services

   "*use of land for preparing or selling food or drink for consumption on or off the premises. Examples include a café, restaurant and take-away food premises*"

   It is envisaged that the tenancies would be used within the parameters of café or restaurant sub-use class.

   General Retail and Hire

   "*use of land for selling goods or services or hiring goods. Examples include an adult sex product shop, amusement parlour, beauty salon, betting agency, commercial art gallery, departments store, hairdresser, market, primary produce sales, shop, shop front dry cleaner, supermarket and video shop.*"

It is envisaged that the tenancies could be used within the parameters of all sub-use classes.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

3.3 Purpose Statements

The following section lists the purpose statements of the Commercial zone with a response provided detailing how the proposed use and development is consistent with each statement.

23.1.1.1 To provide for large floor area retailing and service industries.

Response

Whilst the provision of large floor area retailing, and service industries is not proposed, the subject site is not currently used for large floor retailing and service industries. Furthermore, the subject site is surrounded by residential uses which may conflict with the suite of uses that are permitted within the Commercial zone Accordingly, the proposed use and development will not convert established Commercial land used for large floor area retailing activities.

23.1.1.2 To provide for development that requires high levels of vehicle access and car parking for customers.

Response

Provision for car parking has been made for each residential apartment and the retail tenancies. It is observed that there is a shortfall in car parking spaces however it is expected that this will be off-set by the provision of communal electric vehicles, ample bicycle storage spaces and the high walkability of the site.

23.1.1.3 To provide for a diversity of generally non-residential uses reflecting the transition between the Central Business Zone and Inner Residential areas.

Response

The proposed residential apartment and retail complex will assist with the transition between the Central Business zone and Inner Residential through the provision of above ground floor residential use and retail tenancies at the ground floor.

23.1.1.4 To allow for uses such as car yards, warehouse and showrooms in the areas of high traffic volume and high passing visibility.

Response

No car yards, warehouses or show rooms are proposed.

23.1.1.5 To allow good quality building stock to be used for less land extensive central service uses such as offices and specialist wholesaling uses.

Response

The proposed development represents brown-field development at a density that maximises the site. The proposed building has been designed to be an attractive and appealing building to encourage use of the ground floor tenancies and to be an aesthetic feature within the cityscape.

23.1.1.6 To allow for service industry uses such as motor repairs which provide a valuable service to users of the precinct area.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: Ikinc Permit: PLN-18-770
Date: 20/5/2019

Response

No service industry uses are proposed.

23.1.1.7 To provide for residential use primarily above ground floor level.

Response

The proposed building has been designed to accommodate all residential use components (with the exception of access) above the ground floor level.

3.4 Use Standards

23.3.1 Hours of Operation	
Objective	
To ensure that hours of operation do not have unreasonable impact on residential amenity on land within a residential zone.	
Acceptable Solutions	**Performance Criteria**
A1 Hours of operation of a use within 50 m of a residential zone must be within: (a) 6.00 am to 10.00 pm Mondays to Saturdays inclusive; (b) 7.00 am to 9.00 pm Sundays and Public Holidays; except for office and administrative tasks.	**P1** Hours of operation of a use within 50 m of a residential zone must not have an unreasonable impact upon the residential amenity of land in a residential zone through commercial vehicle movements, noise or other emissions that are unreasonable in their timing, duration or extent.

Response

It is envisaged that the general retail and hire, and food services components of the ground floor tenancies will operate between the specified hours which can be ratified through the provision of a condition. Accordingly, the acceptable solution can be met.

23.3.2 Noise	
Objective	
To ensure that noise emissions do not cause environmental harm and do not have unreasonable impact on residential amenity on land within a residential zone.	
Acceptable Solutions	**Performance Criteria**
A1 Noise emissions measured at the boundary of a residential zone, must not exceed the following: (a) 55dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm; (b) 5dB(A) above the background level or 40dB(A) (LAeq), whichever is the lower, between the hours 7.00 pm to 7.00 am	**P1** Noise emissions measured at the boundary of a residential zone must not cause environmental harm within the residential zone.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

(c) 65dB(A) (LAmax) at any time. Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness. Noise levels are to be averaged over a 15-minute time interval.	

Response

It is expected that the noise emissions generated by the general retail and hire, and food services components of the ground floor tenancies will not exceed the specified dB(A) (LAeq) levels at the boundary of the nearest residential zone which is located approximately 17m to the south-west of the subject site beyond Harrington Street.

Factors that will ensure any noise emissions will not exceed the specified levels include the nature of the uses which will primarily occur within the building and the presence of significant background noise levels attributed to traffic movement along Harrington Street which is a high traffic volume street. Accordingly, it is expected that the acceptable solution can be met.

23.3.3 External Lighting	
Objective **To ensure that external lighting does not have unreasonable impact on residential amenity on land within a residential zone.**	
Acceptable Solutions	**Performance Criteria**
A1 External lighting within 50 m of a residential zone must comply with all of the following: (a) be turned off between 11:00 pm and 6:00 am, except for security lighting; (b) security lighting must be baffled to ensure they do not cause emission of light outside the zone.	**P1** External lighting within 50 m of a residential zone must not adversely affect the amenity of adjoining residential areas, having regard to all of the following: (a) level of illumination and duration of lighting; (b) distance to habitable rooms in an adjacent dwelling.

Response

No external lighting of the building is proposed with the exception of providing illumination to the main entrance to the residential apartment and underneath the awnings which will extend over the pedestrian footpaths along Harrington Street and Patrick Street which will be used with passive surveillance and visibility purposes. The lighting will be restricted to the entrance alcove and beneath the awning which will ensure light emissions will be contained within the zone boundary. Accordingly, the acceptable solution can be met.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

23.3.4 Commercial Vehicle Movements	
Objective	
To ensure that commercial vehicle movements not have unreasonable impact on residential amenity on land within a residential zone.	
Acceptable Solutions	**Performance Criteria**
A1 Commercial vehicle movements, (including loading and unloading and garbage removal) to or from a site within 50 m of a residential zone, must be within the hours of: (a) 6.00am to 10.00pm Mondays to Saturdays inclusive; (b) 7.00am to 9.00pm Sundays and Public Holidays.	**P1** Commercial vehicle movements, (including loading and unloading and garbage removal) to or from a site within 50 m of a residential zone must not result in unreasonable adverse impact upon residential amenity having regard to all of the following: (a) the time and duration of commercial vehicle movements; (b) the number and frequency of commercial vehicle movements; (c) the size of commercial vehicles involved; (d) the ability of the site to accommodate commercial vehicle turning movements, including the amount of reversing (including associated warning noise); (e) noise reducing structures between vehicle movement areas and dwellings; (f) the level of traffic on the road; (g) the potential for conflicts with other traffic.

Response

It is envisaged that commercial vehicles associated with the general retail and hire, and food services components of the ground floor tenancies will operate between the specified hours which can be ratified through the provision of a condition. Accordingly, the acceptable solution can be met.

23.3.5 Outdoor Work Areas	
Objective	
To ensure that use of outdoor work areas does not have unreasonable impact on residential amenity on land within a residential zone.	
Acceptable Solutions	**Performance Criteria**
A1 Outdoor work areas and noise-emitting services such as air conditioning equipment, pumps and ventilations fans must not be located within 50m of a residential zone.	**P1** Outdoor work areas and noise-emitting services such as air conditioning equipment, pumps and ventilations fans located within 50 m of a residential zone must be accompanied by effective acoustic screening in the intervening space.

Response

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

No outdoor work areas are proposed. However, plant and equipment will be located within 50m of the nearest residential zoned land which is located approximately 17m to the south-west beyond Harrington Street. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

It is expected that all plant and equipment including air-conditioning, ventilation and extraction will be located within the ground floor level or at the roof top where actual and perceived noise emissions will be provided with effective acoustic screening by the building, distance and other specific acoustic treatments which will be required to protect the amenity of the residential apartments.

It is therefore submitted that the location and position of noise-emitting plant and equipment will comply with the performance criteria.

Use standards 23.3.6 through to 23.3.9 do not apply to the proposed use and development on the basis that the uses in which each standard regulates are not proposed which include:

- ***Adult Entertainment Venues;***
- ***Take-away Food Shops;***
- ***Hotel Industries; and***
- ***Manufacturing and Processing Uses.***

3.5 Development Standards

23.4.1 Building Height	
Objective	
To ensure that building height contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.	
Acceptable Solutions	**Performance Criteria**
A1 Building height must be no more than: (a) 11.5m high and a maximum of 3 storeys; or (b) 15m high and a maximum of 4 storeys, if the development provides at least 50% of the floor space above ground level for residential use.	**P1** Building height must satisfy all of the following: (a) be consistent with any Desired Future Character Statements provided for the area; (b) be compatible with the scale of nearby buildings; (c) not unreasonably overshadow adjacent public space; (d) allow for a transition in height between adjoining buildings, where appropriate;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

The building has been designed to have a maximum of 4 storeys and a height below 15m. Section plans have been provided which illustrates the building relative to the maximum 15m building height. Acceptable solution A1 (c) is therefore met.

Acceptable Solutions	Performance Criteria
A2 Building height within 10 m of a residential zone must be no more than 8.5 m.	**P2** Building height within 10 m of a residential zone must be compatible with the building height of existing buildings on adjoining lots in the residential zone.

Response

The proposed building will be setback approximately 17m from the nearest residential zoned land (Inner Residential) which is situated to the south-west beyond Harrington Street road reserve. Therefore, the provision is not applicable to the assessment.

23.4.2 Setback	
Objective **To ensure that building setback contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.**	
Acceptable Solutions	**Performance Criteria**
A1 Building setback from frontage must be parallel to the frontage and must be no less than: 0m from the frontage.	**P1** Building setback from frontage must satisfy all of the following: (a) be consistent with any Desired Future Character Statements provided for the area; (b) be compatible with the setback of adjoining buildings, generally maintaining a continuous building line if evident in the streetscape; (c) enhance the characteristics of the site, adjoining lots and the streetscape; (d) provide adequate opportunity for parking.

Response

The proposed building will be constructed to and parallel with the Harrington Street and Patrick Street frontages. Therefore, the acceptable solution is met.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Acceptable Solutions	Performance Criteria
A2	**P2**

Building setback from a residential zone must be no less than: (a) 5m; (b) half the height of the wall; whichever is the greater.	Building setback from a residential zone must be sufficient to prevent unreasonable adverse impacts on residential amenity by: (a) overshadowing and reduction of sunlight to habitable rooms and private open space on adjoining lots to less than 3 hours between 9.00 am and 5.00 pm on June 21 or further decrease sunlight hours if already less than 3 hours; (b) overlooking and loss of privacy; (c) visual impact when viewed from adjoining lots; (d) industrial activity.

Response

The wall of the proposed building that will be located to the nearest residential zoned land (Inner Residential) which is situated to the south-west beyond Harrington Street road reserve will have a maximum height of approximately 15m. The wall will be setback approximately 17m from the residential zoned land which is greater than half the height of the wall (~7.2m). Therefore, sub-clause (b) is met.

23.4.3 Design	
Objective **To ensure that building design contributes positively to the streetscape, the amenity and safety of the public and adjoining land in a residential zone.**	
Acceptable Solutions	**Performance Criteria**
A1 Building design must comply with all of the following: (a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site; (b) for new building or alterations to an existing facade provide windows and door openings at ground floor level in the front façade no less than 40% of the surface area of the ground floor level facade; (c) for new building or alterations to an existing facade ensure any single expanse of blank wall in the ground level front façade and facades facing other public spaces is not greater than 30% of the length of the facade; (d) screen mechanical plant and miscellaneous equipment such as heat pumps, air conditioning units, switchboards, hot water units or similar from view from the street and other public spaces;	**P1** Building design must enhance the streetscape by satisfying all of the following: (a) provide the main access to the building in a way that is visible from the street or other public space boundary; (b) provide windows in the front façade in a way that enhances the streetscape and provides for passive surveillance of public spaces; (c) treat very large expanses of blank wall in the front façade and facing other public space boundaries with architectural detail or public art so as to contribute positively to the streetscape and public space; (d) ensure the visual impact of mechanical plant and miscellaneous equipment, such as heat pumps, air conditioning units, switchboards, hot water units or similar, is limited when viewed from the street; (e) ensure roof-top service infrastructure, including service plants and lift structures, is screened so as to have limited visual impact;

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

(e) incorporate roof-top service infrastructure, including service plants and lift structures, within the design of the roof; (f) provide awnings over the public footpath if existing on the site or on adjoining lots; (g) not include security shutters over windows or doors with a frontage to a street or public place.	(f) only provide shutters where essential for the security of the premises and other alternatives for ensuring security are not feasible; (g) be consistent with any Desired Future Character Statements provided for the area.

Response

In response to the acceptable solution, the following is observed:

a) *the main pedestrian entrance to the residential apartments and retail tenancies will be from Harrington Street and will be clearly visible from the road and footpath;*

b) *the Harrington Street ground level façade will have glazing to approximately 19% and the Patrick Street ground level façade will have glazing to approximately 48%;*

c) *the Harrington street ground level façade will have a total expanse of blank wall equal to approximately 20% of the length of the façade. The Patrick Street ground level façade contain a single expanse of blank wall approximately 30% of the total facade;*

d) *all mechanical plant and miscellaneous will be located between the basement and ground floor level car parking areas and rooftop structures which will ensure the items are screened from public view;*

e) *the lift structure and service plant and equipment have been designed to be incorporated into the design of the roof;*

f) *awnings have been proposed to extend over the public footpath located along Harrington Street and Patrick Street;*

g) *no security shutters over windows or doors have been proposed to the Harrington Street and Patrick Street facades.*

The proposed building is unable to comply with sub-clause (b). Assessment against the corresponding performance criteria is therefore required.

Performance Criteria Assessment

The Harrington Street ground level façade will include sufficient levels of glazing that will correspond with the retail tenancies. The level of glazing, modulation and materiality of the Harrington Street façade will ensure the building contributes positively to the streetscape.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikmb Permit #: PLN-18-770
Date: 20/5/2019

Acceptable Solutions	Performance Criteria
A2 Walls of a building on land adjoining a residential zone must comply with all of the following: (a) be coloured using colours with a light reflectance value not greater than 40 percent; (b) if within 50 m of a residential zone, must not have openings in walls facing the residential zone, unless the line of sight to the building is blocked by another building.	**P2** No performance criteria.

Response

The subject site does not adjoin a residential zone. Therefore, the provision is not applicable to the assessment.

23.4.4 Passive Surveillance	
Objective **To ensure that building design provides for the safety of the public.**	
Acceptable Solutions	**Performance Criteria**
A1 Building design must comply with all of the following: (a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site; (b) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the front façade which amount to no less than 40 % of the surface area of the ground floor level facade; (c) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the façade of any wall which faces a public space or a car park which amount to no less than 30 % of the surface area of the ground floor level facade; (d) avoid creating entrapment spaces around the building site, such as concealed alcoves near public spaces; (e) provide external lighting to illuminate car parking areas and pathways; (f) provide well-lit public access [illegible] floor level from any external car park.	**P1** Building design must provide for passive surveillance of public spaces by satisfying all of the following: (a) provide the main entrance or entrances to a building so that they are clearly visible from nearby buildings and public spaces; (b) locate windows to adequately overlook the street and adjoining public spaces; (c) incorporate shop front windows and doors for ground floor shops and offices, so that pedestrians can see into the building and vice versa; (d) locate external lighting to illuminate any entrapment spaces around the building site; (e) provide external lighting to illuminate car parking areas and pathways; (f) design and locate public access to provide high visibility for users and provide clear sight lines between the entrance and adjacent properties and public spaces; (g) provide for sight lines to other buildings and public spaces.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

In response to the acceptable solution, the following is observed:

a) the main pedestrian entrance to the residential apartments and retail tenancies will be from Harrington Street and will be clearly visible from the road and footpath;

b) the Harrington Street ground level façade will have glazing to approximately 19% and the Patrick Street ground level façade will have glazing to approximately 48%;

c) the Harrington street ground level façade will have a total expanse of blank wall equal to approximately 20% of the length of the façade. The Patrick Street ground level façade contain a single expanse of blank wall approximately 30% of the total facade;

d) no concealed alcoves or enclosures will be created near public spaces due to the building being built to the frontage of Harrington Street and Patrick Street;

e) the car parking areas will be located within the building where internal lighting will be provided;

f) discreet lighting will be provided within the recessed residential entrances and the entrances to the retail tenancies.

The proposed building is unable to comply with sub-clause (b). Assessment against the corresponding performance criteria is therefore required.

Performance Criteria Assessment

The extent of glazing proposed on the Harrington Street and Patrick Street frontages will ensure adequate passive surveillance is achieved between retail tenancies and adjacent footpaths.

23.4.5 Landscaping	
Objective **To ensure that a safe and attractive landscaping treatment enhances the appearance of the site and if relevant provides a visual break from land in a residential zone.**	
Acceptable Solutions	**Performance Criteria**
A1 Landscaping along the frontage of [illegible] required if all of the following apply[illegible]	**P1** [illegible] be provided to satisfy all of [illegible] (a) enhance the appearance of the development;

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

(a) the building extends across the width of the frontage, (except for vehicular access ways); (b) the building has a setback from the frontage of no more than 1m.	(b) provide a range of plant height and forms to create diversity, interest and amenity; (c) not create concealed entrapment spaces; (d) be consistent with any Desired Future Character Statements provided for the area;

Response

The proposed building will be built to the frontage of Harrington Street and Patrick Street the facades of which will extend the width of each corresponding frontage (except for vehicular access ways). Therefore, sub-clause (a) is met.

Acceptable Solutions	Performance Criteria
A2 Along a boundary with a residential zone landscaping must be provided for a depth no less than: 2m.	**P2** Along a boundary with a residential zone landscaping or a building design solution must be provided to avoid unreasonable adverse impact on the visual amenity of adjoining land in a residential zone, having regard to the characteristics of the site and the characteristics of the adjoining residentially-zones land.

Response

The subject site does not adjoin a residential zone. Therefore, the provision is not applicable to the assessment.

23.4.6 Outdoor Storage Areas	
Objective **To ensure that outdoor storage areas for non-residential use do not detract from the appearance of the site or the locality.**	
Acceptable Solutions	**Performance Criteria**
A1 Outdoor storage areas for non-residential uses must comply with all of the following: (a) be located behind the building line; (b) all goods and materials stored must be screened from public view; (c) not encroach upon car parking areas, driveways or landscaped areas.	**P1** Outdoor storage areas for non-residential uses must satisfy all of the following: (a) be located, treated or screened to avoid unreasonable adverse impact on the visual amenity of the locality; (b) not encroach upon car parking areas, driveways or landscaped areas.

Response

No outdoor storage areas are proposed. Therefore, this provision is not applicable to the assessment.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

23.4.7 Fencing	
Objective	
To ensure that fencing does not detract from the appearance of the site or the locality and provides for passive surveillance.	
Acceptable Solutions	**Performance Criteria**
A1 Fencing must comply with all of the following: (a) fences, walls and gates of greater height than 1.5m must not be erected within 10 m of the frontage; (b) fences along a frontage must be at least 50% transparent above a height of 1.2 m; (c) height of fences along a common boundary with land in a residential zone must be no more than 2.1 m and must not contain barbed wire.	**P1** Fencing must contribute positively to the streetscape and not have an unreasonable adverse impact upon the amenity of land in a residential zone which lies opposite or shares a common boundary with a site, having regard to all of the following: (a) the height of the fence; (b) the degree of transparency of the fence; (c) the location and extent of the fence; (d) the design of the fence; (e) the fence materials and construction; (f) the nature of the use; (g) the characteristics of the site, the streetscape and the locality, including fences; (h) any Desired Future Character Statements provided for the area.

Response

No security fencing is proposed. Therefore, the provision is not applicable to the assessment.

3.6 Development Standards - Subdivision

23.5.1 Subdivision	
Objective	
To provide for lots with appropriate area, dimensions, services, roads and access to public open space to accommodate development consistent with the Zone Purpose and any relevant Local Area Objectives or Desired Future Character Statements.	
Acceptable Solutions	**Performance Criteria**
A1 The size of each lot must be no less than: 360m^2 except if for public open space, a riparian reserve or utilities.	**P1** The size of each lot must be sufficient to accommodate development consistent with the Zone Purpose, having regard to any Local Area Objectives or Desired Future Character Statements.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

The subdivision will result in a single lot which will have an area of approximately 1,705m² in area. Therefore, the acceptable solution is met.

Acceptable Solutions	Performance Criteria
A2 The design of each lot must provide a minimum building area that is rectangular in shape and complies with all of the following; (a) clear of the frontage, side and rear boundary setbacks; (b) clear of easements; (c) clear of title restrictions that would limit or restrict the development of a commercial building; (d) has an average slope of no more than 1 in 10; (e) is a minimum of 10 m x 10 m in size.	**P2** The design of each lot must contain a building area able to satisfy all of the following: (a) be reasonably capable of accommodating use and development consistent with Zone Purpose, having regard to any Local Area Objectives or Desired Future Character Statements; (b) provides for sufficient useable area on the lot for on-site parking and manoeuvring, unless adequate arrangements are made for suitable alternative solutions to future likely demand generated by the development potential of the lot; (c) minimises the need for earth works, retaining walls, and cut & fill associated with future development.

Response

The proposed lot will be able to comprise a rectangular building envelope which:

a) will comply with the required frontage, side and rear boundary setbacks;

b) will be clear of identified easements;

c) will be clear of title restrictions that would limit the development of a commercial building;

d) will have a gradient of approximately 8.5% (if located within the south-eastern section);

e) will have a minimum area of 10m by 10m.

Acceptable Solutions	Performance Criteria
A3 The frontage for each lot must be no less than: 10m	**P3** The frontage of each lot must be sufficient to accommodate development consistent with the Zone Purpose, having regard to any Local Area Objectives or Desired Future Character Statements.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

The proposed lot will have a frontage along Harrington Street of approximately 57m and a frontage along Patrick Street of approximately 26m. Therefore, he acceptable solution is met.

Acceptable Solutions	Performance Criteria
A4 No Acceptable Solution.	**P4** The arrangement of roads within a subdivision must satisfy all of the following: (a) the subdivision will not compromise appropriate and reasonable future subdivision of the entirety of the parent lot; (b) accords with any relevant road network plan adopted by the Planning Authority; (c) facilitates the subdivision of neighbouring land with subdivision potential through the provision of connector roads, where appropriate, to the common boundary; (d) provides for acceptable levels of access, safety, convenience and legibility through a consistent road function hierarchy.

Response

There is no acceptable solution. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

The proposed subdivision (consolidation) will not change the arrangement or location of Harrington Street or Patrick Street, or create any new roads. Accordingly, the provision is not considered applicable to the assessment pursuant to clause 7.5.2 (b) of the Scheme.

Acceptable Solutions	Performance Criteria
A5 Each lot must be connected to services adequate to support the likely future use and development of the land.	**P5** No Performance Criteria.

Response

The subject site is located within an area that is fully serviced by reticulated water, sewerage and stormwater infrastructure. Accordingly, the proposed lot will be capable of connecting to the necessary services required to support the proposed development.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Acceptable Solutions	Performance Criteria
A6 No Acceptable Solution.	**P6** Public Open Space must be provided as land or cash in lieu, in accordance with the relevant Council policy.

Response

There is no acceptable solution. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

The proposed subdivision will consolidate six existing titles with no additional lots being created. As such, the proposed subdivision will not increase the demand for public open space. Accordingly, a cash-in-lieu contribution of Public Open Space is not considered necessary.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

3.7 Potentially Contaminated Land Code

The land is identified as being potentially contaminated. Accordingly, assessment against the Code is required.

E2.5 Use Standards	
Objective	
To ensure that potentially contaminated land is suitable for the intended use.	
Acceptable Solutions	**Performance Criteria**
A1 The Director, or a person approved by the Director for the purpose of this Code: (a) certifies that the land is suitable for the intended use; or (b) approves a plan to manage contamination and associated risk to human health or the environment, that will ensure the subdivision does not adversely impact on health or the environment and is suitable for its intended use.	**P1** Land is suitable for the intended use, having regard to: (a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or (b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or (c) a plan to manage contamination and associated risk to human health or the environment that includes: i. an environmental site assessment; ii. any specific remediation and protection measures required to be implemented before any use commences; and iii. a statement that the land is suitable for the intended use.

Response

Advice from the Director within the meaning of the Scheme has not been obtained. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria

In this instance, an environmental site assessment was prepared by Geo Environmental Solutions which concluded the following:

Approved - Planning Only
NOT FOR CONSTRUCTION
CITY OF HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

- *A risk to potential receptors has not been identified during or after development;*
- *All samples collected at the site are below threshold concentrations for assessment risk to human health;*
- *No particular health and safety issues are identified which may originate from onsite contamination activities;*
- *Other advice provided within the recommendations section of this report, there are no specific remediation and protection measures required to be implemented before excavation commences;*
- *As a result of proposed site excavation, there is a very low human health risk to future users of the site and;*
- *GES advise that during site excavation works for site redevelopment, there is a low risk that site contamination will present an environmental risk.*

Accordingly, performance criteria (P1) (b) is satisfied.

A copy of the environmental site assessment is contained with ***Appendix D****.*

E2.6.1 Subdivision	
Objective	
To ensure that subdivision of potentially contaminated land does not adversely impact on human health or the environment and is suitable for its intended use.	
Acceptable Solutions	**Performance Criteria**
A1 For subdivision of land the Director, or a person approved by the Director for the purpose of this Code: (c) certifies that the land is suitable for the intended use; or (d) approves a plan to manage contamination and associated risk to human health or the environment that will ensure the land is suitable for the intended use.	**P1** Subdivision does not adversely impact on health and the environment and is suitable for its intended use, having regard to: (d) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or (e) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or (f) a plan to manage contamination and associated risk to human health or the environment that includes: i. an environmental site assessment;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

	ii. any specific remediation and protection measures required to be implemented before any use commences; and iii. a statement that the land is suitable for the intended use.

Response

Refer to assessment against Standard E2.5.

E2.6.2 Excavation	
Objective **To ensure that works involving excavation of potentially contaminated land does not adversely impact on human health or the environment.**	
Acceptable Solutions	**Performance Criteria**
A1 No acceptable solution.	**P1** Excavation does not adversely impact on health and the environment, having regard to: (a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or (b) a plan to manage contamination and associated risk to human health and the environment that includes: i. an environmental site assessment; ii. any specific remediation and protection measures required to be implemented before excavation commences; and iii. a statement that the excavation does not adversely impact on human health or the environment.

Response

Advice from the Director within the meaning of the Scheme has not been obtained. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria

In this instance, an environmental site assessment was prepared by Geo Environmental Solutions which concluded the following:

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: tkms Permit #: PLN-18-770
Date: 20/5/2019

- *A risk to potential receptors has not been identified during or after development;*
- *All samples collected at the site are below threshold concentrations for assessment risk to human health;*
- *No particular health and safety issues are identified which may originate from onsite contamination activities;*
- *Other advice provided within the recommendations section of this report, there are no specific remediation and protection measures required to be implemented before excavation commences;*
- *As a result of proposed site excavation, there is a very low human health risk to future users of the site and;*
- *GES advise that during site excavation works for site redevelopment, there is a low risk that site contamination will present an environmental risk.*

Accordingly, performance criteria (P1) (b) is satisfied.

3.8 Road and Railway Assets Code

This code applies to the proposed use and development on the basis that it will intensify the use of the existing site access.

E5.5.1 Existing Road Accesses and Junctions	
Objective	
To ensure that the safety and efficiency of roads is not reduced by increased use of existing accesses and junctions.	
Acceptable Solutions	**Performance Criteria**
A1 The annual average daily traffic (AADT) of vehicle movements, to and from a site, onto a category 1 or category 2 road, in an area subject to a speed limit of more than 60km/h, must not increase by more than 10% or 10 vehicle movements per day, whichever is the greater.	**P1** Any increase in vehicle traffic to a category 1 or category 2 road in an area subject to a speed limit of more than 60km/h must be safe and minimise any adverse impact on the efficiency of the road, having regard to: (a) the increase in traffic caused by the use; (b) the nature of the traffic generated by the use; (c) the nature of the road; (d) the speed limit and traffic flow of the road;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

	(e) any alternative access to a road; (f) the need for the use; (g) any traffic impact assessment; and (h) any written advice received from the road authority.

Response

The subject property does not have direct access to a category 1 or 2 road. Therefore, the provision is not applicable to the assessment.

Acceptable Solutions	Performance Criteria
A2 The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of more than 60km/h, must not increase by more than 10% or 10 vehicle movements per day, whichever is the greater.	**P2** Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of more than 60km/h must be safe and not unreasonably impact on the efficiency of the road, having regard to: (a) the increase in traffic caused by the use; (b) the nature of the traffic generated by the use; (c) the nature and efficiency of the access or the junction; (d) the nature and category of the road; (e) the speed limit and traffic flow of the road; (f) any alternative access to a road; (g) the need for the use; (h) any traffic impact assessment; and (i) any written advice received from the road authority.

Response

Patrick Street is subject to a speed limit of 60km/h or less. Therefore, this provision is not applicable to the assessment.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Acceptable Solutions	Performance Criteria
A3	**P3**

The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.	Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of more than 60km/h must be safe and not unreasonably impact on the efficiency of the road, having regard to: (a) the increase in traffic caused by the use; (b) the nature of the traffic generated by the use; (c) the nature and efficiency of the access or the junction; (d) the nature and category of the road; (e) the speed limit and traffic flow of the road; (f) any alternative access to a road; (g) the need for the use; (h) any traffic impact assessment; and (i) any written advice received from the road authority.

Response

It has been determined that the proposed storage use will increase vehicle movements to and from the site by more than 20%. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

A Traffic Impact Assessment (TIA) was prepared for the proposed development. The TIA determined that the proposed increase in vehicle movements from the site as a result of the proposed development will not unreasonably impact the efficiency and safety of Harrington Street or Patrick Street. Specific details with regard to the nature of the use, vehicle movements, nature and efficiency of accesses and the nature of the roads are contained within the TIA.

E5.5.2 Existing Level Crossings	
Objective	
To ensure that the safety and the efficiency of the rail network is not reduced by access across part of the rail network.	
Acceptable Solutions	**Performance Criteria**
A1	**P1**
Where use has access across part of a rail network, the annual average daily traffic (AADT)	Any increase in vehicle traffic at an existing access across part of a rail network, must be

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: lkinb Permit #: PLN-18-770
Date: 20/5/2019

at an existing level crossing must not be increased by greater than 10% or 10 vehicle movements per day, whichever is the greater.	safe and not unreasonably impact on the efficiency of the rail network, having regard to: (a) the increase in traffic caused by the use; (b) the nature of the traffic generated by the use; (c) the nature and efficiency of the access or the junction; (d) the nature and category of the road; (e) the speed limit and traffic flow of the road; (f) any alternative access to a road; (g) the need for the use; (h) any traffic impact assessment; and (i) any written advice received from the road authority.

Response

The subject site does not require direct access over a rail network. Therefore, the provision is not applicable to the assessment.

E5.6.1 Development Adjacent to Roads and Railways	
Objective **To ensure that development adjacent to category 1 or category 2 roads or the rail network:** **(a) ensures the safe and efficient operation of roads and the rail network;** **(b) allows for future road and rail widening, realignment and upgrading; and** **(c) is located to minimise adverse effects of noise, vibration, light and air emissions from roads and the rail network.**	
Acceptable Solutions	**Performance Criteria**
A1.1 Except as provided in A1.2, the following development must be located at least 50m from the rail network, or a category 1 road or category 2 road, in an area subject to a speed limit of more than 60km/h: (a) new buildings; (b) other road or earth works; and (c) building envelopes on new lots.	**P1** The location of development, from the rail network, or a category 1 road or category 2 road in an area subject to a speed limit of more than 60km/h, must be safe and not unreasonably impact on the efficiency of the road or amenity of sensitive uses, having regard to: (a) the proposed setback; (b) the existing setback of buildings on the site; (c) the frequency of use of the rail network;
A1.2	

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Buildings, may be: (a) located within a row of existing buildings and setback no closer than the immediately adjacent building; or (b) an extension which extends no closer than: (i) the existing building; or (ii) an immediately adjacent building.	(d) the speed limit and traffic volume of the road; (e) any noise, vibration, light and air emissions from the rail network or road; (f) the nature of the road; (g) the nature of the development; (h) the need for the development; (i) any traffic impact assessment; (j) any recommendations from a suitably qualified person for mitigation of noise, if for a habitable building for a sensitive use; and (k) any written advice received from the rail or road authority.

Response

The subject site is located greater than 50m from a category 1 or 2 road and a rail network. Therefore, the provision is not applicable to the assessment.

E5.6.2 Road Accesses and Junctions	
Objective **To ensure that the safety and efficiency of roads is not reduced by the creation of new accesses and junctions.**	
Acceptable Solutions	**Performance Criteria**
A1 No new access or junction to roads in an area subject to a speed limit of more than 60km/h.	**P1** For roads in an area subject to a speed limit of more than 60km/h, accesses and junctions must be safe and not unreasonably impact on the efficiency of the road, having regard to: (a) the nature and frequency of the traffic generated by the use; (b) the nature of the road; (c) the speed limit and traffic flow of the road; (d) any alternative access; (e) the need for the access or junction; (f) any traffic impact assessment; and

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

	(g) any written advice received from the road authority.

Response

Both Harrington Street and Patrick Street are subject to a speed limit of 60km/h or less. Therefore, this provision is not applicable to the assessment.

Acceptable Solutions	Performance Criteria
A2 No more than one access providing both entry and exit, or two accesses providing separate entry and exit, to roads in an area subject to a speed limit of 60km/h or less.	**P2** For roads in an area subject to a speed limit of 60km/h or less, accesses and junctions must be safe and not unreasonably impact on the efficiency of the road, having regard to: (a) the nature and frequency of the traffic generated by the use; (b) the nature of the road; (c) the speed limit and traffic flow of the road; (d) any alternative access to a road; (e) the need for the access or junction; (f) any traffic impact assessment; and (g) any written advice received from the road authority.

Response

One access providing both entry and exit will be provided for Patrick Street. Therefore, the acceptable solution is met.

E5.6.3 New Level Crossings	
Objective **To ensure that the safety and the efficiency of the rail network is not reduced by access across part of the rail network.**	
Acceptable Solutions	**Performance Criteria**
A1 No acceptable solution.	**P1** Level crossings must be safe and not unreasonably impact on the efficiency of the rail network, having regard to: (a) the nature and frequency of the traffic generated by the use; (b) the frequency of use of the rail network;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

	(c) the location of the level crossing; (d) any alternative access; (e) the need for the level crossing; (f) any traffic impact assessment; (g) any measures to prevent access to the rail network; and (h) any written advice received from the rail authority.

Response

No level crossings are proposed. Therefore, the provision is not applicable to the assessment.

E5.6.4 Site Distances at Accesses, Junctions and Level Crossings	
Objective **To ensure that the safety and the efficiency of the rail network is not reduced by access across part of the rail network.**	
Acceptable Solutions	**Performance Criteria**
A1 Sight distances at: (a) an access or junction must comply with the Safe Intersection Sight Distance shown in Table E5.1; and (b) rail level crossings must comply with AS1742.7 Manual of uniform traffic control devices - Railway crossings, Standards Association of Australia.	**P1** The design, layout and location of an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles, having regard to: (a) the nature and frequency of the traffic generated by the use; (b) the frequency of use of the road or rail network; (c) any alternative access; (d) the need for the access, junction or level crossing; (e) any traffic impact assessment; (f) any measures to improve or maintain sight distance; and (g) any written advice received from the road or rail authority.

Response

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

The TIA determined that the sight distances for the Patrick Street access will comply with Safe Intersection Sight Distance shown in Table E5.1 of the Code. Therefore, sub-clause (a) is met.

3.9 Car Parking and Sustainable Transport Code

This code applies to all use and development.

E6.6.1 Number of Car Parking Spaces	
Objective **To ensure that:** **(a) there is enough car parking to meet the reasonable needs of all users of a use or development, taking into account the level of parking available on or outside of the land and the access afforded by other modes of transport.** **(b) a use or development does not detract from the amenity of users or the locality by:** **(i) preventing regular parking overspill;** **(ii) minimising the impact of car parking on heritage and local character.** **(c) there is enough car parking to meet the reasonable needs of all users of a use or development, taking into account:** **(i) the level of parking available on or outside of the land;** **(ii) the impact on the demand for and supply of car parking associated with approved but uncompleted uses and developments and the future occupation of vacant premises; and** **(iii) the access afforded by other modes of transport.** **(d) where car parking cannot be provided for onsite, a cash contribution toward the development of public parking facilities may be required.**	
Acceptable Solutions	**Performance Criteria**
A1 The number of on-site car parking spaces must be: (a) no less than the number specified in Table E6.1; except if: (i) the site is subject to a parking plan for the area adopted by Council, in which case parking provision (spaces or cash-in-lieu) must be in accordance with that plan;	**P1** The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following: (a) car parking demand; (b) the availability of on-street and public car parking in the locality; (c) the availability and frequency of public transport within a 400m walking distance of the site; (d) the availability and likely use of other modes of transport;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

	(e) the availability and suitability of alternative arrangements for car parking provision; (f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces; (g) any car parking deficiency or surplus associated with the existing use of the land; (h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site; (i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity; (j) any verified prior payment of a financial contribution in lieu of parking for the land; (k) any relevant parking plan for the area adopted by Council; (l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;

Response

It has been determined that the proposed development will result in a short fall of car parking spaces. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

The TIA addresses the performance criteria for the short fall in carparking spaces in which a variation is being sought. Overall, it is considered that the short fall in car parking spaces can be sufficiently offset by:

- *the provision of ample secure bicycle parking spaces which is expected encourage cycling as a mode of transport;*

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

- *the proximity to very high frequency public transport which operates along Elizabeth Street and is located within 300m of the development site; and*
- *the high walkability level of the site due to its proximity to the Hobart CBD, North Hobart commercial and retail strip and other key community facilities and services.*

E6.6.2 Number of Accessible Car Parking Spaces for People with a Disability	
Objective	
To ensure that a use or development provides sufficient accessible car parking for people with a disability.	
Acceptable Solutions	**Performance Criteria**
A1	**P1**
Car parking spaces provided for people with a disability must: (a) satisfy the relevant provisions of the Building Code of Australia; (b) be incorporated into the overall car park design; (c) be located as close as practicable to the building entrance.	No performance criteria.

Response

Provision can be made for accessible parking spaces to be sited and designed in accordance with the relevant provisions of the Building Code of Australia. It is noted that there is sufficient space within the car parking area to locate required accessible parking spaces within proximity to key access points, including the lift well.

E6.6.3 Number of Motorcycle Parking Spaces	
Objective	
To ensure enough motorcycle parking is provided to meet the needs of likely users of a use or development.	
Acceptable Solutions	**Performance Criteria**
A1	**P1**
The number of on-site motorcycle parking spaces provided must be at a rate of 1 space to each 20 car parking spaces after the first 19 car parking spaces except if bulky goods sales, (rounded to the nearest whole number). Where an existing use or development is expanded or intensified, the additional number of motorcycle parking spaces provided must be calculated on the amount of extension or intensification,	The number of on-site motorcycle parking spaces must be sufficient to meet the needs of likely users having regard to all of the following, as appropriate: (a) motorcycle parking demand; (b) the availability of on-street and public motorcycle parking in the locality;

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

provided the existing number of motorcycle parking spaces is not reduced.	(c) the availability and likely use of other modes of transport; (d) the availability and suitability of alternative arrangements for motorcycle parking provision.

Response

No designated motorcycle parking spaces are proposed. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

The demand for motorcycle parking is largely unknown, however it is becoming a more popular mode of inner city transport (particularly scooters). It is considered that the spaces will be sufficient to accommodate the demand generated by either the retail or food services use. Further short-term motorcycle parking can be accommodated within the on-street restricted parking area which operates within the immediate vicinity of the site. Given the location of the site, it is expected that other modes of transport including public, walking and cycling will be used more frequently.

E6.6.4 Number of Bicycle Parking Spaces	
Objective **To ensure enough bicycle parking is provided to meet the needs of likely users and by so doing to encourage cycling as a healthy and environmentally friendly mode of transport for commuter, shopping and recreational trips.**	
Acceptable Solutions	**Performance Criteria**
A1 The number of on-site bicycle parking spaces provided must be no less than the number specified in Table E6.2.	**P1** The number of on-site bicycle parking spaces provided must have regard to all of the following: (a) the nature of the use and its operations; (b) the location of the use and its accessibility by cyclists; (c) the balance of the potential need of both those working on a site and clients or other visitors coming to the site.

Response

Table E6.2 requires 6 bicycle parking spaces to be provided. In this instance, 13 bicycle parking spaces will be provided which significantly exceeds the requirements of Table E6.2. Therefore, the acceptable solution is met.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: jkinb Permit #: PLN-18-770
Date: 20/5/2019

E6.7.1 Number of Vehicular Accesses	
Objective **To ensure that:** **(a) safe and efficient access is provided to all road network users, including, but not limited to: drivers, passengers, pedestrians, and cyclists, by minimising:** **(i) the number of vehicle access points; and** **(ii) loss of on-street car parking spaces;** **(b) vehicle access points do not unreasonably detract from the amenity of adjoining land uses;** **(c) vehicle access points do not have a dominating impact on local streetscape and character.**	
Acceptable Solutions	**Performance Criteria**
A1 The number of vehicle access points provided for each road frontage must be no more than 1 or the existing number of vehicle access points, whichever is the greater.	**P1** The number of vehicle access points for each road frontage must be minimised, having regard to all of the following: (a) access points must be positioned to minimise the loss of on-street parking and provide, where possible, whole car parking spaces between access points; (b) whether the additional access points can be provided without compromising any of the following: (i) pedestrian safety, amenity and convenience; (ii) traffic safety; (iii) residential amenity on adjoining land; (iv) streetscape; (v) cultural heritage values if the site is subject to the Local Historic Heritage Code; (vi) the enjoyment of any 'al fresco' dining or other outdoor activity in the vicinity.

Response

A singular vehicle access point will be provided for at the Patrick Street frontage. Therefore, the acceptable solution is met.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

E6.7.2 Design of Vehicular Accesses	
Objective	
To ensure safe and efficient access for all users, including drivers, passengers, pedestrians and cyclists by locating, designing and constructing vehicle access points safely relative to the road network.	
Acceptable Solutions	**Performance Criteria**
A1 Design of vehicle access points must comply with all of the following: (a) in the case of non-commercial vehicle access; the location, sight distance, width and gradient of an access must be designed and constructed to comply with section 3 – "Access Facilities to Off-street Parking Areas and Queuing Areas" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking; (b) in the case of commercial vehicle access; the location, sight distance, geometry and gradient of an access must be designed and constructed to comply with all access driveway provisions in section 3 "Access Driveways and Circulation Roadways" of AS2890.2 - 2002 Parking facilities Part 2: Off-street commercial vehicle facilities.	**P1** Design of vehicle access points must be safe, efficient and convenient, having regard to all of the following: (a) avoidance of conflicts between users including vehicles, cyclists and pedestrians; (b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; (c) suitability for the type and volume of traffic likely to be generated by the use or development; (d) ease of accessibility and recognition for users.

Response

The TIA has determined that the accesses comply with the requirements of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking. Therefore, sub-clause (a) is met.

E6.7.3 Vehicular Passing Areas Along an Access	
Objective	
To ensure that: **(a) the design and location of access and parking areas creates a safe environment for users by minimising the potential for conflicts involving vehicles, pedestrians and cyclists;** **(b) use or development does not adversely impact on the safety or efficiency of the road network as a result of delayed turning movements into a site.**	
Acceptable Solutions	**Performance Criteria**
A1 Vehicular passing areas must	**P1** Vehicular passing areas must be provided in efficient number, dimension and siting so that

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

(a) be provided if any of the following applies to an access: (i) it serves more than 5 car parking spaces; (ii) is more than 30 m long; (iii) it meets a road serving more than 6000 vehicles per day; (b) be 6 m long, 5.5 m wide, and taper to the width of the driveway; (c) have the first passing area constructed at the kerb; (d) be at intervals of no more than 30 m along the access.	the access is safe, efficient and convenient, having regard to all of the following: (a) avoidance of conflicts between users including vehicles, cyclists and pedestrians; (b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; (c) suitability for the type and volume of traffic likely to be generated by the use or development; (d) ease of accessibility and recognition for users.

Response

The access and internal laneways of the car parking areas will be dual lane which will allow for vehicular passing. Therefore, the acceptable solution is met.

E6.7.4 On-Site Turning	
Objective **To ensure safe, efficient and convenient access for all users, including drivers, passengers, pedestrians and cyclists, by generally requiring vehicles to enter and exit in a forward direction.**	
Acceptable Solutions	**Performance Criteria**
A1 On-site turning must be provided to enable vehicles to exit a site in a forward direction, except where the access complies with any of the following: (a) it serves no more than two dwelling units; (b) it meets a road carrying less than 6000 vehicles per day.	**P1** On-site turning may not be required if access is safe, efficient and convenient, having regard to all of the following: (a) avoidance of conflicts between users including vehicles, cyclists, dwelling occupants and pedestrians; (b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; (c) suitability for the type and volume of traffic likely to be generated by the use or development; (d) ease of accessibility and recognition for users; (e) suitability of the location of the access point and the traffic volumes on the road.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

The ability for vehicles to enter and exit the site in a forward direction has been provided. Therefore, the acceptable solution is met.

E6.7.5 Layout of Parking Areas	
Objective	
To ensure that parking areas for cars (including assessable parking spaces), motorcycles and bicycles are located, designed and constructed to enable safe, easy and efficient use.	
Acceptable Solutions	**Performance Criteria**
A1 The layout of car parking spaces, access aisles, circulation roadways and ramps must be designed and constructed to comply with section 2 "Design of Parking Modules, Circulation Roadways and Ramps" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking and must have sufficient headroom to comply with clause 5.3 "Headroom" of the same Standard.	**P1** The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site.

Response

The TIA has determined that the layout of the car parking spaces, access aisle and circulation areas comply with AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking.

E6.7.6 Surface Treatment of Parking Areas	
Objective	
To ensure that parking spaces and vehicle circulation roadways do not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.	
Acceptable Solutions	**Performance Criteria**
A1 Parking spaces and vehicle circulation roadways must be in accordance with all of the following; (a) paved or treated with a durable all-weather pavement where within 75m of a property boundary or a sealed roadway; (b) drained to an approved stormwater system; provided that the standard of paving and drainage complies with the adopted standards of the Council.	**P1** Parking spaces and vehicle circulation roadways must not unreasonably detract from the amenity of users, adjoining occupiers or the quality of the environment through dust or mud generation or sediment transport, having regard to all of the following: (a) the suitability of the surface treatment; (b) the characteristics of the use or development; (c) measures to mitigate mud or dust generation or sediment transport.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

The proposed car parking areas will be concrete and drained to an approved public stormwater system. Therefore, the acceptable solution is met.

E6.7.7 Lighting of Parking Area	
Objective	
To ensure parking and vehicle circulation roadways and pedestrian paths used outside daylight hours are provided with lighting to a standard which:	
(a) enables easy and efficient use;	
(b) promotes the safety of users;	
(c) minimises opportunities for crime or anti-social behaviour; and	
(d) prevents unreasonable light overspill impacts.	
Acceptable Solutions	**Performance Criteria**
A1 Parking and vehicle circulation roadways and pedestrian paths serving 5 or more car parking spaces, used outside daylight hours, must be provided with lighting in accordance with clause 3.1 "Basis of Design" and clause 3.6 "Car Parks" in AS/NZS 1158.3.1:2005 Lighting for roads and public spaces Part 3.1: Pedestrian area (Category P) lighting.	**P1** Parking and vehicle circulation roadways and pedestrian paths used outside daylight hours must be provided with lighting to a standard which satisfies all of the following: (a) enables easy and efficient use of the area; (b) minimises potential for conflicts involving pedestrians, cyclists and vehicles; (c) reduces opportunities for crime or anti-social behaviour by supporting passive surveillance and clear sight lines and treating the risk from concealment or entrapment points; (d) prevents unreasonable impact on the amenity of adjoining users through light overspill; (e) is appropriate to the hours of operation of the use.

Response

The car parking areas will be located within the building and will be internally lit. Therefore, the acceptable solution can be met.

E6.7.8 Landscaping of Parking Areas
Objective
To ensure that large parking and circulation areas are landscaped to:
(a) relieve the visual impact on the streetscape of large expanses of hard surfaces;
(b) screen the boundary [illegible] the amenity impact on neighbouring properties;
(c) contribute [illegible] of vibrant and liveable places;

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

(d) reduce opportunities for crime or anti-social behaviour by maintaining clear sightlines.	
Acceptable Solutions	**Performance Criteria**
A1 Landscaping of parking and circulation areas must be provided where more than 5 car parking spaces are proposed. This landscaping must be no less than 5 percent of the area of the car park, except in the Central Business Zone where no landscaping is required.	**P1** Landscaping of parking and circulation areas accommodating more than 5 cars must satisfy all of the following: (a) relieve the visual impact on the streetscape of large expanses of hard surfaces; (b) soften the boundary of car parking areas to reduce the amenity impact on neighbouring properties and the streetscape; (c) reduce opportunities for crime or anti-social behaviour by maintaining passive surveillance opportunities from nearby public spaces and buildings.

Response

The car parking areas will not be landscaped. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

In this instance, the car parking areas will be located within the building and will not be visible from public spaces. Accordingly, the provision is not considered applicable to the proposed development pursuant to clause 7.5.2 (b) of the Scheme on the basis that the standard deals with a matter that will not be affected by the proposed development.

E6.7.9 Design of Motorcycle Parking Areas	
Objective **To ensure that motorcycle parking areas are located, designed and constructed to enable safe, easy and efficient use.**	
Acceptable Solutions	**Performance Criteria**
A1 The design of motorcycle parking areas must comply with all of the following: (a) be located, designed and constructed to comply with section 2.4.7 "Provision for Motorcycles" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking; (b) be located within 30 m of the main entrance to the building.	**P1** The design of motorcycle parking areas must provide safe, obvious and easy access for motorcyclists having regard to all of the following: (a) providing clear sightlines from the building or the public road to provide adequate passive surveillance of the parking facility and the route from the parking facility to the building;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

	(b) avoiding creation of concealment points to minimise the risk.

Response

No motorcycle parking spaces are proposed.

E6.7.10 Design of Bicycle Parking Facilities	
Objective	
To encourage cycling as a healthy and environmentally friendly mode of transport for commuter, shopping and recreational trips by providing secure, accessible and convenient bicycle parking spaces.	
Acceptable Solutions	**Performance Criteria**
A1 The design of bicycle parking facilities must comply with all the following; (a) be provided in accordance with the requirements of Table E6.2; (b) be located within 30 m of the main entrance to the building.	**P1** The design of bicycle parking facilities must provide safe, obvious and easy access for cyclists, having regard to all of the following: (a) minimising the distance from the street to the bicycle parking area; (b) providing clear sightlines from the building or the public road to provide adequate passive surveillance of the parking facility and the route from the parking facility to the building; (c) avoiding creation of concealment points to minimise the risk.

Response

The area set aside for bicycle parking spaces can be fitted out in accordance with Table E6.2 of the Code. The bicycle parking areas will be located within 30m of the main entrance (including pedestrian entrance) to each parking level. Therefore, the acceptable solution is met.

Acceptable Solutions	Performance Criteria
A2 The design of bicycle parking spaces must be to the class specified in table 1.1 of AS2890.3-1993 Parking facilities Part 3: Bicycle parking facilities in compliance with section 2 "Design of Parking Facilities" and clauses 3.1 "Security" and 3.3 "Ease of Use" of the same Standard.	**P2** The design of bicycle parking spaces must be sufficient to conveniently, efficiently and safely serve users without conflicting with vehicular or pedestrian movements or the safety of building occupants.

Response

The area set aside for bicycle parking spaces can be designed to comply with AS2890.3-1993 Parking facilities Part 3: Bicycle parking facilities in compliance with section 2 "Design of

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: rking Permit #: PLN-18-770
Date: 20/5/2019

Parking Facilities" and clauses 3.1 "Security" and 3.3 "Ease of Use" of the same Standard. Therefore, the acceptable solution can be met.

E6.7.11 Bicycle End of Trip Facilities	
Objective	
To ensure that cyclists are provided with adequate end of trip facilities.	
Acceptable Solutions	**Performance Criteria**
A1 For all new buildings where the use requires the provision of more than 5 bicycle parking spaces for employees under Table E6.2, 1 shower and change room facility must be provided, plus 1 additional shower for each 10 additional employee bicycle spaces thereafter.	**P1** End of trip facilities must be provided at an adequate level to cater for the reasonable needs of employees having regard to all of the following: (a) the location of the proposed use and the distance a cyclist would need to travel to reach the site; (b) the users of the site and their likely desire to travel by bicycle; (c) whether there are other facilities on the site that could be used by cyclists; (d) opportunity for sharing bicycle facilities by multiple users.

Response

No end of trip facilities for cyclists (change room and shower facility) are proposed to be provided. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

It is observed that 5 employee cycle parking spaces are required, with the additional 3 spaces required for visitors. It is expected that toilet facilities required by food service facilities will be sufficient to provide for the reasonable needs of cyclist for changing and amenity purposes should they be required.

E6.7.12 Siting of Car Parking	
Objective	
To ensure that the streetscape, amenity and character of urban areas is not adversely affected by siting of vehicle parking and access facilities.	
Acceptable Solutions	**Performance Criteria**
A1 Parking spaces and vehicle turning areas, including garages or covered parking areas in	Parking spaces and vehicle turning areas, including garages or covered parking areas in

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

the Inner Residential Zone, Urban Mixed Use Zone, Village Zone, Local Business Zone and General Business Zone must be located behind the building line of buildings located or proposed on a site except if a parking area is already provided in front of the building line of a shopping centre.	the Inner Residential Zone, Urban Mixed Use Zone, Village Zone, Local Business Zone and General Business Zone may be located in front of the building line where topographical or other site constraints dictate that this is the only practical solution because of one or more of the following: (a) there is a lack of space behind the building line to enable compliance with A1; (b) it is not reasonably possible to provide vehicular access to the side or rear of the property; (c) the gradient between the front and the rear of existing or proposed buildings is more than 1 in 5; (d) the length of access or shared access required to service the car parking would constitute more than 75% of the depth of the relevant lot; (e) the access driveway cannot be located at least 2.5 m from a habitable room window of a building defined as a residential building in the Building Code of Australia; (f) the provision of the parking behind the building line would result in the loss of landscaped open space and gardens essential to the values or character of a Heritage Place or Precinct listed in the Heritage Code in this planning scheme; and only if designed and located to satisfy all of the following: (i) does not visually dominate the site; (ii) maintains streetscape character and amenity; (iii) does not result in a poor quality of visual or audio amenity for the occupants of immediately adjoining properties, having regard to the nature of the zone in which the site is located and its preferred uses; (iv) allows passive surveillance of the street.

Response

The subject site is not located within the listed zones. Therefore, the provision is not applicable to this assessment.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikirb Permit #: PLN-18-770
Date: 20/5/2019

E6.7.13 Facilities for Commercial Vehicles	
Objective	
To ensure that facilities for commercial vehicles are provided on site, as appropriate.	
Acceptable Solutions	**Performance Criteria**
A1 Commercial vehicle facilities for loading, unloading or manoeuvring must be provided on-site in accordance with Australian Standard for Off-street Parking, Part 2 : Commercial. Vehicle Facilities AS 2890.2:2002, unless: (a) the delivery of all inward bound goods is by a single person from a vehicle parked in a dedicated loading zone within 50 m of the site; (b) the use is not primarily dependent on outward delivery of goods from the site.	**P1** Commercial vehicle arrangements for loading, unloading or manoeuvring must not compromise the safety and convenience of vehicular traffic, cyclists, pedestrians and other road users.

Response

Commercial vehicle facilities for loading and unloading of goods is not proposed to be located on-site. Therefore, assessment against the corresponding performance criteria is required.

Performance Criteria Assessment

It is proposed that the proposed uses will be serviced on the street. The TIA identifies that there is a 19m length of 15-minute parking on the Harrington Street frontage which operates between 8am and 6pm Monday to Friday and 8am to 12pm on Saturday. The TIA recommends that a 10m length of this kerbside space be dedicated to service vehicle to cater for refuse collection and other services.

E6.7.14 Access to a Road	
Objective	
To ensure that access to the road network is provided appropriately.	
Acceptable Solutions	**Performance Criteria**
A1 Access to a road must be in accordance with the requirements of the road authority.	**P1** No performance criteria.

Response

It is considered that Patrick Street [illegible] accordance with the requirements of the road authority by virtue of being assessed through the development application process.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

3.10 Stormwater Management Code

This code applies to all development requiring management of stormwater.

E7.7.1 Stormwater Drainage and Disposal	
Objective **To ensure that stormwater quality and quantity is managed appropriately.**	
Acceptable Solutions	**Performance Criteria**
A1 Stormwater from new impervious surfaces must be disposed of by gravity to public stormwater infrastructure.	**P1** Stormwater from new impervious surfaces must be managed by any of the following: (a) disposed of on-site with soakage devices having regard to the suitability of the site, the system design and water sensitive urban design principles; (b) collected for re-use on the site; (c) disposed of to public stormwater infrastructure via a pump system which is designed, maintained and managed to minimise the risk of failure to the satisfaction of the Council.

Response

The proposed development is capable of connecting into the public stormwater system via an existing connection point. Therefore, the acceptable solution is met.

Acceptable Solutions	Performance Criteria
A2 A stormwater system for a new development must incorporate water sensitive urban design principles R1 for the treatment and disposal of stormwater if any of the following apply: (a) the size of new impervious area is more than 600 m^2; (b) new car parking is provided for more than 6 cars; (c) a subdivision is for more than [illegible]	**P2** A stormwater system for a new development must incorporate a stormwater drainage system of a size and design sufficient to achieve the stormwater quality and quantity targets in accordance with the State Stormwater Strategy 2010, as detailed in Table E7.1 unless it is not feasible to do so.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Response

Th standard is not applicable to the proposed development on the following basis:

a) no new impervious surfaces will be created;

b) new car parking areas will be provided however they will be located within the existing building which will not increase level of impervious surfaces on the site; and

c) the proposed subdivision will consolidate six lots into 1 and will not create any additional lots.

Acceptable Solutions	Performance Criteria
A3 A minor stormwater drainage system must be designed to comply with all of the following: (a) be able to accommodate a storm with an ARI of 20 years in the case of non-industrial zoned land and an ARI of 50 years in the case of industrial zoned land, when the land serviced by the system is fully developed; (b) stormwater runoff will be no greater than pre-existing runoff or any increase can be accommodated within existing or upgraded public stormwater infrastructure.	**P3** No performance criteria.

Response

The proposed development will connect into the existing public stormwater system. No new stormwater systems are proposed to be installed.

Acceptable Solutions	Performance Criteria
A4 A major stormwater drainage system must be designed to accommodate a storm with an ARI of 100 years.	**P4** No performance criteria.

Response

The proposed development will connect into the existing public stormwater system. No new on-site stormwater disposal systems are proposed to be installed.

3.11 Historic Heritage Code

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

This code applies to the proposed development on the basis that the site is identified as a place of archaeological potential.

A Statement of Historic Archaeological potential (SoHAP) has been prepared by Praxis Environment which addresses the relevant provisions of the Code. A copy of the SoHAP is contained within ***Appendix E****.*

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

praxisenvironment
heritage I planning I archaeology
po box 338
north hobart
tasmania 7002
0418 303184
info@prax.com.au

Mr. George Walker
6ty°
Tamar Suite 103, The Charles
287 Charles Street,
LAUNCESTON TAS 7250

25th February 2018

Dear George

Further to our discussions and previous correspondence (your ref. 17.275), I provide the current document as a *preliminary statement of historic archaeological potential* (SoHAP) for 209-215 Harrington Street, Hobart. This does not negate the need to formulate a more detailed SoHAP (as per my response to your brief dated 15/2/18) however is intended for use by the planning authority in consideration of the current application for development at that site which is imminently due for determination.

The table below details the archaeological management process as will need to be applied to any proposed development of the subject site:

Methodology for formulation of the statement of archaeological potential		
	If 'no'	**If 'yes'**
1. Archaeological potential. Are you likely to find something if you dig here? (i.e. a Statement of Archaeological Potential).	Further action may not be required, although a contingency plan may be required for unexpected finds.	The significance of the archaeological potential should be investigated.
2. Significance. Could anything you find here greatly contribute to our understanding of the site or related significant theme?	Further action may not be required.	The likely integrity of the archaeological remains should be investigated.
3. Integrity. Are any archaeological remains likely to be intact?	Further action may not be required, although a contingency plan is required for unexpected integrity.	The likelihood of significant archaeological remains is confirmed.
4. Impact Will proposed works impact upon the significant archaeological remains? i.e. an Archaeological Impact Assessment.	Further action may not be required, although a contingency plan may be required for unexpected impacts.	An Archaeological Method Statement will be required to detail how impact will be managed/mitigated.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

The subject site is included in Table E.13.4 (Places of Archaeological Potential), as defined by Figure E.13.4.1 of the scheme, therefore Clause E.13.10.1 of the scheme applies:

	Acceptable Solution	Performance Criteria
E.13.10.1 – Building and Works other than Demolition	*A1. Building and works do not involve excavation or ground disturbance.*	*P1. Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:* *a) the nature of the archaeological evidence, either known or predicted;* *b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;* *c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;* *d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;* *(a) measures proposed to preserve significant archaeological evidence 'in situ'.*
E.13.10.2 – Subdivision	*A1. Subdivision provides for building restriction envelopes on titles over land defined as the Place of Archaeological Potential in Table E13.4.*	*P1. Subdivision must not impact on archaeological resources at Places of Archaeological Potential through demonstrating either of the following:* *(a) that no archaeological evidence exists on the land;* *(b) that there is no significant impact upon archaeological potential.*

Accordingly, the site requires such a detailed SoHAP in order to guide any future development. In the absence of such, I provide the following brief pictorial site background as a means of understanding the historical background of the site as per Step (1) of the methodology table and to very broadly understand the possible archaeological potential of the site. Note that this does not include:

- An assessment of disturbance history [illegible] historical phases which may have impacted the archaeological resource;
- Detailed historical assessment of building function, persons associated (etc.).

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

- Consideration of whether any of the possible archaeological remains are significant and/or contribute to relevant historical/archaeological research frameworks.

All of the above would need to form part of an expanded and more comprehensive SoHAP.

Similarly, this document does not consider the current application and possible archaeological impact, not does it propose any management strategies to protect, conserve, investigate or interpret any significant remains – which would be required in an archaeological impact and method statement.

It is expected that the planning authority, in any approval, would require the above to be completed prior to the commencement of works. This would likely include:

- An expanded *SoHAP* which would include a more comprehensive site history, consideration of disturbance events, consideration of the significance of any remains within various thematic, regional and temporal research frameworks – culminating in a detailed *archaeological zoning plan* for the site.
- Consideration of the likely impact of the proposed development via an *archaeological method statement* which would also need to consider the feasibility of avoiding impact and preserving any significant archaeological remains.
- Formulation of an *archaeological method statement* which would detail how any archaeological remains which cannot be feasibly preserved are to be managed in order to mitigate that impact.
- Detail of any public benefit initiatives arising from the archaeology of the site (such as interpretation etc.).

Ahead of the above, the following is a brief pictorial overview of the site development history, which gives an indication of historical development of the site (note that in all images the *approximate* subject site is outlined or depicted in red, and unless otherwise noted, Harington Street is to the bottom of the image Figures 1 & 2 depict the subject site:

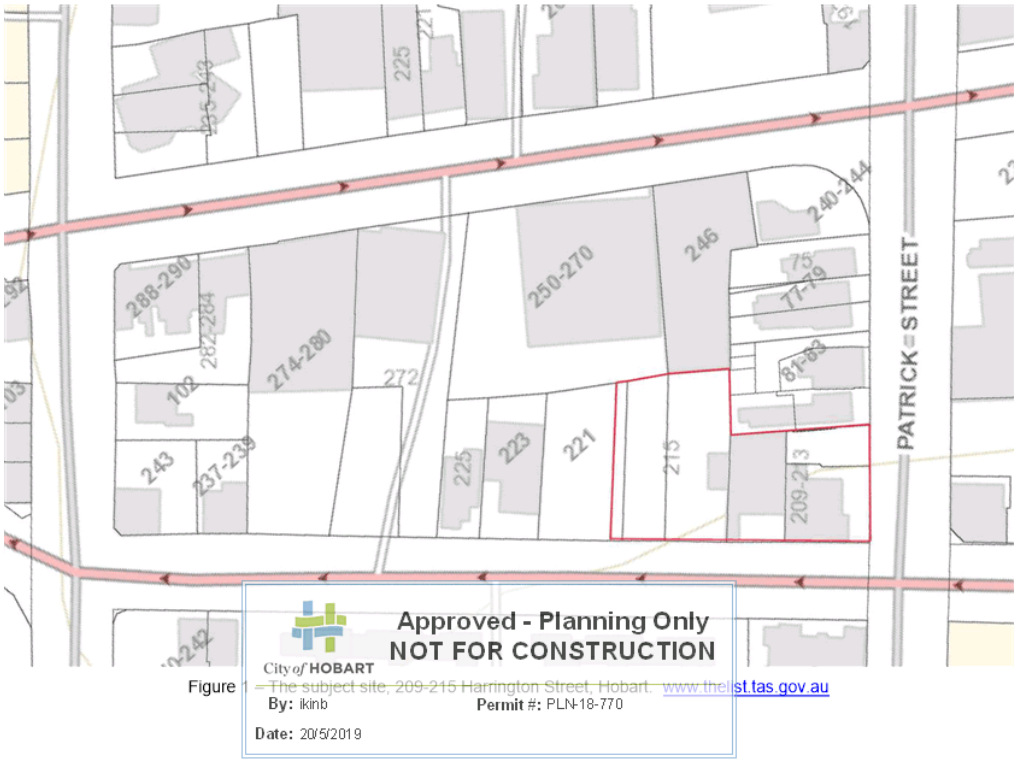


Figure 1 – The subject site, 209-215 Harrington Street, Hobart. www.thelist.tas.gov.au

Figure 2 – The subject site, 209-215 Harrington Street, Hobart. www.thelist.tas.gov.au

Figure 3 depicts the subject site in c1832, which shows a masonry building (pink) on the corner of Harrington and Patrick Street and a timber building (grey) facing Harrington Street. The subject site at that time comprised of parts of three titles. Further research through grants records, titles (etc.) are likely to ascertain owners of these buildings and may allude to their use, although these were *probably* domestic. Whilst this map is known to be reasonably accurate in the approximate location and size of buildings, the precise rate of error is unclear (based on actual archaeological observations that have ground-truthed this map.

Figures 4 and 5 are from the c1839 Frankland Survey and the c1841 census map (which was largely based on Frankland's survey with some additions). These show a similar configuration of buildings as per the c1832 survey, however they do show what is probably an adjacent building being within the subject site (shown as outside the site on the earlier survey). The accuracy of both these surveys is not high and can be only relied upon for approximate locations of buildings, so it is unclear whether that third building was within the subject site.

Sprent's c1845 survey (Figure 6) shows the similar configuration of masonry building on the corner and timber building on Harrington Street as per the c1832 survey, with each having a timber addition (or another building) near/against them, as well as a masonry building partly within the subject site further up Harrington Street. This survey is known to have a very high level of accuracy. Again, the precise nature/function of these buildings is unknown ahead of further research, but probably domestic.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

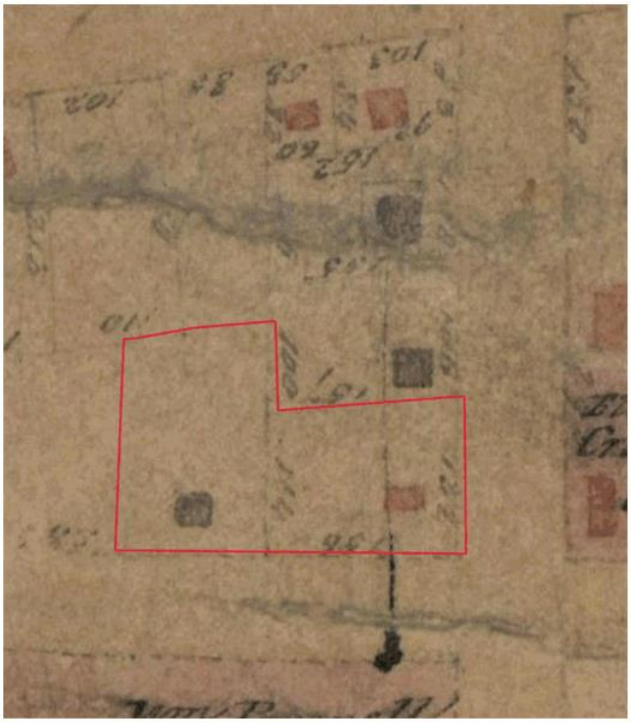


Figure 3 - c1832 – DPIPWE Hobart 5.

Figure 4 - c1833 - Plankland survey (Tasmanian Archive and Heritage Office, PH-30-1-693-1).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

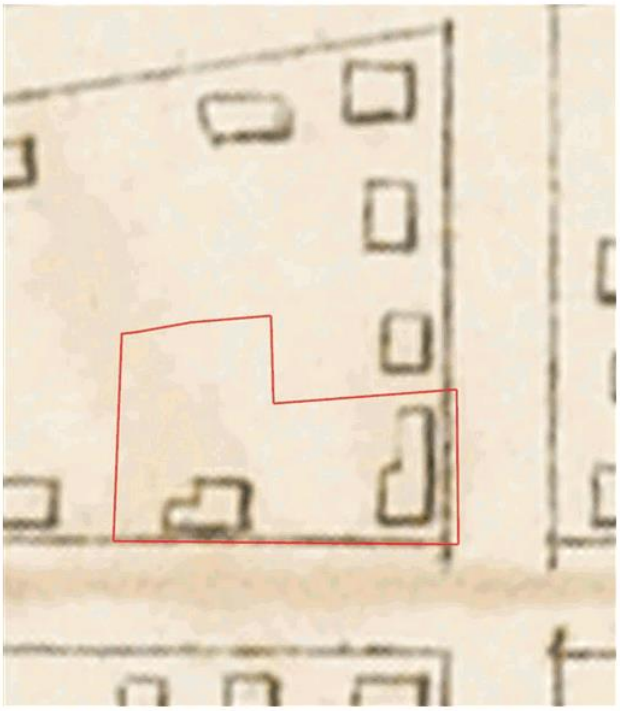


Figure 5 - c1841 Census map of Hobart.

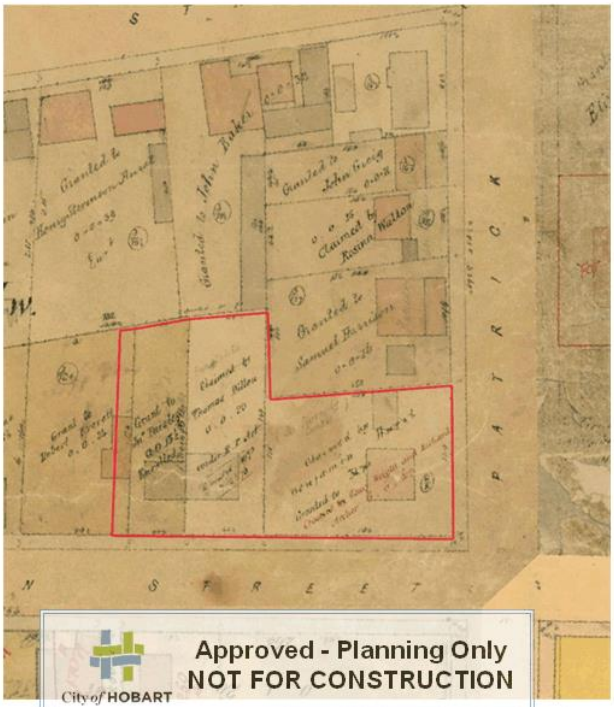


Figure 6 - Sprent's c1846 map survey of Hobart (www.thelist.tas.gov.au).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Photographs from the later nineteenth-century show that arrangement similar to that as depicted on the Sprent survey, with two main buildings fronting Patrick Street two facing Harrington Street, however by the 1880s a cottage with a steeply-pitched roof and veranda onto the street was added to the Harrington Street frontage on the site of an earlier shed in that location (see difference between Figures 6 and 7). Figure 8 shows in more detail the two building facing Patrick Street (the corner of Patrick/Harrington denoted by the red line).

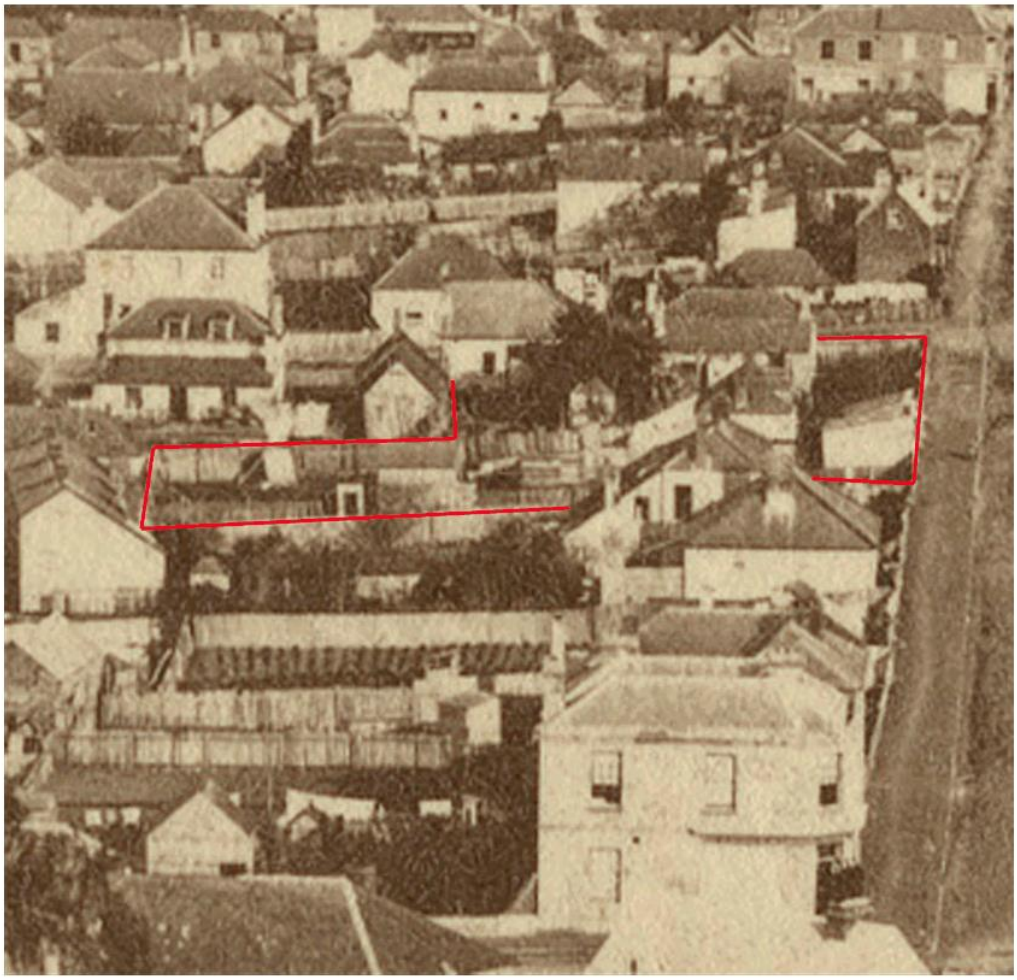


Figure 6 - Part of an 1865 stereoscope photograph across Hobart. State Library of Tasmania LPIC147-3-124.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

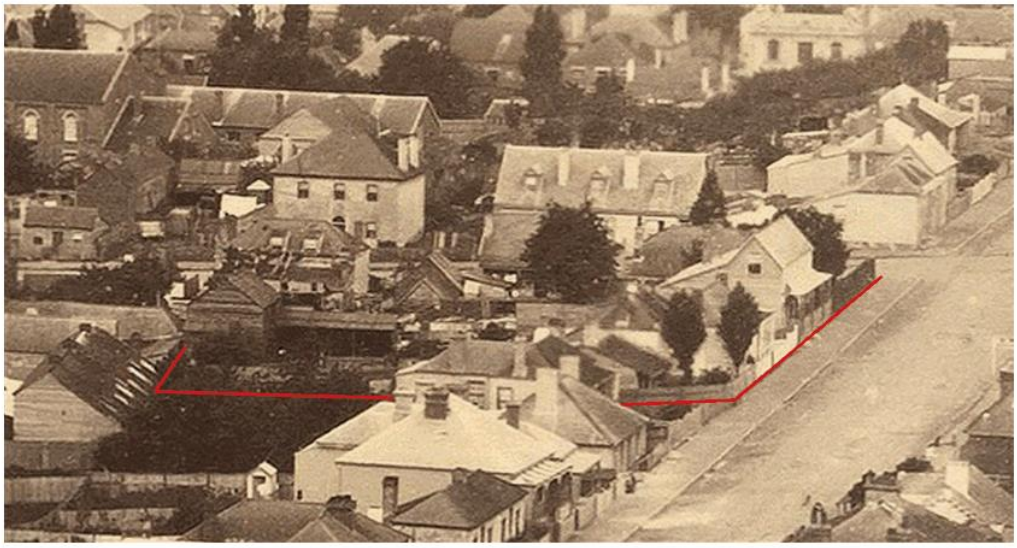


Figure 7 - Excerpt from a c1880s panorama of Hobart. Tasmanian Archive and Heritage Office NS2906-1-3.

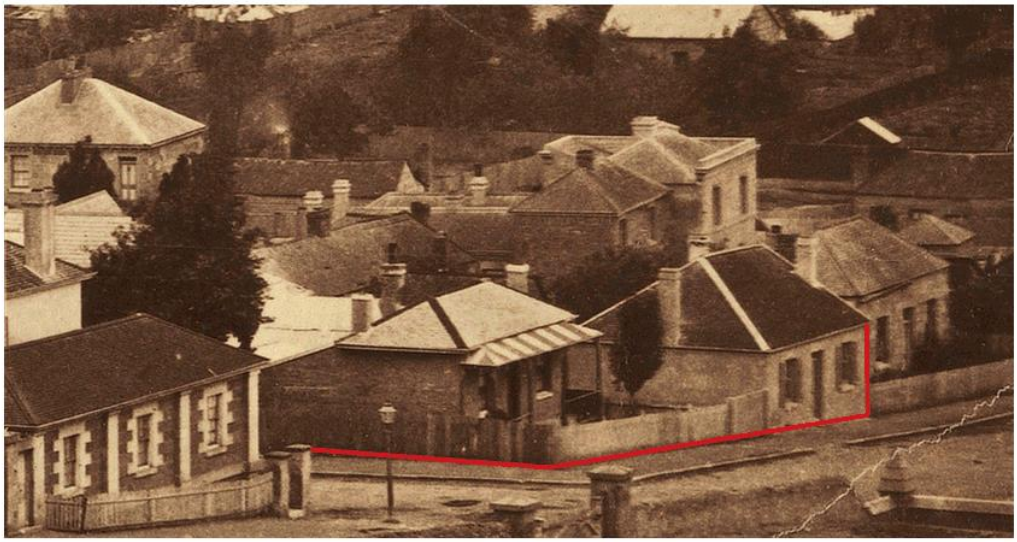


Figure 8 - Excerpt from a c1880s panorama of Hobart. Tasmanian Archive and Heritage Office PH6-1-64.

The 1890s photograph in Figure 8 depicts a similar configuration, essentially with three houses facing Harrington Street and two facing Patrick Street within the subject site. Those facing Patrick Street are small double-fronted cottages as best depicted on Figure 8, those facing Harrington Street are the two earlier conjoined houses (one much smaller and set back from the street) as well as the steeply pitched-roof cottage as seen in Figure 7. The 1908 Metropolitan Drainage Board survey shows again that similar arrangement, however by that time it appears that the pre-c1880 cottage (steep roof and veranda) fronting Harrington Street had been replaced by three narrow terrace houses (marked on Figure 10 as 209-213 Harrington Street). That survey also shows a series of outbuildings, some depicted in earlier photographs (sheds and privies).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Figure 9 - Excerpt from a c1890 panorama of Hobart. Tasmanian Archive and Heritage Office NS1013-1-522.

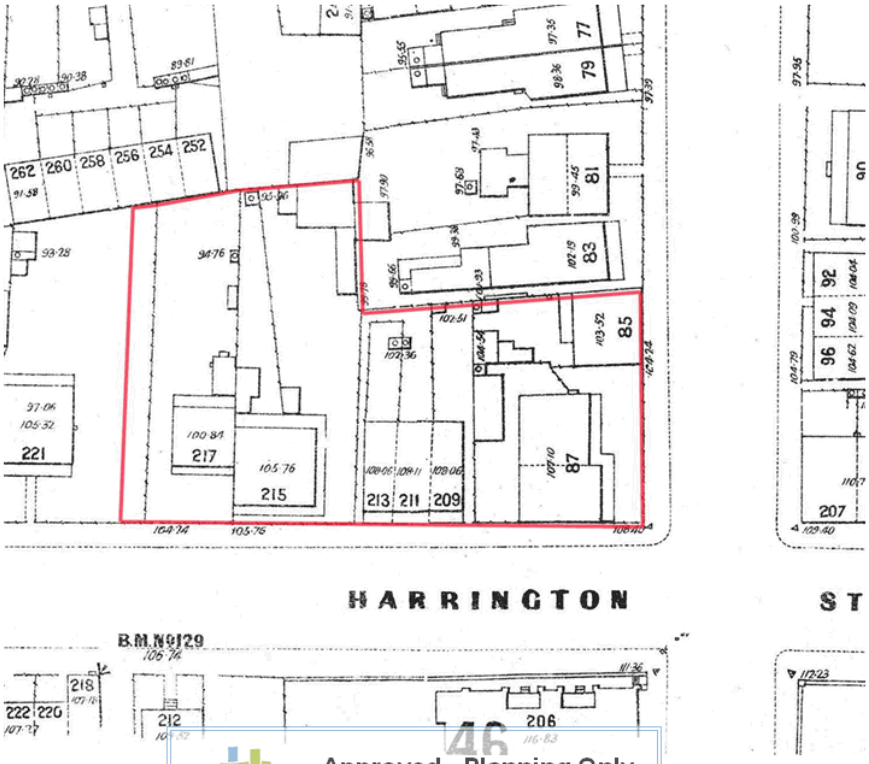


Figure 10 - c1908 Metropolitan Drainage Board Plan of Hobart (Hobart Map, The State Library of Tasmania TL.MAP 881.11).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Figure 11, from the 1946 aerial run of Hobart shows the same arrangement of buildings as per the 1908 MDB survey.

Figure 11 – 1946 aerial photograph of Hobart. DPIPWE Hobart 1946 Run 5 10892.

Figure 12 depicts the overlay footprints of pre-1846 surveys of Hobart showing the earliest locations of development fronting Patrick Street and further up Harrington Street. Figure 13, drawn from the 1908 MDB survey, shows those similar building footprints, indicating that the earlier buildings had largely survived until then, but with some infill on the Harrington Street frontage as well as outbuildings which were either built in the last half of the nineteenth-century, or omitted from those earlier surveys. Figure 14 is an overlay of all known site development up to 1946 which shows that (in the absence of disturbance) would result in expected remains of those buildings and their occupation to be present mostly on the street frontages, with only the remains of outbuildings and ancillary structures further rearward.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Figure 12 - Overlay footprints of all known pre-1846 development as per the above surveys/maps (adapted from www.thelist.tas.gov.au.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Figure 13 - Overlay footprint of pre-1908 development (likely to include some pre-1846 development).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Figure 14 - Overlay footprint of pre-1946 development (likely to include some pre-1846 development – 1908 buildings outlined in orange).

Preliminary archaeological observations

As per the limitations above, it would appear that the main areas of archaeological potential are those fronting each street, with a large area at the rear of the site that *probably* has a lower archaeological potential (although may have remains of features such as wells, cesspits, drains, rubbish pits etc).

Although a comprehensive site history has not been undertaken, the pictorial analysis included here suggests that all buildings were *probably* domestic – however further research is required to ascertain whether there was any commercial/trade or other activity undertaken on the sites. Further research would be needed to possibly link the sites to prominent persons, or to at least indicate the 'status' of the inhabitants which would be required to pose an archaeological research design and ascertain the potential of these sites to yield information that may be of archaeological value.

Whilst site observations have not been undertaken, and no research has been undertaken thus far on the demolition of those earlier buildings and the construction of the current buildings (and any intermediate generations of buildings – therefore an adequate knowledge of disturbance is not able to inform archaeological judgments at this stage.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: kmb
Permit #: PLN-18-770
Date: 20/5/2019

At this preliminary stage, I recommend:

- That this document accompanies the current development application to inform the planning authority that at least parts of the site are likely to have some archaeological potential.
- That a more detailed and rigorous SoHAP be formulated if the current proposal is approved.
- If that SoHAP confirms the preliminary findings here, then an archaeological impact assessment is to be formulated for the proposed development. This will need to consider the possibility of conserving archaeological remains, or if this is not prudent/feasible then the formulation of an archaeological method statement to mitigate impact and to yield archaeological potential and provide a public benefit (e.g. through publication and/or interpretation).
- All of the above is expected to form a condition(s) of any approval and be approved by council officers prior to implementation (if necessary) ahead of the commencement of construction (as further refined by any archaeological method statement.

Please contact me if you have any further queries or require any clarification.

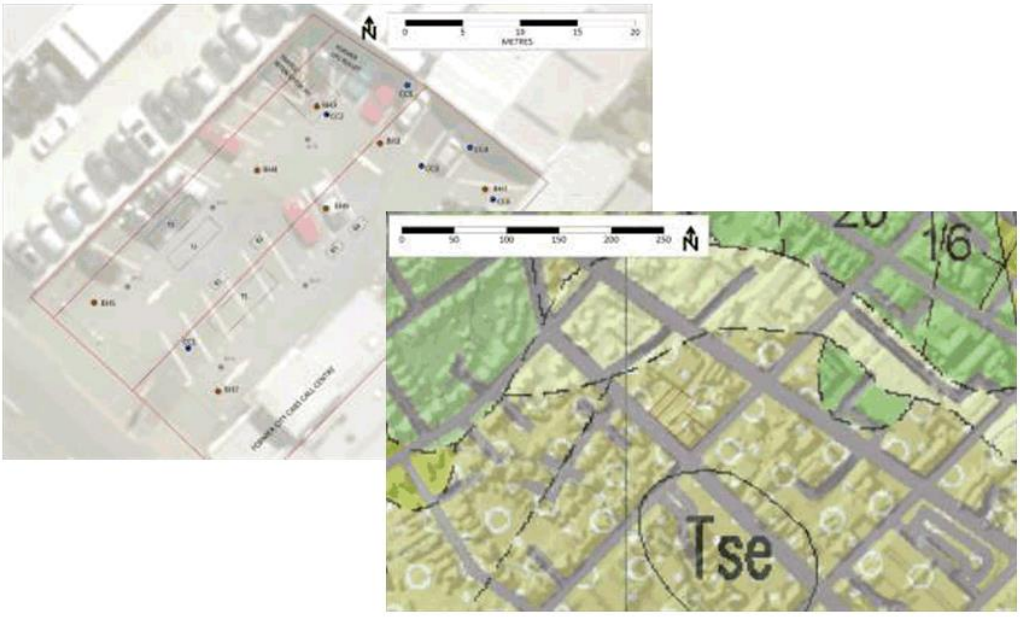
Regards

Brad Williams BA. (Hons.) Archaeology, MA Cultural Heritage Management. G.Dip Environmental Planning.

Director – Praxis Environment

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

GEO-ENVIRONMENTAL
SOLUTIONS



ENVIRONMENTAL SITE ASSESSMENT
209-215 HARRINGTON STREET, HOBART
SEPTEMBER 2018

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Geo Environmental Solutions – GES

1 EXECUTIVE SUMMARY

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at the 209 to 215 Harrington Street, Hobart - hereby referred to as 'The Site'. GES was commissioned by Chau Nominees Pty Ltd to conduct the site assessment.

The requirement for an environmental site assessment has been triggered by the interim planning scheme (IPS) contaminated site overlay.

The site was previously owned by City Cabs Co-Operative Society Ltd. and formerly operated as a taxi call center, parking and re-fueling depot from approximately 1970 until 2006. It is understood that all petroleum- related infrastructure was removed from the site in 2006. A triple interceptor pit remains on the site which is believed to have been associated with a car wash at the site.

Previous environmental investigations, conducted by SEMF Pty Ltd (SEMF) and Coffey Environments (Coffey) in 2007 historically identified a dissolved phase petroleum hydrocarbon plume in the groundwater beneath the eastern corner of the site. The plume has not been delineated to the north-east, east and south-east.

The following is proposed at the site:

- It is proposed that the site changes from commercial to commercial/residential land use and will change from the existing car park and commercial offices to a large development which will encompass all existing titles comprising:
  - Basement carpark;
  - Ground floor commercial offices and car parking; and
  - First to third floor residential apartments;
- There will be site demolition and excavation works which will involve:
  - Removal of the existing building structures;
  - Excavation of the entire site to approximately 29 m AHD;
  - Construction of a basement and ground floor car park with multi-level apartments.

The scope of works of this ESA was to:

- Identify areas of concern and contaminants of concern through a desktop assessment;
- Collect groundwater from existing groundwater monitoring wells at the site and sample for contaminates of concern to assess potential onsite and potential offsite impact;
- Detail specific onsite human health risk and environmental impacts which may source from any contaminated groundwater;
- Drill nine (9) soil bores at the site to identify potential human health risk to onsite receptors from potential contamination impacted soil;
- Assess all risks with respect to proposed future land use which includes site demolition, soil excavation and commercial building development;
- Assess potential impact to surrounding offsite receptors; and
- Develop a conceptual site model (CSM) for the site and offsite if applicable to assess specific potential ecosystem and human health receptors.

The following contaminants have been identified based on the current and historical site investigations:

- PAH compounds in soil (including benzo(a)pyrene) and various heavy metals sourcing from the interceptor trap;
- Petroleum hydrocarbons in soil sourcing from former underground storage tanks;
- Hydrocarbon impact historically identified in the aquifer at the site has not been detected in this assessment; and
- Although not all hydrocarbon impacted wells could be sampled, no further vapour intrusion assessment is required given the basement mixing environment and carpark ventilation requirements;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Based on an assessment of soil, groundwater and soil petroleum hydrocarbon vapour at the site, a human health risk has not been identified to the either of the following receptors:

- Site development workers;
- Future site users;
- Future site trench workers

Management measures need to be put in place to manage offsite sediment transport from stormwater and vehicle trafficking.

The offsite migration of hydrocarbon impacted groundwater has not been assessed in this report.

Provided the recommendations herein are implemented, the following conclusions can be made:

- A risk to potential receptors has not been identified during and after development.
- All samples collected at the site are below threshold concentrations for assessing risk to human health;
- No particular health and safety issues are identified which may originate from onsite contamination activities;
- Other than advice provided within the recommendations section of this report, there are no specific remediation and protection measures required to be implemented before excavation commences;
- As a result of proposed site excavation, there is a very low human health risk to future users of the site; and
- GES advise that during site excavation works for site redevelopment, there is a low risk that site contamination will present an environmental risk.

A soil and water management plan is required to reduce the spread of onsite soils and water. Water should be collected and tested before it is discharged to the stormwater system.

Level 2 and 3 materials proposed to be excavated will require management where identified in fill and natural soils in the western corner of the site and near the former interceptor trap.

An excavation management plan is recommended to minimize the risk of contaminating clean Level 1 soil at the site which is proposed to be excavated. Additional soil sampling prior to excavation works is optional to further classify proposed material for disposal at a licensed landfill.

In summary, if recommendations herein are implemented, based on the adopted land used class, there is a low risk that residual contamination at the site will present a risk to human health or the environment.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Table of Contents

1 EXECUTIVE SUMMARY I

2 ABREVIATIONS VIII

3 INTRODUCTION 1

3.1 GENERAL 1
3.2 BACKGROUND 1
3.3 SITE LAYOUT 2
3.4 SITE DETAILS 4
3.5 INVESTIGATION OBJECTIVES 4
3.6 SCOPE OF WORKS 5

4 PLANNING 5

4.1 PROPOSED SITE DEVELOPMENT WORKS 5
4.2 ASSESSMENT TRIGGER 7
4.3 PERFORMANCE CRITERIA 7

5 DESKTOP STUDY 8

5.1 SITE WALKOVER 8
5.1.1 SURFACE COVERINGS 8
5.1.2 SIGNS OF CONTAMINATION 8
5.2 MRT GEOLOGY MAPPING 8
5.3 SITE TOPOGRAPHY, DRAINAGE & HYDROGEOLOGY 8
5.4 HISTORICAL AERIAL PHOTOGRAPHY INTERPRETATION 9
5.5 PREVIOUS SITE INVESTIGATIONS 15
5.5.1 SITE INFRASTRUCTURE SUMMARY 15
5.5.2 SEMF 2007 15
5.5.3 COFFEY ENVIRONMENTS 2007 15
5.6 GROUNDWATER 16
5.6.1 POTENTIAL UP-GRADIENT CONTAMINATION SOURCES 16
5.6.2 DOWNGRADIENT ECOSYSTEM RECEPTORS 16
5.6.3 WATER BORE USERS 16
5.7 POTENTIAL CONTAMINATION ISSUES 19
5.7.1 AREAS OF POTENTIAL CONCERN 19
5.7.2 CONTAMINANTS OF POTENTIAL CONCERN 20

6 FIELD INVESTIGATION PROCEDURES 20

6.1 WORKS SUMMARY 20
6.2 SOIL INVESTIGATION 22
6.2.1 BOREHOLE DRILLING 22
6.2.2 SOIL SAMPLING 22
6.2.3 SOIL ANALYSIS 23
6.3 GROUNDWATER ASSESSMENT 23
6.3.1 MONITORING WELL ESTABLISHMENT 23
6.3.2 MONITORING WELL DEVELOPMENT AND SLUG TESTING 23

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

6.3.3 MONITORING WELL GAUGING AND SAMPLING 24
6.3.4 GROUNDWATER ANALYSIS 24
6.4 SOIL VAPOR ASSESSMENT 24

7 QUALITY CONTROL 25

7.1 FIELD 25
7.2 LABORATORY 25
7.3 QUALITY ASSURANCE AND QUALITY CONTROL OUTPUTS 26

8 FIELD INVESTIGATION FINDINGS 27

8.1 SOIL BORES 27
8.1.1 GEOLOGICAL INTERPRETATION 27
8.1.2 GRAIN & DEPTH CLASS INTERPRETATION 27
8.1.3 SOIL CONTAMINATION OBSERVATIONS 28
8.2 GROUNDWATER 28
8.2.1 AQUIFER INTERPRETATION 28
8.2.2 GROUNDWATER GAUGING 28
8.2.3 HYDRAULIC GRADIENT AND FLOW DIRECTION 29
8.2.4 GROUNDWATER PHYSIOCHEMISTRY 30
8.2.5 PSH & GROUNDWATER CONTAMINATION OBSERVATIONS 30

9 SOIL ECOLOGICAL IMPACT ASSESSMENT 32

9.1 PROTECTED ENVIRONMENTAL VALUES 32
9.2 NEPM (2013) GUIDELINES 32
9.3 GUIDELINES 33
9.3.1 ECOLOGICAL SCREENING LEVELS 33
9.3.2 ECOLOGICAL INVESTIGATION LEVELS 33
9.4 FINDINGS 33
9.4.1 ECOLOGICAL SCREENING LEVELS 33
9.4.2 ECOLOGICAL INVESTIGATION LEVELS 35

10 GROUNDWATER ECOLOGICAL ASSESSMENT 36

10.1 HYDROCARBON PLUME OVERVIEW 36
10.2 ECOLOGICAL RISK 36

11 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT 39

11.1 GUIDELINES 39
11.1.1 LAND USE CLASSIFICATION 39
11.1.2 ADOPTED LAND USE CLASSIFICATION 39
11.1.3 HEALTH INVESTIGATION & SCREENING LEVELS 40
11.2 FINDINGS 40
11.2.1 DERMAL CONTACT – PETROLEUM HYDROCARBONS 40
11.2.2 DUST INHALATION & SOIL INGESTION 40

12 INDOOR INHABITANT PVI ASSESSMENT – HSL'S 44

12.1 LAND USE CLASS 44

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

12.2 SELECTED MEDIA FOR ASSESSING PVI RISK **45**
12.3 SOIL **45**
12.3.1 GUIDELINES 45
12.3.2 FINDINGS 45
12.4 GROUNDWATER **47**
12.4.1 LNAPL CLASSIFICATION 47
12.4.2 HSL GUIDELINES 47
12.4.3 FINDINGS 47

13 TRENCH WORKER PVI ASSESSMENT – HSL'S **49**

13.1 CLASSIFICATION **49**
13.2 FINDINGS **49**
13.2.1 SOIL 49

14 SOIL DISPOSAL ASSESSSMENT **51**

14.1.1 GUIDELINES 51
14.1.2 FINDINGS 51

15 CONCEPTUAL SITE MODEL **52**

15.1 PRIMARY SOURCES OF CONTAMINATION **52**
15.1.1 POTENTIAL PRIMARY SOURCES 52
15.1.2 CONFIRMED PRIMARY SOURCES 52
15.2 POTENTIAL SECONDARY SOURCES OF CONTAMINATION **52**
15.2.1 SOIL 52
15.2.2 GROUNDWATER 52
15.3 IDENTIFIED SECONDARY SOURCE OF CONTAMINATION **53**
15.3.1 SOIL 53
15.3.2 GROUNDWATER 53
15.4 POTENTIAL RECEPTORS **53**
15.4.1 POTENTIAL ONSITE RECEPTORS 53
15.4.2 POTENTIAL OFFSITE RECEPTORS 53
15.5 TRANSPORT MECHANISMS **53**
15.6 EXPOSURE ROUTES **54**
15.6.1 INCOMPLETE CONTAMINANT EXPOSURE PATHWAYS 54
15.6.2 POTENTIAL PATHWAYS 54
15.6.3 PLAUSIBLE CONTAMINANT EXPOSURE PATHWAY DETAILS 54

16 CONCLUSIONS **56**

16.1 DESKTOP ASSESSMENT **56**
16.2 ADOPTED GUIDELINE SETTINGS **56**
16.3 SOIL ASSESSMENT **56**
16.4 GROUNDWATER ASSESSMENT **56**
16.5 PROPOSED DEVELOPMENT WORKS **57**

17 RECOMMENDATIONS **57**

18 REFERENCES **58**

LIMITATIONS STATEMENT **60**

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

APPENDIX 1 GES STAFF 61

APPENDIX 2 SITE PHOTOGRAPHS 62

APPENDIX 3 REGISTERED WATER BORE DATABASE 67

APPENDIX 4 EQUIPMENT (PID METER) CALIBRATION CERTIFICATES 74

APPENDIX 5 LABORATORY CHAIN OF CUSTODY (COC) 76

APPENDIX 6 QUALITY CONTROL 83

APPENDIX 7 SOIL BORE LOGS 143

APPENDIX 8 GROUNDWATER PURGE RECORDS 153

APPENDIX 9 SOIL & GROUNDWATER CERTIFICATE OF ANALYSIS 156

APPENDIX 10 CRC CARE TECHNICAL REPORT 10 HSL APPLICATION CHECKLIST 184

Figures

FIGURE 1 SITE LOCATION 1
FIGURE 2 EXISTING SITE LAYOUT 2
FIGURE 3 PROPOSED SITE DEVELOPMENT GROUND FLOOR LAYOUT WITH PROPOSED EXCAVATION AND FILLING RELATIVE TO CURRENT (2013 MT WELLINGTON LIDAR) LEVEL 6
FIGURE 4 MINERAL RESOURCES TASMANIA 1:25000 SCALE MAPPING (THE LIST) 8
FIGURE 5 SURFACE TOPOGRAPHY 9
FIGURE 6 SUMMARY OF HISTORICAL INVESTIGATION POINTS, KNOWN SITE INFRASTRUCTURE ASSOCIATED WITH PETROLEUM STORAGE AND USE & HISTORICAL ANALYTICAL RESULTS 17
FIGURE 7 POTENTIAL UPGRADIENT CONTAMINATING ACTIVITIES 18
FIGURE 8 REGIONAL TOPOGRAPHY WITH INFERRED GROUNDWATER FLOW DIRECTION 19
FIGURE 9 TEST PIT (TH1 THE TH3) AND BOREHOLE (BH1 TO BH3) INVESTIGATION AREAS 21
FIGURE 10 INFERRED SHALLOW GRAVEL AQUIFER CONFINED WITHIN THE ALLUVIAL DEPOSITS. AQUIFER LITHOLOGY INDICATED ALONGSIDE BOREHOLES 31
FIGURE 11 CONCEPTUAL SITE MODEL IDENTIFYING CONTAMINATION SOURCE, RECEPTORS AND TRANSPORT MECHANISMS/EXPOSURE ROUTES 55

Tables

TABLE 1 SITE DETAILS 4
TABLE 2 HISTORICAL AERIAL PHOTOGRAPH REVIEW 10
TABLE 3 SUMMARY OF SITE INVESTIGATION WORK DATES 20
TABLE 4 SUMMARY OF SOIL SAMPLING METHODS 22
TABLE 5 OVERVIEW OF SOIL ANALYSIS AND QUALITY CONTROL 23
TABLE 6 SUMMARY OF MONITORING WELL GAUGING AND SAMPLING PROCEDURES 24
TABLE 7 OVERVIEW OF GROUNDWATER ANALYSIS AND QUALITY CONTROL 24
TABLE 8 FIELD QA/QC PROCEDURES AND COMPLIANCE 25
TABLE 9 LABORATORY QA/QC PROCEDURES AND COMPLIANCE FOR SOIL 26
TABLE 10 LABORATORY QA/QC PROCEDURES AND COMPLIANCE FOR GROUNDWATER 26
TABLE 11 STRATIGRAPHY AT THE SITE (DEPTHS INDICATED BELOW GROUND LEVEL) 27
TABLE 13 SUMMARY OF GROUNDWATER GAUGING RESULTS 28
TABLE 12 SUMMARY OF GRAIN & DEPTH CLASS BASED ON USCS CLASSIFICATION 29
TABLE 14 SUMMARY OF INFERRED SITE GROUNDWATER FLOW DIRECTIONS AND RATES 29
TABLE 15 SUMMARY OF STABILISED GROUNDWATER PROPERTIES 30

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

TABLE 16 SUMMARY OF SOIL CONTAMINATES CONSIDERED AS PART OF THIS INVESTIGATION, BASED ON NEPM (2013) ASC..... 32
TABLE 17 ADOPTED LAND USE SCENARIO FOR THE VARIOUS SOIL BORES 33
TABLE 18 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED WITH ESL'S 34
TABLE 19 SOIL ANALYTICAL RESULTS COMPARED AGAINST ECOLOGICAL INVESTIGATION LEVELS 35
TABLE 20 SUMMARY OF VADOSE ZONE LITHOLOGY BASED ON USCS SYSTEM 37
TABLE 21 PAH CONCENTRATIONS IN GROUNDWATER COMPARED AGAINST NEPM 2013 THRESHOLD LIMITS FOR FRESH WATER ECOSYSTEMS AND DRINKING WATER 38
TABLE 22 SUMMARY OF LAND USE SETTING AND DENSITY FOR DETERMINING EXPOSURE RISK 39
TABLE 23 SUMMARY OF LAND USE CLASS ADOPTED FOR DEFINING SOIL ANALYSIS THRESHOLD LIMITS 39
TABLE 24 SUMMARY OF EXPOSURE PATHWAYS AND PRELIMINARY (TIER 1) METHODS FOR ASSESSING HUMAN EXPOSURE RISK..... 40
TABLE 25 SOIL ANALYTICAL RESULTS COMPARED AGAINST CRC CARE (FRIEBEL & NADEBAUM, 2011) GUIDELINES FOR DERMAL CONTACT 41
TABLE 26 SOIL ANALYTICAL RESULTS COMPARED AGAINST NEPM (2013) HEALTH INVESTIGATION LIMIT GUIDELINES..... 42
TABLE 27 SUMMARY OF LAND USE SETTING AND DENSITY FOR DETERMINING EXPOSURE RISK 44
TABLE 28 PREFERRED METHODS FOR DETERMINING SITE PVI RISK 45
TABLE 29 CLASSIFICATION USED TO ASSESS PETROLEUM VAPOUR INTRUSION RISK TO LOCAL RECEPTORS FROM SOIL 45
TABLE 30 SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL A 46
TABLE 31 CLASSIFICATION USED TO ASSESS PETROLEUM VAPOUR INTRUSION RISK TO LOCAL RECEPTORS FROM SOIL 47
TABLE 32 SUMMARY OF GROUNDWATER CONCENTRATIONS COMPARED AGAINST CRC CARE (FRIEBEL & NADEBAUM, 2011) GUIDELINES FOR ASSESSING FOR THE PRESENCE OF LNAPL..... 48
TABLE 33 SUMMARY OF GROUNDWATER SAMPLES THAT EXCEEDED THRESHOLD HSL LIMITS 49
TABLE 34 SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED AGAINST HSL'S FOR ASSESSING PVI RISK TO TRENCH WORKERS..... 50
TABLE 35 SUMMARY OF IB105 CLASSIFICATION GUIDELINES 51
TABLE 37 SUMMARY OF INCOMPLETE CONTAMINANT EXPOSURE PATHWAYS..... 54
TABLE 38 SUMMARY OF POTENTIAL COMPLETE CONTAMINANT EXPOSURE PATHWAYS 54

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

2 ABREVIATIONS

ADWG	Australian Drinking Water Guidelines
AEC	Areas of Environmental Concern
AHD	Australian Height Datum
ALS	Analytical Laboratory Services
ANZECC	Australia and New Zealand Environment and Conservation Council
AWQG	Australian Water Quality Guidelines
BGS	Below Ground Surface
BH	Borehole
BTEX	Benzene Toluene Ethylbenzene Xylene
COA	Certificate of Analysis
COC	Chain of Custody
COPC	Chemical of Potential Concern
CRC CARE	Corporative Research Centre for Contamination Assessment and Remediation of the Environment
CSM	Conceptual Site Model
DQO	Data Quality Objectives
DWS	Depth Water Struck
EC	Electrical Conductivity
EPA	Environmental Protection Authority
EPN	Environmental Protection Notice
ESA	Environmental Site Assessment
GDA94	Geocentric Datum of Australia 1994
GES	Geo-Environmental Solutions Pty. Ltd.
GME	Groundwater Monitoring Event
HIL	Health Investigation Levels
HSL	Health Screening Levels
IL	Investigation Levels
IN	Investigation Notice
IP	Interface Probe
LiDAR	Light Detection And Ranging
LOR	Limits of Reporting
MCRWBA	Minimum Construction Requirements for Water Bores in Australia
MDL	Mean Detection Limit
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measure
NHMRC	National Health and Medical Research Council
NRMMC	Natural Resource Management Ministerial Council
NL	Non Limiting
NRMMC	Natural Resource Management Ministerial Council

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

PAH	Poly-Aromatic Hydrocarbons
PCP	Physico-Chemical Parameters
PEV	Protected Environmental Values
PHC	Petroleum Hydrocarbons
PID	Photo-Ionisation Detector
PPA	Preferential (PVI) Pathways Assessment
PSH	Phase Separated Hydrocarbons
PVI	Petroleum Vapour Intrusion
Redox	Reduction / Oxidation Potential
RN	Remediation Notice
SCA	Site Contamination Assessment
SCM	Site Contamination Model
SWL	Standing Water Level
TDS	Total Dissolved Solids
TOC	Top of Casing
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
USCS	Unified Soil Classification System
VME	Vapour Monitoring Event
VP	Vapour Probe
WRG	Water Resource Group

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

3 INTRODUCTION

3.1 General

This report presents the findings of an Environmental Site Assessment (ESA) undertaken by Geo-Environmental Solutions Pty. Ltd. (GES) at the 209 to 215 Harrington Street, Hobart - hereby referred to as 'The Site'. The site location is presented in Figure 1.

GES was commissioned by Chau Nominees Pty Ltd to conduct the site assessment.

This ESA has been prepared by a suitably qualified and experience practitioner in accordance with procedures and practices detailed in National Environmental Protection Measure (NEPM; 2013) guidelines and key regulations and policies identified in the References section of this document. Personnel engaged in preparing this ESA are listed in Appendix 1 along with their relevant qualifications and years of experience.

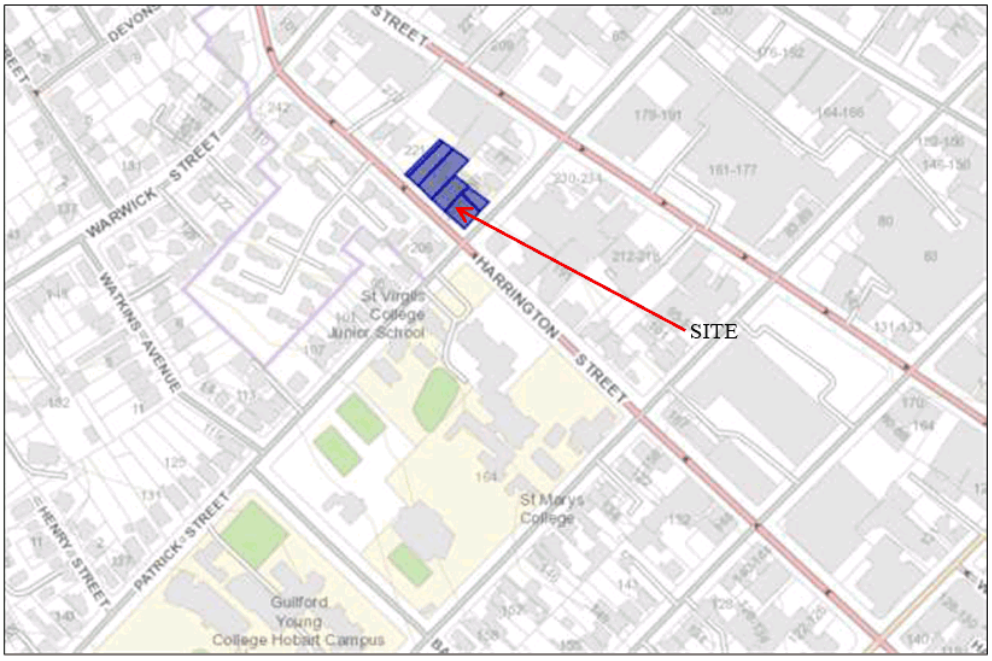


Figure 1 Site Location

3.2 Background

The site was previously owned by City Cabs Co-Operative Society Ltd. and formerly operated as a taxi call center, parking and re-fueling depot from approximately 1970 until 2006. It is understood that all petroleum- related infrastructure was removed from the site in 2006. A triple interceptor pit remains on the site which is believed to have been associated with a car wash at the site. Prior to its operation as the cab depot, the site use is unknown.

Previous environmental investigations, conducted by SEMF Pty Ltd (SEMF) and Coffey Environments (Coffey) in 2007 historically identified a dissolved phase petroleum hydrocarbon plume in the groundwater beneath the eastern corner of the site. The plume has not been delineated to the north-east, east and south-east.

Residual soil impact at concentrations were [illegible] Underground Storage Tank (UST) in the eastern corner of the site at a minimum depth of 1 .4metres below ground surface (mgbs).

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

3.3 Site Layout

A schematic of the existing site layout is presented in Figure 2, Plate 1 & Plate 2.

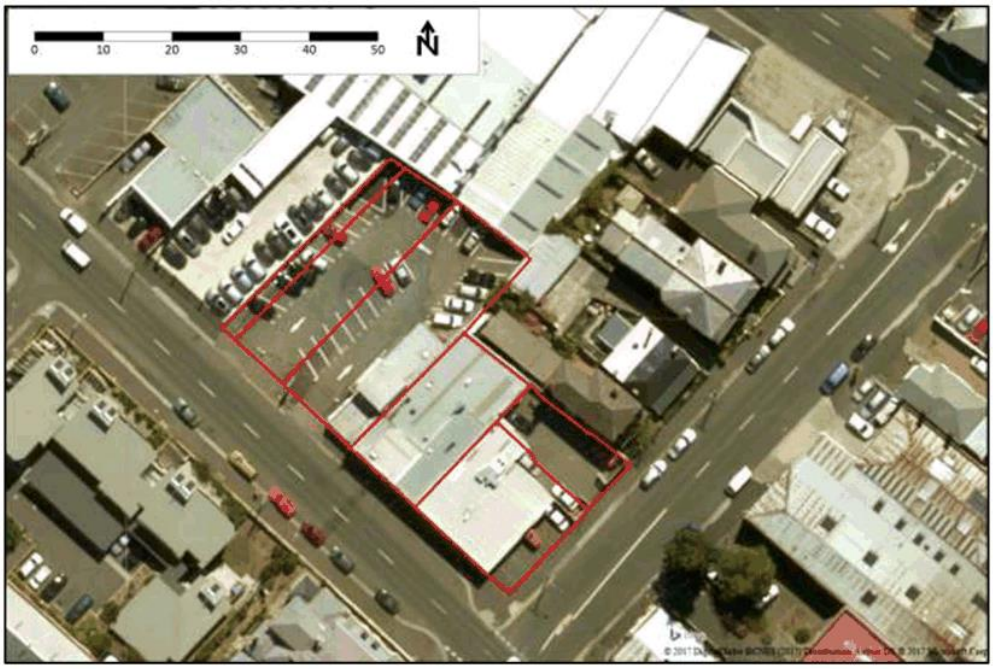


Figure 2 Existing Site Layout

Plate 1 Aerial View of The Site

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Plate 2 Aerial View of The Site

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

3.4 Site Details

Site details are presented in Table 1.

Table 1 Site Details

SITE LOCATION: 209-215 Harrington Street, Hobart
INVESTIGATION AREA 209-215 Harrington Street only. Limits approximately defined by borehole extent
SITE ELEVATION & GRADIENT 28 to 32.5 m AHD with an average 15% gradient in local area to the north-east
SITE SURFACING The surface of the site is bitumen paved and with building slabs
TITLE REFERENCES The investigation area includes the following title references: CT 52394/1 (shared ROW with 221 Harrington St) CT52395/1 CT232390/1 CT203787/1 CT247958/1 CT197488/1
SITE OWNER CHAU NOMINEES PTY LTD
PREVIOUS LANDUSE Unknown
SITE SURROUNDING LAND ZONING Hobart Interim Planning Scheme 2015 23.0 Commercial (north) 11.0 Inner Residential (south)
SITE LAND USE - Commercial: Private Car Parking (825 m^2) Jackson Security offices (436 m^2) Industry Link Culinary School (220 m^2) Office car parking (260 m^2)
PROPOSED LAND USE Basement car park, commercial & carp park on the ground floor and residential units above ground floor
SURROUNDING LAND USE: NW – Car Yard & Printing Supplies Shop; SW – Residential; SE – Restaurant & Toy Shop; E – Vehicle Servicing Workshop; NE – Residential; N – Jacksons Motor Car Company

3.5 Investigation Objectives

The objective of this ESA was to:

- Determine the suitability of the site for the intended use;
- Review any historical contaminated site assessment reports or documents which may indicate previous land use which may have had involved contaminating activities
- Assess the following at the site:
  - Chemicals of Potential Concern (COPC's);
  - Areas of Environmental Concern (AEC); and
  - Human and Environmental health risk.
- Conduct an invasive investigation in areas where site development is proposed;
- Conduct groundwater monitoring to assess potential risk to site users;
- Determine the potential for offsite impact from site contamination, and implications for offsite ecosystem receptors;
- Assess any environmental site assessment data gaps;
- Provide recommendations on what measures may need to be put in place to address any potential data gaps and to further assess contamination remediation and/or management (if required).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

3.6 Scope of Works

The scope of works of this ESA was to:

- Identify areas of concern and contaminants of concern through a desktop assessment;
- Collect groundwater from existing groundwater monitoring wells at the site and sample for contaminates of concern to assess potential onsite and potential offsite impact;
- Detail specific onsite human health risk and environmental impacts which may source from any contaminated groundwater;
- Drill nine (9) soil bores at the site to identify potential human health risk to onsite receptors from potential contamination impacted soil;
- Assess all risks with respect to proposed future land use which includes site demolition, soil excavation and commercial building development;
- Assess potential impact to surrounding offsite receptors; and
- Develop a conceptual site model (CSM) for the site and offsite if applicable to assess specific potential ecosystem and human health receptors.

4 PLANNING

4.1 Proposed Site Development Works

The following is proposed at the site:

- It is proposed that the site changes from commercial to commercial/residential land use and will change from the existing car park and commercial offices to a large development which will encompass all existing titles comprising:
  - Ground floor carpark and commercial (retail) offices; and
  - First to third floor residential apartments;
- There will be site demolition and site preparation work (Figure 3) which will involve:
  - Removal of the existing building structures;
  - Site filling below 32.1 m AHD within the proposed car parking areas;
  - Minor excavation and fill works to 32.7 m AHD within the two retail/lobby/stairwell/lift areas of the site; and
  - Construction of multi-level apartments.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

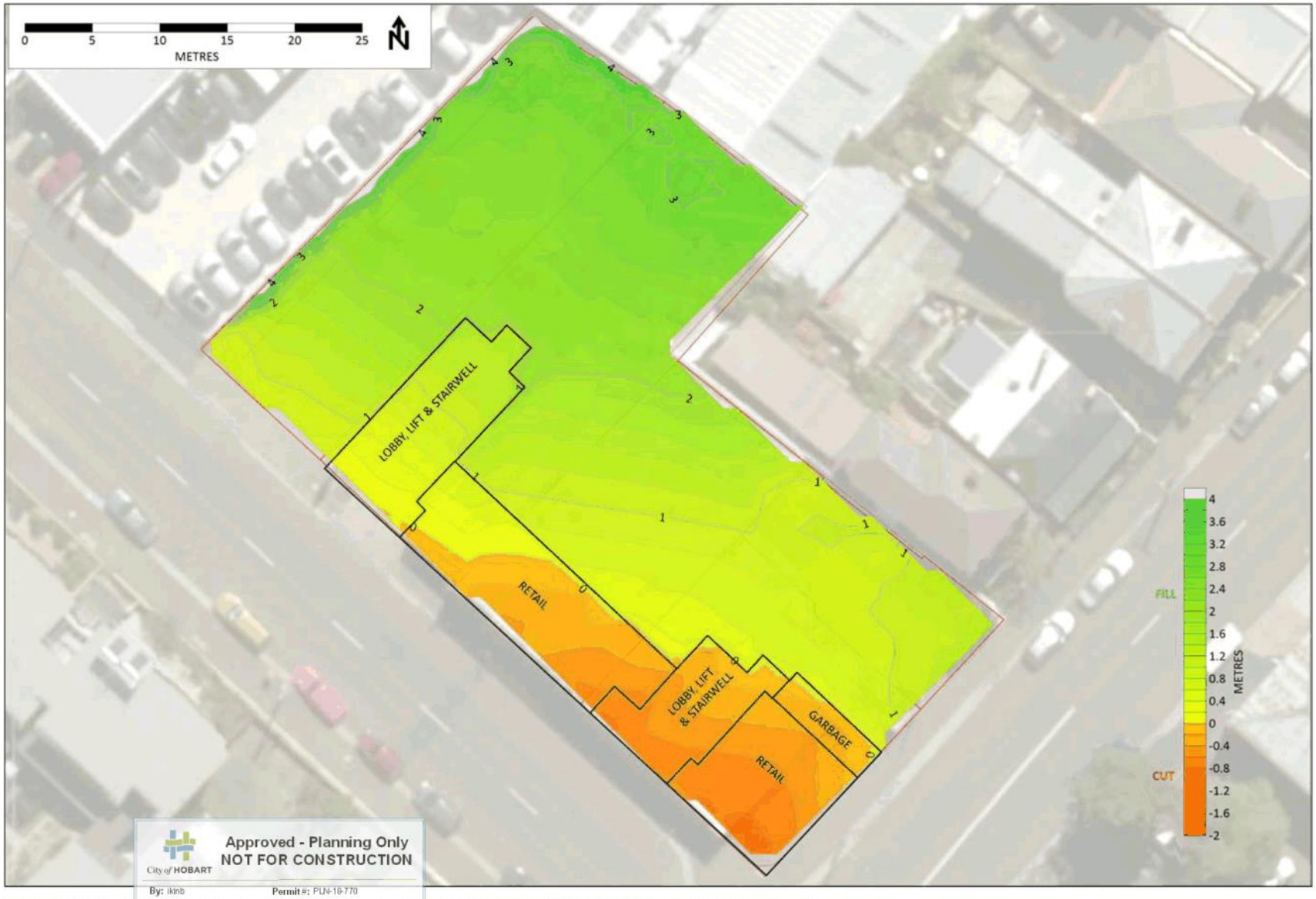


Figure 3 Proposed Site Development Ground Floor Layout with Proposed Excavation and Filling Relative to Current (2013 Mt Wellington LIDAR) Level

The risk assessment herein depends on likely soil, groundwater or vapour exposure pathways based on:

- Present site conditions;
- Proposed development site layout and building construction; and
- Site earthworks.

4.2 Assessment Trigger

The need for this assessment has been triggered by the following:

- The site falls within the Hobart City Council contaminated site overlay and need to be assessed in accordance with the following interim planning scheme code:
  - *E2.5 Use Standards (change of use from commercial to partial residential)*
  - *E2.6.2 Excavation.*
- Given that there is proposed ***excavation works*** at the site, there are no acceptable solutions to proposed works, and therefore E2.6.2 P1 performance criteria are to be addressed
- Given that there is a proposed ***change of use*** at the site *the authority director, or a person approved by the director for this code is required to:*
  - a) certify that the land is suitable for the intended use; or
  - b) approves a plan to manage contamination and associated risk to human health or the environment that will ensure the land is suitable for the intended use.

4.3 Performance Criteria

Excavation does not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human health and the environment that includes:

i. an environmental site assessment;

ii. any specific remediation and protection measures required to be implemented before excavation commences; and

iii. a statement that the excavation does not adversely impact on human health or the environment.

Land is suitable for the intended use, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or

(c) a plan to manage contamination and associated risk to human health or the environment that includes:

i. an environmental site assessment;

ii. any specific remediation and protection measures required to be implemented before any use commences; and

iii. a statement that the land is suitable for the intended use.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

5 DESKTOP STUDY

5.1 Site Walkover

A site walkover was completed by GES staff. Attention was paid mainly to the accessible paved areas of the site, and notice was taken of any spill locations or areas at the site that might present a source of potential contamination (Appendix 2).

5.1.1 Surface Coverings

The surface condition of bitumen across the site was generally good but may not reflect the previous site condition when it was operating as a City Cabs.

5.1.2 Signs of Contamination

No oily stains could be identified around the former City Cabs site. There was some staining around the waste bins in the small yard fronting on Patrick street.

5.2 MRT Geology Mapping

The geology of the site has been mapped on a 1:25,000 scale by Mineral Resources Tasmania (Figure 4) and is inferred to be underlain with:

- Tertiary age, poorly-consolidated interbedded claystone, sandstone and pebble conglomerate (Tse);

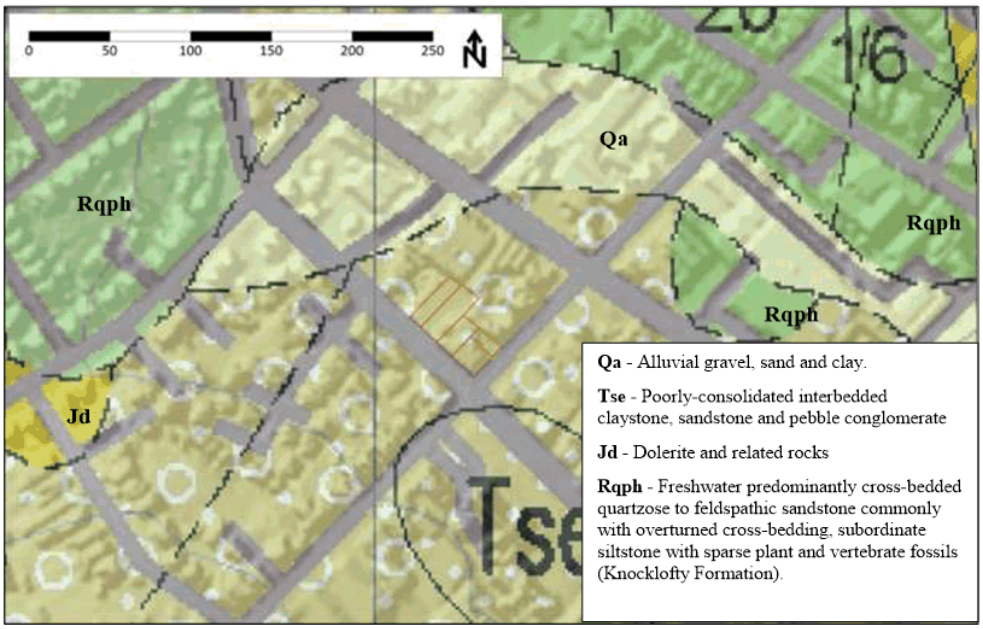


Figure 4 Mineral Resources Tasmania 1:25000 Scale Mapping (The LIST).

5.3 Site Topography, Drainage & Hydrogeology

The site ranges in elevation from 28 to 32.5 m AHD and has an average gradient of 15% to the north-east in local area. Some of the contours in the area are confused by cut and fill, with a likely fill of 1 m in the northern corner of the former City Cabs site and likely deep cuts of up to 2 m on the neighboring site to the northwest. There are surface water spoon drains and/or grates around the northern perimeter of the former City Cabs site and the western perimeter of the yard.

On a local scale, groundwater is inferred to be migrating to the northeast towards Jacksons Motor Company site within a perched aquifer and then to the east based on broad scale topographic trends (Figure 5).

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: kinb Permit #: PLN-18-770
Date: 20/3/2019

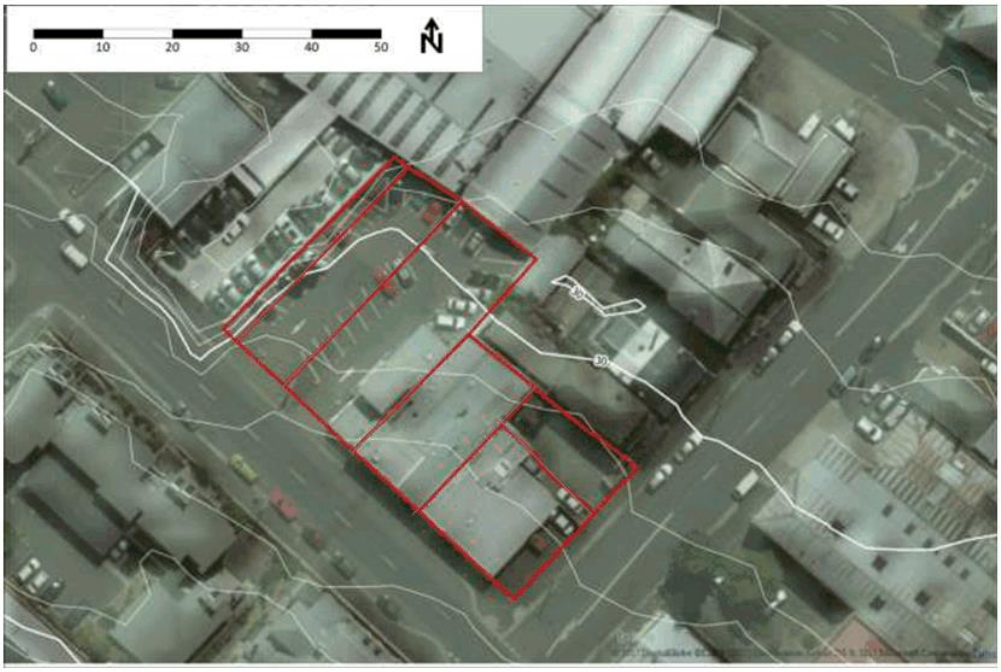


Figure 5 Surface Topography

5.4 Historical Aerial Photography Interpretation

Historical aerial photographs of the site were collated from the Department of Primary Industries, Parks, Water and Environment (DPIPWE).

Table 2 presents a summary of alterations to the site between photo events and the individual aerial photos are presented in Plate 3 & Plate 10.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Table 2 Historical Aerial Photograph Review

Photo	52394/1	52395/1	232390/1	203787/1	24/79/58/1	197488/1
1957 Plate 3	Car wreckers.	Car wreckers.	Large historical residence. Large backyard with a couple of smaller sheds.	Large historical residence with many trees in the backyard.	Large residences with a small yard on the norther portion of the lot and a couple of conjoined outbuildings.	Small residence fronting on Patrick Street.
1958 Plate 4	As above	As above	As above	As above	As above	As above
1969 Plate 5	As above	As above	As above	The site building has been demolished and replaced with a shed covering the entire site except for three off-street carparks.	Possible car park off Harrington Street alongside the northern boundary (on the northern side of the residence).	Backyard looks to be paved. Residence remaining.
1973 Plate 6	As above	As above	The site appears to have been infilled and is possibly used as a commercial space with a small shed built on the southern boundary.	As above	A shed has been built in place of the carpark. The existing house and outbuilding have been retained.	As above with cars in the backyard and side lane.
1977 Plate 7	As above	As above	Very uniform looking cars present on the site may be taxi's.	The off-street carparks have been made under cover with a tall pitched roof as apparent in present day.	As above	Residence has been demolished. Used as a car parking/storage yard.
1989 Plate 8	Taxi car park, refueling & call center.	Taxi car park, refueling & call center. Pavement removed above UST	The taxi call center has been expanded to double the size with a smaller second level. A canopy has been placed over the bowsers.	As above	As above	Car parking
2007 Plate 9	Taxi car park, refueling & call center	Taxi car park, refueling & call center	As above	As above	All site buildings have been demolished and replaced with the existing Jacksons Security building.	As above
2016 Plate 10	Carpark	Carpark	The canopy has been deconditioned but the call center remains. The site has been converted into a carpark.	As above	As above	As above

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Plate 3 Historical Aerial Photograph, The Site 1957

Plate 4 Historical Aerial Photograph, The Site 1958

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Plate 5 Historical Aerial Photograph, The Site 1969

Plate 6 Historical Aerial Photograph 1973

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Plate 7 Historical Aerial Photograph 1977

Plate 8 The Site Aerial Photograph 1989

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Plate 9 The Site Aerial Photograph 2007

Plate 10 The Site Aerial Photograph 2016

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

5.5 Previous Site Investigations

The following environmental site assessments are known to have been conducted at the site:

- Connelly Environmental 2006 Analysis of validation samples: City Cabs: 215 Harrington Street, Hobart 7001. Letter report, dated 18 April 2006.
- SEMF 2006 City Cabs, 215-217 Harrington Street, Hobart, Environmental Site Assessment Report. Dated December 2006.
- SEMF 2007a BSG Electrical Pty. Ltd., 215-217 Harrington Street, Hobart, stage 2 Environmental Site Assessment Report. Dated August 2007.
- SEMF 2007b Heath Risk Assessment, City Cabs, 215-217 Harrington Street, Hobart. Dated 14 August 2007.
- Coffey Environments 2007. Health Risk Assessment. Former City Cabs Site 215-217 Harrington Street, Hobart, Tasmania. Prepared for BSH Electrical Pty Ltd 213 Harrington Street Hobart, Tasmania 7000, 31 October 2007.

The following reports, which contain information pertaining to the historical and current site conditions including soil and groundwater data, were reviewed for this assessment:

- SEMF 2007 Heath Risk Assessment, City Cabs, 215-217 Harrington Street, Hobart. Dated 14 August 2007.
- Coffey Environments 2007. Health Risk Assessment. Former City Cabs Site 215-217 Harrington Street, Hobart, Tasmania. Prepared for BSH Electrical Pty Ltd 213 Harrington Street Hobart, Tasmania 7000, 31 October 2007.

5.5.1 Site Infrastructure Summary

Coffey 2007 report details that all site underground petroleum storage system (UPSS) infrastructure which was historically present at the site has been decommissioned. A total of three underground storage tanks and four bowsers have been removed from the site. It is presumed that associated pipework has also been removed. There was no sign of the triple interceptor trap on the northern corner of the site.

5.5.2 SEMF 2007

The following can be concluded from the Health Risk Assessment at 215-217 Harrington Street:

- Given the proposed basement carpark and limited opportunity for access to impacted soil, the HIL D investigation limits apply. Of the 16 soil samples collected from 6 soil bores (Figure??) all heavy metal concentrations were below HIL D investigation limits for assessing commercial/industrial sites. NEPM 2013 HIL threshold for commercial sites are noted to have either increased or remain the same in the case of lead;
- There was minor occurrence of TPH C_6-C_9 type compounds detected in BH4-3.0 and BH5-2.9 which exceeded historical investigation limits, but are identified to be below NEPM 2013 F1 threshold investigation limits for assessing vapour intrusion risk on commercial/industrial sites for all soil types and depths;
- Benzene, toluene, xylene and ethylbenzene concentrations were below NEPM 2013 HSL D threshold limits for assessing vaporing intrusion risk for all soil types and depths,
- Based on the substances identified on site, their concentrations, and the isolated pockets in which they occur, SEMF concluded that the human health risk was very low, as such, acceptable.

5.5.3 Coffey Environments 2007

The following can be concluded from the Health Risk Assessment at 215-217 Harrington Street:

- The purpose of the Coffey HRA was to assess the potential health risks to on- and off-site populations associated with petroleum hydrocarbon impact identified in soil and groundwater based on non-sensitive commercial/industrial use of the site and residential and commercial land uses of properties located hydraulically down gradient;
- Coffey did not assess impacts from contaminants other than petroleum hydrocarbons or risks to off-site ecological receptors;
- Coffey identified soil and groundwater impact is associated with the storage of petroleum-based products at the site;

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikirb Permit #: PLN-18-770
Date: 20/5/2019

- Benzene, toluene and ethylbenzene concentrations (consistent with unleaded fuel) were highest in CC3, followed by CC5 and CC6. CC3 is adjacent to the former petroleum bowsers, and CC5 is downgradient (to the north) of the same bowsers;
- TRH C_{10} to C_{36} concentrations (consistent with diesel type fuel) are highest in CC5, followed by CC3, CC6 and CC2.
- Based on the distribution of the diesel contamination plume, it is apparent that groundwater may be migrating to the northeast (if the diesel leak is originated from the bowsers) or the east to north-east if the diesel leak originated from the diesel UST T2. This contrasts with Coffey inferred east to south easterly groundwater flow;
- Concentrations of contaminants in soil samples only exceeded both the DTAE (2006) Further Investigation Thresholds and the NEPM HIL F guideline for commercial industrial land use at one location;
- Coffey conducted a quantitative risk assessment and concluded that COPC concentrations identified in soil and groundwater, were not considered to present an unacceptable health risk to on-site and off-site commercial and maintenance workers and off-site residential occupants, based on the future non-sensitive commercial land use and commercial and residential properties hydraulically down-gradient of the site;
- Coffey noted that the triple interceptor pit was not investigated and potential hydrocarbon impact beneath this area is not known and is therefore considered to be a limitation of their assessment. Coffey concluded that if impact is detected in this area during redevelopment of the site, then an additional assessment of the potential health risks may be required;

5.6 Groundwater

5.6.1 Potential Up-Gradient Contamination Sources

There are no known potential contaminated sites upgradient of the site other than a service station on the corner of Hill Street and Patrick Street approximately 500 m to the southwest. Contouring indicates that groundwater from this service station is likely to divert to the east of the site. There are only residential dwellings and school hydraulically upgradient of the site.

5.6.2 Downgradient Ecosystem Receptors

It is inferred that groundwater at the site locally diverts to the northeast before intersecting the bottom of the valley 100 m to the north and following the Quaternary alluvial sediments along the former rivulet alignment towards the Derwent River marine ecosystem environmental setting. The total length of the course is anticipated to be approximately 800 m.

5.6.3 Water Bore Users

Mineral Resources Tasmania Registered water bores are presented in Appendix 3. The nearest registered groundwater bore to the site (bore ID 2864) is located approximately 2.5 km to the north of the site in a Jurassic dolerite fractured rock aquifer. The groundwater within that bore is marginally salty with a TDS value of 1800 ppm. It is improbable that the water bore would be used for drinking water purposes given the salinity. The groundwater in this bore is not expected to be entirely representative of the groundwater at the site. The Tertiary deposits around Hobart are typically quite salty, and similar or higher TDS values are expected.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

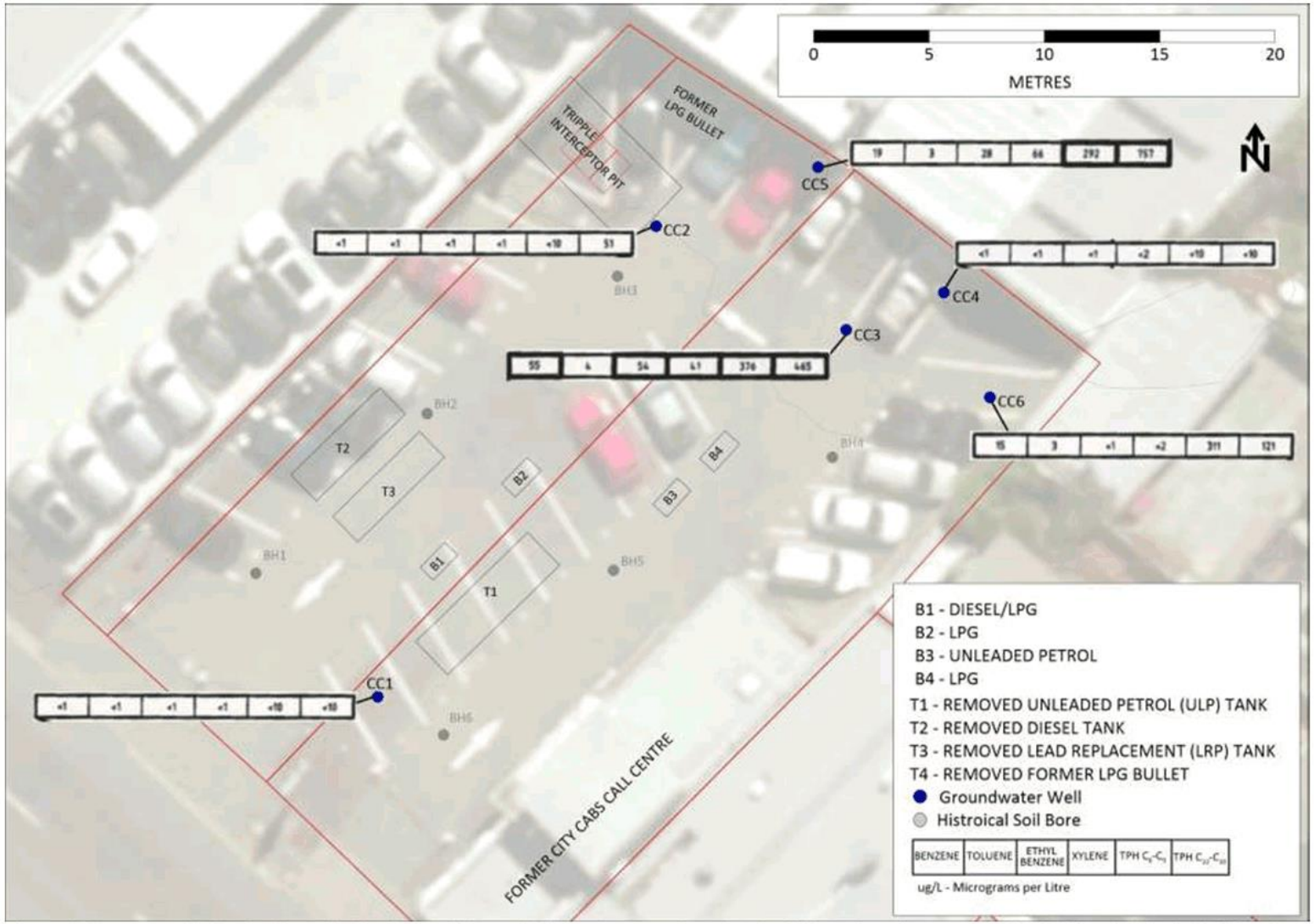


Figure 6 Summary of Historical Investigation Points, Known Site Infrastructure Associated with Petroleum Storage and Use & Historical Analytical Results

Figure 7 Potential Upgradient Contaminating Activities

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Figure 8 Regional Topography with Inferred Groundwater Flow Direction

5.7 Potential Contamination Issues

5.7.1 Areas of Potential Concern

The following areas of potential concern have been identified:

- Before 1957 to between 1977 and 1989, lots 52395/1 & 52394/1 have been used as a car storage yard and probably a car wrecker. It is not apparent if the site was paved during this period but may have been a source of hydrocarbon spills;
- Between 1967 and 1973, fill material was disposed onto the northern side of lot 232390/1;
- Lots 52395/1, 52394/1 &232390/1 may have been used as a taxi can center since 1973 and certainly between 1977 and 2007, with the installation UPSS infrastructure on the site;
- It is no clear how much soil been removed from around the UPSS infrastructure. This soil at the historical locations has not been identified at a risk to human health or environment;
- GES are not aware of any groundwater contour diagram which has been historically produced for the site. Assumptions were made that the impacted wells CC3 and CC5 are either hydraulically or topographically downgradient (to the northeast) of the UPSS infrastructure. This needs to be clarified with revised gauging to ensure groundwater monitoring wells have been appropriately placed;
- Although Coffey identified that groundwater concentrations did not exceed modelled threshold limits for assessing vapour intrusion, this is based on the previous development proposal (details of which are not available) which may not reflect proposed change of use for this development. A revised vapour intrusion assessment is therefore required to determine how changed site conditions (deep excavations and basement carpark) will affect vapour intrusion risk to future site users;
- Groundwater ecological risk was not assessed by Coffey;
- The proposed development will involve excavation and disposal of soil which may be impacted. The soil needs to be reassessed against [illegible] assessing ecological and human health risk and compared against IB150 for determining disposal fate; and
- Data gaps in the historical assessment include the interceptor trap. GES are not aware of any formalized UPSS decommissioning validation reporting.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: jkinb Permit #: PLN-18-770
Date: 20/5/2019

5.7.2 Contaminants of Potential Concern

Contamination from the site source from underground fuel storage and dispensing infrastructure. COPC include the following:

- Total Petroleum/Recoverable Hydrocarbons (TPH/TRH) from various sources;
- Mono Aromatic hydrocarbons: Benzene, Toluene, Ethylbenzene, Xylene (BTEX) sourcing from leaded fuel stored and dispensed at the site;
- Polycyclic Aromatic Hydrocarbons (PAH) potentially in the fill and sourcing from the historical vehicle wreckers;
- Lead from unleaded fuel, batteries stored in the car yard part of the site; and
- General heavy metals which may be present within the fill material.

6 FIELD INVESTIGATION PROCEDURES

6.1 Works Summary

Site investigation works comprised of soil bore drilling which is summarised in Table 3 and Figure 9.

Table 3 Summary of Site Investigation Work Dates

Hole ID	SB# Drill & Sample	Locate Existing Wells	MW# Gauge	MW# Purge & Sample
BH01-BH09	31/10/17		-	-
CC1, CC2, CC4*	-		25/9/17	25/9/17
CC6	26/9/17		-	-
CC1, CC2, CC6	-		16/11/17	-

SB Soil Bore; CC – Monitoring Well
* CC3 & CC5 could not be located or were badly damaged and inaccessible

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

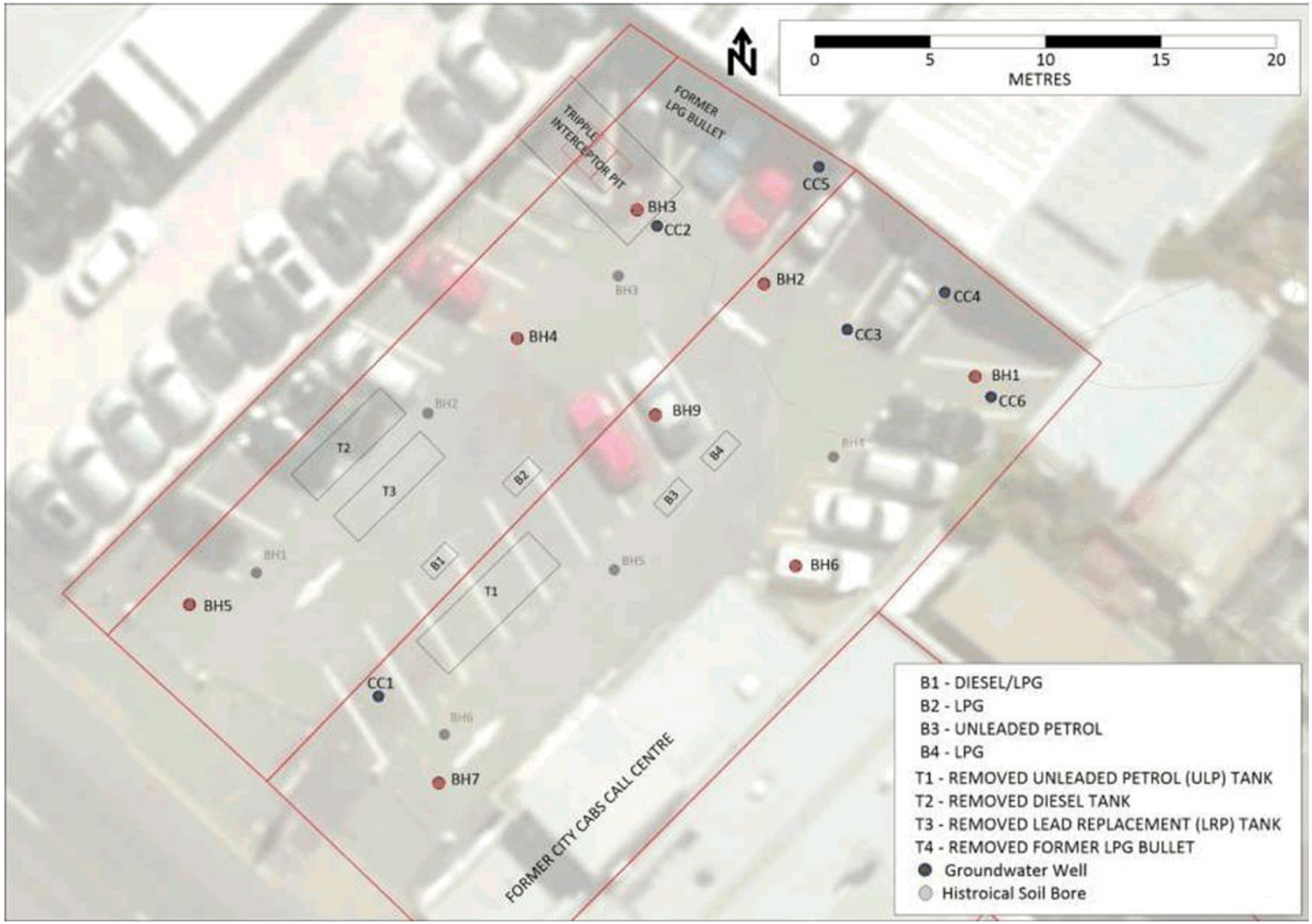


Figure 9 Test Pit (TH1 the TH3) and Borehole (BH1 to BH3) Investigation Areas

6.2 Soil Investigation

6.2.1 Borehole Drilling

At each of the bore locations, the following precautions were put in place to avoid disrupting underground service assets:

- Dial Before You Dig plans were obtained;
- Archers Underground Service were engaged; and
- Where practical, the first meter of the bore was cleared with a hand auger.

Concrete coring was undertaken through bitumen and concrete at each drilling location as required.

A total of nine (9) 65 mm diameter soil bores were drilled for assessing site geology and sampling for contamination impact. The bores were drilled by GES using a hand auger and or the industry recognized Geoprobe direct push drilling systems. The selected drilling method involved using a Geoprobe dual tube to retain wall integrity and eliminates risk of profile collapse whilst allowing extraction of 1.0 m length sample cores and allows for deployment of pre packed well systems.

6.2.2 Soil Sampling

Soil bore soil sampling was conducted per the National Environmental Protection Measure (NEPM 2013) and AS4482 sampling guidelines. Table 4 presents a summary of the soil assessment methodology adopted at the site.

Table 4 Summary of Soil Sampling Methods

Activity	Details / Comments
Drilling Method	Soil bores were drilled: • Hand auger over the first meter to clear for services, and grab sampling; • Hollow stem auger until refusal depth and split spoon sampling; • Percussion drilling in rock and grab samples were collected from air blasted cuttings
Soil Logging	Logging the soil was conducted in accordance with the unified soil classification system (USCS) as detailed in AS1726 (1993).
Decontamination of Sampling Equipment	Quantum Clean Laboratory Detergent (R213) was used to decontaminate reusable sampling equipment.
Soil Screening	In accordance with AS4482.2. Individual soil samples were collected from the core tray at 0.5 intervals below ground surface (BGS) and/or change in geology. Collected samples were screened for volatile fractions using a Photoionisation Detector (PID). This was done by placing the samples within snap lock bags and analysing the headspace with a PID probe. Equipment calibration certificates are presented in Appendix 4
Laboratory Soil Sample Collection	In accordance with AS4482.2. All samples were collected using disposable nitrile gloves. All samples were selected for laboratory analysis. A minimum number of samples were carefully selected which would provide sufficient information to delineate hydrocarbon contamination in soils.
Sample preservation	Samples were placed into a jar for laboratory analysis. Soil jars were placed in a pre-chilled cool box with ice bricks.
Sample holding times	Sample holding times were within acceptable range (based on NEPM B3-2013) from collection to extraction.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

6.2.3 Soil Analysis

Primary and QC samples were submitted to Analytical Laboratory Services (ALS) for analysis. Of the 31 primary samples collected, all 31 were selected for analysis. Chain of Custody (COC) documentation was completed and is provided in Appendix 5. Table 5 presents a summary of the laboratory analyses undertaken.

Table 5 Overview of Soil Analysis and Quality Control

Analytes	Primary Soil Samples	Triplicates	Rinse Blank[b]	Field Blank[c]
TPH/TRH	31	1	1	-
BTEX	31	1	1	-
PAH*	31	1	1	-

Sampling Quality Control Standards (AS4482):
a – One (1) in twenty (20) intra laboratory split (duplicate) samples
b - Single rinse sample per piece of equipment per day
c - Single trip blank per esky

Given that a full 15 metal suite was analysed, there was requirement to assess the following soil physical properties to determine soil threshold investigation levels:

- Soil grain class (sand/silt or clay)
- % Clay content (for chromium);
- Cation exchange capacity; and
- Soil pH

The soil physical properties were assessed through site assessment and chemical properties were based on knowledge of similar soil types encountered around Hobart.

6.3 Groundwater Assessment

6.3.1 Monitoring Well Establishment

A total of six groundwater wells were historically installed at the site. All wells were inspected for suitability for used in this contaminated site assessment. Only four of the wells were usable for the purposes of this investigation:

- CC5 could not be located and is suspected to be buried beneath a concrete plinth/slab, and
- CC3 could be located but was badly damaged and could not be used to access groundwater.

6.3.2 Monitoring Well Development and Slug Testing

All groundwater monitoring wells are presumed to have been historically developed. Slug testing for hydraulic conductivity was not part of the scope of this investigation.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

6.3.3 Monitoring Well Gauging and Sampling

Table 6 summarises the procedures for monitoring well gauging and sampling.

Table 6 Summary of Monitoring Well Gauging and Sampling Procedures

Activity	Procedure Details
Surveying	All wells and bores were located to within 0.5 m horizontal on The LIST plan. 2013 Mt Wellington & Derwent River LIDAR survey were used in this investigation to approximate top of casing elevations to an estimated 0.1 m vertical accuracy.
Groundwater Gauging	All groundwater wells were gauged for standing water levels (SWL) from top of casing (TOC) and the presence of Phase Separated Hydrocarbons (PSH) using a Solinst water/oil/air Interface Probe (IP).
Groundwater Extraction Method	Groundwater was extracted from the well using one of the following: • Geoprobe peristaltic pump in cases where the well is shallower than 7 m; or a • Waterra valve in cases where the well is deeper than 7 m.
Groundwater Purging	To ensure a representative groundwater sample could be collected, groundwater was purged three (3) times the volume of the well (6 x water column) or purged dry using the chosen groundwater extraction method for well development. The following physiochemical parameters (PCP's) were monitored whilst purging to ensure that the aquifer and groundwater parameters had stabilised to within 10% variation of the previous reading: • Reduction / Oxidation potential (REDOX); • Temperature; • pH; and • Electrical conductivity (EC).
Decontamination Procedure	Dedicated tubing was used at each monitoring well. All reusable equipment (IP) was decontaminated using Quantum Clean Laboratory Detergent (R213) and deionized water between each monitoring event.
Sample preservation	Following groundwater purging, all groundwater samples were collected in laboratory supplied receptacles, labelled, chilled, and delivered with a COC to National Association of Testing Authorities (NATA) certified laboratories for analysis within the prescribed holding time.
Sample holding times	Sample holding times were within acceptable range (based on NEPM B3-2013) from collection to extraction.

6.3.4 Groundwater Analysis

Primary and QC samples (excluding triplicates) were submitted to Analytical Laboratory Services (ALS) for analysis. Table 7 presents a summary of the sample analysis including the QC sampling based on AS5667.1 and AS5667.11.

Table 7 Overview of Groundwater Analysis and Quality Control

Analytes	Primary Groundwater Samples	Duplicates[a]	Triplicate[b]	Rinse Blank[c]	Field Blank[d]
TPH/TRH	4	1	-	1	-
BTEX	4	1	-	1	-
Lead	4	1	-	1	-

a – One (1) in ten (10) intra laboratory split (duplicate) samples
b - One (1) in ten (10) inter laboratory split (triplicate) sample
c - Single rinse sample per piece of equipment per day
d - Single field blank per day.

6.4 Soil Vapor Assessment

No soil vapour sampling was conducted. Soil and groundwater petroleum hydrocarbon concentrations are used to infer soil vapour risks.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

7 QUALITY CONTROL

7.1 Field

It is standard to expect up to 10% error in field duplication and up to 10% laboratory error. Therefore in theory up to 20% error can be assumed on duplicate analysis. Some variation may exist in soil and groundwater because even though all efforts are made to split samples homogeneously, fragments of materials may bias samples in certain elements.

Relative Percentage Differences (RPDs) for the duplicate and triplicate samples where applicable are calculated using the method outlined below.

The acceptance criteria used for the RPDs depend on the levels of contaminants detected and the laboratory's Method Detection Limits (MDL). The closer the levels detected are to the MDL the greater the acceptable RPD.

RPDs are calculated as follows:

- RPD <50% for low level results (<20 * MDL)
- RPD <30% for medium level results (20-100 * MDL)
- RPD <15% for high level results (>100 * MDL)
- No limit applies at <2 * MDL

Acceptable RPD is less than 30%. Therefore if RPD >30% difference, a review into the cause should be conducted of both laboratories and of the appropriateness of the methods being used.

Field QA/QC procedures and compliance are summarised in Table 8

Table 8 Field QA/QC Procedures and Compliance

QA/QC Requirement	Completed	Comments
Appropriate sampling strategy used and representative samples collected	Yes	Sampling program was undertaken in accordance with AS4482.1-2005
Field instruments calibrated	Yes	Certificates can be Provided
Appropriate and well documented sample collection, handling, logging and transportation procedures.	Yes	Appropriate and well documented
Decontamination	Yes	Appropriate decontamination such as cleaning tools before sampling and between sample locations was undertaken
Chain-of-custody (COC) documentation completed	Yes	COC were completed in accordance with NEPM Schedule B2, Section 5.4.5 and transported under strict COC procedures. The signed COC documents are included in this report, which includes the condition report on arrival of samples to the Laboratory, cross checking of sample identification and paperwork and preservation method.
Required number of duplicate samples collected (1:20)	Yes	Secondary duplicate (split) samples will be sent to a secondary Laboratory that is NATA accredited. Either a second ALS Laboratory or Eurofins Environmental Testing Australia – MGT. Mixing of the duplicate and split sample will be sampled in accordance of NEPM Schedule B, Section 5.3
Required numbers of field and rinse blank samples collected	Rinse only	One rinse blank was collected. As one rinsate is required per day of sampling.
Samples delivered to the laboratory within sample holding times and with correct preservative	Yes	All samples were sent to the laboratory within holding times and correct preservative.

7.2 Laboratory

Laboratory QA/QC procedures and compliance are summarised in Table 9 & Table 10.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Table 9 Laboratory QA/QC Procedures and Compliance for Soil

QA/QC Requirement	Compliance	Comments
All analyses NATA accredited	Yes	
Appropriate analytical methods used, in accordance with Schedule B(3) of the NEPM	Yes	
Acceptable laboratory limits of reporting (LORs) adopted.	Yes	
Method blanks: zero to <Practical Quantitation Limit (PQL)	Yes	
Laboratory control samples: 70% to 130% recovery for soil; or 80% to 120% recovery for waters;	Yes	
Duplicate samples outliers:<30% to 50% RPD.	No	EM1715132 outlier for lead
Matrix spikes: 70% to 130% recovery for organics or 80%-120% recovery for inorganics	No	EM1715132 outliers for lead and manganese
Surrogates: 70% to 130% recovery	Yes	
Analysis holding time outliers	Yes	
Frequency of Quality Control Sample	No	EM1715132 PAH, Phenols, TRH laboratory duplicates EM1715132 PAH/phenol matrix spike

Table 10 Laboratory QA/QC Procedures and Compliance for Groundwater

QA/QC Requirement	Compliance	Comments
All analyses NATA accredited	Yes	
Appropriate analytical methods used, in accordance with Schedule B(3) of the NEPM	Yes	
Acceptable laboratory limits of reporting (LORs) adopted.	Yes	
Method Blanks: zero to <Practical Quantitation Limit (PQL)	Yes	
Duplicate Samples:<30% to 50% RPD.	Yes	
Laboratory Control Samples: 70% to 130% recovery for soil; or 80% to 120% recovery for waters;	Yes	
Matrix spikes: 70% to 130% recovery for organics or 80%-120% recovery for inorganics	Yes	
Surrogates: 70% to 130% recovery	Yes	
Analysis holding time outliers	Yes	
Quality Control Sample Frequency Outliers	Yes	

7.3 Quality Assurance and Quality Control Outputs

All field and Laboratory Quality Assurance and Quality Control (QA/QC) details are presented in Appendix 6.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

8 FIELD INVESTIGATION FINDINGS

8.1 Soil Bores

8.1.1 Geological Interpretation

The geology of the site is summarised in Table 11 and soil bore logs are presented in Appendix 7.

The outside areas of the site (BH01 to BH09) are paved with approximately 100 mm of bitumen. No boreholes have been drilled within the existing building footprint. Existing building footprints are not determined to be areas of potential concern considering historical site use primarily as residential dwellings. Fill material comprises primarily of GRAVEL and SAND. The fill is up to 1.6 m thick but averages 1.0 m and displays no pattern of distribution across the site as expected from the historical aerials.

The natural sediments comprise of mixed silty and sandy CLAY material.

Table 11 Stratigraphy at the Site (depths indicate base of horizon)

Investigation Holes	Fill Composition	Fill Base (m)	Natural Soil Composition	Natural Soil Base Top of Rock (m)	Rock Composition	Hole Depth (m)
BH01	BITUMEN CLAY/GRAVEL	0.9	Sandy CLAY	3+	NA	3+
BH02	BITUMEN Clayey GRAVEL	1.0	Sandy Silty CLAY	3+	NA	3+
BH03	BITUMEN Clayey GRAVEL/SAND	1.2	Clayey SAND Sandy Silty CLAY	3+	NA	3+
BH04	BITUMEN Sandy GRAVEL Gravelly CLAY	1.3	Clayey SAND Sandy Silty CLAY	3+	NA	3+
BH05	BITUMEN Clayey SAND	1.1	Clayey SAND Sandy Silty CLAY	4+	NA	4+
BH06	BITUMEN Clayey SAND	0.45	Sandy CLAY	2.5+	NA	2.5+
BH07	BITUMEN Clayey SAND	0.7	Sandy CLAY	2.8+	NA	2.8+
BH08	BITUMEN Sandy GRAVEL	1.0	Sandy CLAY	3.5+	NA	3.5+
BH09	BITUMEN GRAVEL/SAND	1.6	Sandy CLAY	3+	NA	3+

8.1.2 Grain & Depth Class Interpretation

Grain size classifications are applied to all soils at the site to determine threshold screening level concentrations for hydrocarbons (and chromium) to assess soil ecological and human health risks.

Grain class threshold values are determined based on either the:

- sample grain size (in the case of ecological screening levels or chromium limits); or
- average grain class overlying the sample point (when assessing petroleum vapour screening levels) relative to the proposed finished floor level.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

When assessing petroleum vapour intrusion screening levels, site development works have the potential to affect vapour intrusion risks. The following inclusions are developed into the petroleum hydrocarbon vapour intrusion model with respect to grain class averages overlying the sample:

- Where the proposed finished floor levels are below the pre-development levels and where soil is proposed to be excavated from the site, the excavated material is excluded from the grain class averages for determining threshold PVI HSL limits;
- Where the proposed finished floor levels are above the pre-development surface levels and site infilling is proposed, the fill material will be assigned a GW (well weathered gravel) coding which will be added to (extend) the overall vapour intrusion depth;
- An allowance will be made for a slab on ground. The slab will be conservatively assigned CLAY type material properties. Slab thickness may be locally adjusted (applied to the development plans) to attenuate vapour intrusion risks;
- An allowance is made for developments which have a crawl space. In this scenario, the soil sample depth corresponds with the vapour intrusion depth, and a crawl space attenuation factor may be applied if the proposal is deemed to allow for crawl space ventilation, and the crawl space is not venting into the building;
- Where garden beds or unpaved areas are proposed near the borehole, biodegradation attention factor is applied.

The corresponding depth class from which the sample is collected is also adjusted and revised based on the proposed development finished floor levels. Where the fields are left blank, a class is not assigned given the sample was collected from within the proposed excavation. Pavement is assigned a clay class by default.

Table 13 provides a summary of the grain class averages for material overlying the sample (excluding the excavated materials).

8.1.3 Soil Contamination Observations

No PID screening was conducted at the site. There were no obvious signs of hydrocarbon impacted soil.

8.2 Groundwater

8.2.1 Aquifer Interpretation

The migration of contamination downhill of the site rather in line with the hydraulic gradient is best explained by the presence of a perched aquifer within the fill and above the natural clay material.

8.2.2 Groundwater Gauging

Two separate gauging events were conducted. Groundwater wells were re-gauged as groundwater from the initial gauging was inferred to be spurious and directed into the hillside. The wells were identified to be pressurized and the caps were left off for 24 hours prior to the second gauging event.

Field results from the groundwater gauging are presented in Appendix 8. Groundwater depths for the gauging event are presented in Table 12. PSH was not detected (gauged) in any of the monitoring wells. Groundwater levels have been contoured in Figure 10.

Table 12 Summary of Groundwater Gauging Results

Monitoring Well	CC1	CC2	CC6
Well Depth (m)	9.53	9.49	6.39
Top of Casing (TOC) Height (m AHD)	31.389	30.048	29.830
Groundwater Gauging Date	16/11/17	16/11/17	16/11/17
Groundwater Depth from TOC (m)	4.857	3.505	3.400
PSH Thickness (mm)	0	0	0
Corrected Groundwater Elevation (m AHD)*	[illegible]	[illegible]	[illegible]

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Table 13 Summary of Grain & Depth Class Based on USCS Classification

Sample	Excavation - Red Fill (Aded as GW) - Green (metres)	Revised Depth From (m)	Soil Grain Class Averaging Above Soil Sample																	Attenuation			Petroleum Vapour Intrusion HSL Grain Class*	SAMPLE USCS
			GW	GP	GM	GC	SW	SP	SM	SC	ML	CL	OL	MH	CH	OH	CI	Rock (R)	Existing Pavement (P)	Crawl Space Thickness (m)	Proposed SLAB (CH)	Crawl Space	Biodegradation	
BH01 1.5-1.6	2.2	3.8	2.2			0.9									0.6					NA	0.1	1.0	1.0	SAND	CH
BH01 2.5-2.6	2.2	4.8	2.2			0.9									0.8		1			NA	0.1	1.0	1.0	SAND	CI
BH01 2.7-2.8	2.2	5.0	2.2			0.9									0.8		1			NA	0.1	1.0	1.0	SAND	CI
BH02 0.7-0.8	2.2	3.0	2.2			0.7														NA	0.1	1.0	1.0	SAND	GC
BH02 1.5-1.6	2.2	3.8	2.2			1.0									0.5					NA	0.1	1.0	1.0	SAND	CH
BH02 2.5-2.6	2.2	4.8	2.2			1.0									1.5					NA	0.1	1.0	1.0	SAND	CH
BH02 2.7-2.8	2.2	5.0	2.2			1.0									1.7					NA	0.1	1.0	1.0	SAND	CH
BH03 0.5-0.6	2.0	2.6	2.0			0.3				0.2										NA	0.1	1.0	1.0	SAND	GC
BH03 1.5-1.6	2.0	3.6	2.0			0.8				0.7										NA	0.1	1.0	1.0	SAND	SC
BH03 2.5-2.6	2.0	4.6	2.0			0.8				0.8					0.9					NA	0.1	1.0	1.0	SAND	CH
BH03 2.7-2.8	2.0	4.8	2.0			0.8				0.8					1.1					NA	0.1	1.0	1.0	SAND	CH
BH04 0.5-0.6	1.7	2.3	1.7			0.5														NA	0.1	1.0	1.0	SAND	GC
BH04 1.5-1.6	1.7	3.3	2.1			0.6				0.1					0.1		0			NA	0.1	1.0	1.0	SAND	CH
BH04 2.5-2.6	1.7	4.3	2.1			0.6				0.1					1.1		0			NA	0.1	1.0	1.0	SAND	CH
BH04 2.9-3.0	1.7	4.7	2.1			0.6				0.1					1.5		0			NA	0.1	1.0	1.0	SAND	CH
BH05 0.5-0.6	0.5	1.1	0.5							0.5										NA	0.1	1.0	1.0	SAND	SC
BH05 1.5-1.6	0.5	2.1	0.5							1.3					0.2					NA	0.1	1.0	1.0	SAND	CH
BH05 2.5-2.6	0.5	3.1	0.5							1.3					1.2					NA	0.1	1.0	1.0	SAND	CH
BH05 3.6-3.7	0.5	4.2	0.5							1.3					2.3					NA	0.1	1.0	1.0	CLAY	CH
BH06 0.5-0.6	1.7	2.3	1.7							0.4					0.1					NA	0.1	1.0	1.0	SAND	CH
BH06 1.5-1.6	1.7	3.3	1.7							0.4					0.8		0			NA	0.1	1.0	1.0	SAND	CI
BH06 2.4-2.5	1.7	4.2	1.7							0.4					0.8		1			NA	0.1	1.0	1.0	SAND	CI
BH07 0.5-0.6	1.1	1.6	1.1				0.2			0.2										NA	0.1	1.0	1.0	SAND	SW
BH07 1.5-1.6	1.1	2.6	1.1				0.4			0.2					0.8					NA	0.1	1.0	1.0	SAND	CH
BH07 2.5-2.6	1.1	3.6	1.1				0.4			0.2					1.8					NA	0.1	1.0	1.0	CLAY	CH
BH08 1.5-1.6	0.1	1.7	1.1												0.5					NA	0.1	1.0	1.0	SAND	CH
BH08 3.4-3.5	0.1	3.6	1.1												2.4					NA	0.1	1.0	1.0	CLAY	CH
BH09 0.5-0.6	1.7	2.3	2.0				0.2													NA	0.1	1.0	1.0	SAND	SW
BH09 1.5-1.6	1.7	3.3	2.0				0.4								0.8					NA	0.1	1.0	1.0	SAND	CH
BH09 2.5-2.6	1.7	4.3	2.0				0.4								1.3		1			NA	0.1	1.0	1.0	SAND	CI
BH09 2.9-3.0	1.7	4.7	2.0				0.4								1.3		1			NA	0.1	1.0	1.0	SAND	CI

8.2.3 Hydraulic Gradient and Flow Direction

The groundwater flow direction is inferred to be to the east and the hydraulic gradient is determined to be approximately 0.7% Table 14. Given the very shallow gradient and the coarse approach to obtaining the casing elevations, the findings are not considered reliable.

Table 14 Summary of Inferred Site Groundwater Flow Directions and Rates

Details	Result
Groundwater flow direction from the site	Site
Hydraulic Gradient Calculations	
Upgradient Groundwater Elevation	26.53 m AHD contour
Downgradient Groundwater Elevation	26.46 m AHD contour
Distance Between Upgradient and Downgradient Points	10 m
Hydraulic Gradient	0.7 %

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

8.2.4 Groundwater Physiochemistry

All purge volumes were attained or the wells were pumped dry before collecting a representative sample for physiochemical analysis and laboratory analysis. Physiochemical parameters were collected whilst purging and a representative value for the aquifer is presented in Table 15.

Table 15 Summary of Stabilised Groundwater Properties

Parameter	Range	Average	Comment
Temp (°C)	13.9 (CC4) to 16.2 (CC1)	15.1	Typical temperature for groundwater within southern Tasmania
pH	7.15 (CC6) to 7.38 (CC1)	7.3	Indicates neutral pH conditions for groundwater
Redox (mV)	10.5 (CC4) to 186 (CC1)	77.8	Indicates mildly oxidising REDOX conditions for groundwater
EC (µs/cm)	1474 (CC6) to 4360 (CC1)	2518.8	Indicates mildly brakish conditions for groundwater

8.2.5 PSH & Groundwater Contamination Observations

PSH was not gauged in any wells at the site.

The following observations can be made during groundwater sampling activities:

- PID read 125 ppm when wall CC4 was opened and 567 ppm when CC6 was opened;

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

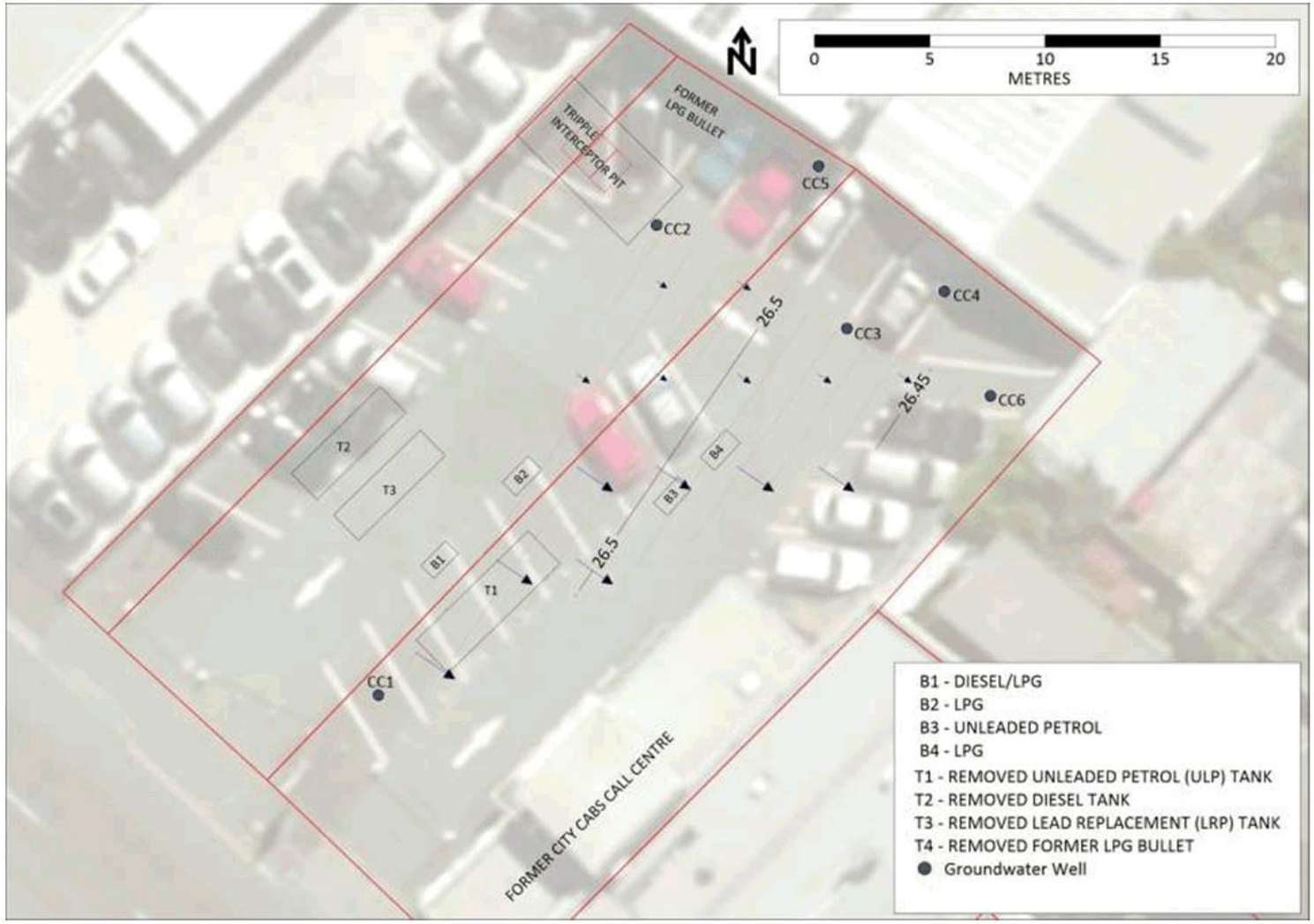


Figure 10 Inferred Shallow Gravel Aquifer Confined Within the Alluvial Deposits. Aquifer Lithology Indicated Alongside Boreholes

9 SOIL ECOLOGICAL IMPACT ASSESSMENT

9.1 Protected Environmental Values

The requirement for protecting soil from contaminated activities in Tasmania is managed under the Environmental Management and Pollution Control Act 1994 (EMPCA) which states in Part 5A:

(2) An area of land is a contaminated site if –

(a) there is in, on or under that area of land a pollutant in a concentration that –

(i) is above the background concentration; and

(ii) is causing or is likely to be causing serious or material environmental harm or environmental nuisance, or is likely to cause serious or material environmental harm or environmental nuisance in the future if not appropriately managed;

Potential soil impact at the site is assessed through application of the following environmental investigation guidelines.

9.2 NEPM (2013) Guidelines

The following ecological investigation guidelines are to be addressed in order to assess acceptable levels of risk to terrestrial ecosystems:

- NEPM (2013) Ecological Investigation Levels (EIL's) – have been developed for selected metal and organic substances. EIL's depend on specific soil and physicochemical properties and land use scenarios and generally apply to the top two (2) metres of the soil profile (NEPM 2013);
- NEPM (2013) Ecological Screening Levels (ESL's) – have been developed for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon fractions. ESL's broadly apply to coarse and fine grained soils and various land use scenarios within the top two (2) metres of the soil profile (NEPM 2013).

Soil analytical results are compared against Ecological Screening Levels (ESL's) and Ecological Investigation Levels (EIL's) limits presented in Table 16.

Table 16 Summary of Soil Contaminates Considered as part of this investigation, based on NEPM (2013) ASC

Investigation Levels (IL)	Analytes Investigated						
	Hydrocarbons				Metals		DDT
	BTEX	TRH (F1 to F4)	Benzo(a) pyrene (PAH)	Naphthalene (PAH)	Zn, Cu, Cr(III), Ni & As	Lead	
ESL's	Analysed	Analysed	Analysed				
EIL's				Analysed	Analysed	Analysed	Not Analysed

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

9.3 Guidelines

9.3.1 Ecological Screening Levels

The following compounds were compared against NEPM (2013) Ecological Screening Levels (ESL's):

- BTEX;
- F1 to F4 TRH; and
- Benzo(a)pyrene

Selection of ESL threshold investigation limits are set out in the NEPM (2013) guidelines and require classification of the soil according to:

- Land use sensitivity:
    - Areas of ecological significance
    - Urban residential and public open space; and
    - Commercial and industrial.

- Dominant particle size passing through a 2 mm sieve into:
    - Coarse – sand sizes and greater; and
    - Fine – clay and silt sizes.

Adopted NEPM (2013) soil and land use classifications are presented below.

9.3.2 Ecological Investigation Levels

The following compounds were compared against Environmental Investigation Levels:

- Lead;
- Nickel;
- Chromium;
- Zinc;
- Copper;
- Arsenic; and
- Naphthalene.

There was a requirement to classify the soil according to physicochemical properties given that the above listed compounds. Adopted physicochemical parameters are presented in the results tables.

Selection of EIL threshold investigation limits are set out in the NEPM (2013) guidelines and require classification of the soil per specific soil and physicochemical properties which are presented in the results tables. The adopted land use scenarios presented in Table 17.

Table 17 Adopted Land Use Scenario For the Various Soil Bores

Land Use Scenario	Applicable Soil Bores
Areas of Ecological Significance	
Urban Residential & Public Open Space	
Commercial & Industrial	*All soil bores*

9.4 Findings

9.4.1 Ecological Screening Levels

Laboratory analytical results are presented in Appendix 9.

Given the exceedances are below the proposed finished floor level and there is a proposal for pavement coverings at the site, there is overall reduced risk that existing hydrocarbons will leach into the receiving environment.

Given the exceedances are below the proposed excavation depth and there is a proposal for pavement coverings at the site, there is reduced risk that hydrocarbons will leach into the receiving environment.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Table 18 compares soil analytical results for residual samples (non-excavated soil which is to remain at the site) against relevant NEPM ESL's. Concentrations which exceeded laboratory levels of reporting (LOR) are highlighted in bold, ESL exceedances are highlighted with a colored cell, and samples within the proposed excavation zone are marked with an X.

The following exceedances were noted:

- Benzo(a)pyrene exceeds ESL guideline limits for commercial sites in BH3 at 1.5 m which is below the proposed excavation depth of 0.6 m at this location;
- Benzo(a)pyrene exceeds ESL guideline limits for commercial sites in BH5 at 0.5 m which comprises fill material which is proposed to be excavated at this location;
- F2 type compounds exceeds ESL guideline limits for commercial sites in BH9 at 2.5 m which is well below the proposed excavation depth of 0.9 m at this location

Given the exceedances are below the proposed excavation depth and there is a proposal for pavement coverings at the site, there is a low risk that hydrocarbons will leach into the receiving environment.

Table 18 Summary of Soil Analytical Results Compared with ESL's

NEPM Ecological Screening Levels for Soil				BTEX				PAH	TRH			
Bold - Indicates LOR Exceedances X - Indicates Sample Within Proposed Excavation Zone				Benzene	Toluene	Ethylbenzene	Xylenes	Benzo(a)pyrene	F1 (C6 - C10)	F2 (>C10 - C16)	F3 (>C16 - C34)	F4 (>C34 - C40)
Colour Shading - Indicates ESL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x												
Sample ID	Sample Date	Soil Texture Class (fine /coarse)	Land Use	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 0.5	LOR 10	LOR 50	LOR 100	LOR 100
BH01 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH01 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH01 2.7-2.8	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH02 0.7-0.8	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH02 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH02 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	**1**	**1.4**	<0.5	**16**	<50	<100	<100
BH02 2.7-2.8	31/10/17	F	COM/IND	<0.2	<0.5	**3.1**	**4.6**	<0.5	**74**	**120**	<100	<100
BH03 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH03 1.5-1.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	**4.2****	<10	<50	**350**	<100
BH03 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH03 2.7-2.8	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH04 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	**280**	**100**
BH04 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH04 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH04 2.9-3.0	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	**160**	**120**	<100
BH05 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	**12.6****	<10	<50	**820**	**220**
BH05 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH05 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH05 3.6-3.7	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH06 0.5-0.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH06 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH06 2.4-2.5	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH07 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH07 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH07 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH08 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH08 3.4-3.5	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH09 0.5-0.6	31/10/17	C	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH09 1.5-1.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
BH09 2.5-2.6	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	**230**	**170**	<100
BH09 2.9-3.0	31/10/17	F	COM/IND	<0.2	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: lkinb Permit #: PLN-18-770
Date: 20/5/2019

9.4.2 Ecological Investigation Levels

Table 19 compares soil analytical results for residual samples (non-excavated soil which is to remain at the site) against relevant ecological investigation limits (EIL's). Concentrations which exceeded laboratory LOR are indicated in bold, EIL exceedances are highlighted with a colored cell, and samples within the proposed excavation zone are marked with an X.

No EIL exceedances were detected based on the limited samples collected at the site.

Table 19 Soil Analytical Results Compared Against Ecological Investigation Levels

NEPM Ecological Investigation Levels for Soil

Bold - Indicates LOR Exceedances
X - Indicates Sample Within Proposed Excavation Zone

Colour Shading - Indicates ESL Exceedances:
>1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x

Sample ID	Sample Date	EIL Land Use Sensitivity Class	Soil CEC (cmolc/kg)	Soil pH	Soil Texture Class (fine /coarse)	Copper (CEC)	Copper (pH)	Nickel	Zinc	Chromium III	Lead	Arsenic	DDT	Naphthalene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH01 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	22	22	12	32	16	12	<5		<1
BH01 2.5-2.6	31/10/17	COM/IND	35	6 (3)	F	17	17	19	54	14	8	<5		<1
BH01 2.7-2.8	31/10/17	COM/IND	35	6 (3)	F	23	23	30	77	14	13	<5		<1
BH02 0.7-0.8	31/10/17	COM/IND	20	6 (3)	C	56	56	24	83	15	875	11		<1
BH02 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	21	21	16	28	15	22	<5		<1
BH02 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	18	18	12	37	14	13	<5		<1
BH02 2.7-2.8	31/10/17	COM/IND	45	6 (3)	F	24	24	16	66	11	15	<5		2
BH03 0.5-0.6	31/10/17	COM/IND	20	6 (3)	C	58	58	25	87	12	15	<5		<1
BH03 1.5-1.6	31/10/17	COM/IND	20	6 (3)	C	124	124	17	610	25	558	7		<1
BH03 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	39	39	33	37	25	11	<5		<1
BH03 2.7-2.8	31/10/17	COM/IND	45	6 (3)	F	45	45	27	42	28	9	<5		<1
BH04 0.5-0.6	31/10/17	COM/IND	20	6 (3)	C	66	66	21	226	17	216	<5		<1
BH04 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	30	30	14	34	20	12	<5		<1
BH04 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	36	36	26	38	22	9	<5		<1
BH04 2.9-3.0	31/10/17	COM/IND	45	6 (3)	F	33	33	26	52	19	11	<5		<1
BH05 0.5-0.6	31/10/17	COM/IND	20	6 (3)	C	83	83	18	219	16	452	<5		<1
BH05 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	36	36	19	32	28	10	<5		<1
BH05 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	41	41	26	34	29	8	<5		<1
BH05 3.6-3.7	31/10/17	COM/IND	45	6 (3)	F	43	43	27	48	24	10	<5		<1
BH06 0.5-0.6	31/10/17	COM/IND	45	6 (3)	F	21	21	18	31	16	10	<5		<1
BH06 1.5-1.6	31/10/17	COM/IND	35	6 (3)	F	40	40	28	56	13	10	<5		<1
BH06 2.4-2.5	31/10/17	COM/IND	35	6 (3)	F	37	37	25	73	13	12	<5		<1
BH07 0.5-0.6	31/10/17	COM/IND	10	6 (3)	C	<5	<5	<2	<5	4	<5	<5		<1
BH07 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	26	26	19	39	17	10	<5		<1
BH07 2.5-2.6	31/10/17	COM/IND	45	6 (3)	F	55	55	13	58	12	10	<5		<1
BH08 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	27	27	18	23	17	10	<5		<1
BH08 3.4-3.5	31/10/17	COM/IND	45	6 (3)	F	36	36	15	54	12	13	<5		<1
BH09 0.5-0.6	31/10/17	COM/IND	10	6 (3)	C	<5	<5	<2	13	4	<5	<5		<1
BH09 1.5-1.6	31/10/17	COM/IND	45	6 (3)	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	120	<5		<1
BH09 2.5-2.6	31/10/17	COM/IND	35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	<5		<1
BH09 2.9-3.0	31/10/17	COM/IND	35	6 (3)	F	41	41	25	61	15	12	<5		<1

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

10 GROUNDWATER ECOLOGICAL ASSESSMENT

10.1 Hydrocarbon Plume Overview

Groundwater COC and analytical results are presented in Appendix 5 & 9.

Petroleum hydrocarbons were detected in all wells at the site with the exception for CC1 which is located on the western side of the site. Low concentration TPH C_6-C_{10} are identified above laboratory limits of reporting (LOR). The hydrocarbons are located on the northern side of the site and are expected to source from unleaded fuel.

Table 10 presents a summary of the laboratory analytical results, and indicates where hydrocarbons were detected in groundwater they do not comprise a significant portion (ie. >20%) of the effective solubility in the product (CRC CARE 2013) and are therefore not inferred to comprise of LNAPL.

10.2 Ecological Risk

Groundwater does not exceed threshold limits for freshwater ecosystem protection (Table 20), and therefore the groundwater at the site does not present a risk to downgradient ecological receptors.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Table 20 Summary of Vadose Zone Lithology based on USCS System

Investigation Levels		Benzene	Toluene	Ethyl-benzene	Xylene			BTEX	Napthalene	TPH Carbon Chain Fractions		TRH Carbon Chain Fractions							
Indicates >Laboratory LOR					M , P Xylene	O Xylene	Total Xylene			C6 - C14	C10 - C14	C6 - C10	C6 - C16	F1	>C10 - C16	>C16 - C34	>C34 - C40	>C10 - C40	F2
Indicates Likley LNAPL																			
UNITS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
Date Collected	**Water Sample**																		
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
25/09/2017	CC2	<1	<2	<2	<2	<2	<2	<1	<5	40	<50	20	20	20	<100	<100	<100	<100	<100
25/09/2017	CC4	<1	<2	<2	<2	<2	<2	<1	<5	130	<50	120	120	120	<100	<100	<100	<100	<100
26/09/2017	CC6	<1	<2	<2	<2	<2	<2	<1	<5	160	<50	150	150	150	<100	<100	<100	<100	<100

Table 21 PAH Concentrations in Groundwater Compared Against NEPM 2013 Threshold Limits for Fresh Water Ecosystems and Drinking Water

AWQG (2000) Fresh Water (95% Trigger)		Benzene	Toluene	Ethyl-benzene	Xylene			BTEX	Napthalene	TRH Carbon Chain Fractions							Metal
					M, P	O	Total	Total		6 - 10	F1	>10 - 16	>16 - 34	>34 - 40	>10 - 40	F2	Pb
UNITS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
LOR		<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	<100	<100	<100	<100	0.001
Investigation Limit		950				350			16								0.0034
Date Collected	**Water Sample ID**																
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	<100	<100	<100	<100	<0.001
25/09/2017	CC2	<1	<2	<2	<2	<2	<2	<1	<5	20	20	<100	<100	<100	<100	<100	<0.001
25/09/2017	CC4	<1	<2	<2	<2	<2	<2	<1	<5	120	120	<100	<100	<100	<100	<100	<0.001
26/09/2017	CC6	<1	<2	<2	<2	<2	<2	<1	<5	150	150	<100	<100	<100	<100	<100	<0.001

11 SOIL HUMAN HEALTH DIRECT CONTACT ASSESSMENT

11.1 Guidelines

Guidelines presented herein are based on potential exposure of human receptors to soil impact which may include:

- Trench workers repairing or building services (typically to 1 m BGS). This classification is not dependent on the land use class.
- Onsite inhabitants which may be exposed to potential shallow soil impact in non-paved areas of the site; and
- Onsite excavation works eg. swimming pools, lift shafts etc. (up to 3 m BGS); basement carparks; and deep foundations.

11.1.1 Land Use Classification

The NEPM (2013) guidelines have been referenced to ensure that the correct land use and density category has been adopted for the site and the surrounding properties (where applicable). As per NEPM 2013 guidelines, the adopted land use class is dependent on the building density and the opportunity for soil access by site occupants (exposure to potentially impacted soil). Aspects needing to be considered include:

- Whether the site is of sensitive land use such as a childcare center, preschool, primary school or aged care facility in which case land use Class A is applicable;
- The percentage of paved area to determine direct contact exposure risk and therefore classification as low or high density; and
- Classification based on residential, recreational or commercial/industrial setting.

11.1.2 Adopted Land Use Classification

The adopted land use class is presented in Table 22.

Land use class is based on the opportunity for soil access as per NEPM 2013 guidelines. A land use class D has been applied to all soil samples. There will be minimal opportunity to access to soil due to the presence of the pavement surfaces.

Table 22 Summary of Land Use Setting and Density for Determining Exposure Risk

Property	Land Use Class	Land Use Density	Paved Area	Sensitive Land Use
The Site	D	High	<100%	No

Table 23 summarises the areas of the site in which the soil analytical results are expected to be relevant as well as the applicable land use class for defining the threshold limits.

Table 23 Summary of Land Use Class Adopted for Defining Soil Analysis Threshold Limits

Soil Bores	Relevant Receptors	Adopted Land Use Class
All soil bores	The site – commercial workers	D

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

11.1.3 Health Investigation & Screening Levels

The main exposure pathways and methods for assessing short term heath risk from contaminated soils are presented in Table 24. Vapour inhalation risk is addressed in Section 13 of this report.

Table 24 Summary of Exposure Pathways and Preliminary (Tier 1) Methods for Assessing Human Exposure Risk

Exposure Scenario	Contaminant Type	Tier 1 Assessment Method	Reference
Vapour Inhalation – Indoor (PVI)	Petroleum Hydrocarbons	HSL's (addressed in PVI sections)	NEPM (2013)
Vapour Inhalation – Trench (PVI)			CRC CARE (Friebel & Nadebaum, 2011)
Dermal Contact		HSL's	
Dust Inhalation	Metals PAH's Organochlorides Phenols Herbicides Other Pesticides	Health Investigation Levels (HIL's)	NEPM (2013)
Soil Ingestion			

PVI – Petroleum Vapour Intrusion

11.2 Findings

11.2.1 Dermal Contact - Petroleum Hydrocarbons

Laboratory analytical results are presented in Appendix 9.

Table 25 presents soil hydrocarbon analytical results compared against CRC CARE (Friebel & Nadebaum, 2011) HSL guidelines for assessing dermal contact risk. Concentrations which exceeded laboratory LOR are highlighted in bold, HSL exceedances are highlighted with a colored cell indicating the highest HSL land used class which is exceeded, and samples within the proposed excavation zone are marked with an X.

The dermal contact risk is acceptable in selected sample locations per guidelines for intrusive maintenance workers, HSL D guidelines.

11.2.2 Dust Inhalation & Soil Ingestion

Combined dust inhalation and soil ingestion risk is assessed through the application of NEPM (2013) HIL's for exposure to soil contaminants.

Laboratory analytical results are presented in Appendix 9. Soil analytical results are compared against the HIL's presented in Table 26. Concentrations which exceeded laboratory LOR are highlighted in bold, HIL exceedances are highlighted with a colored cell indicating the highest HIL land used class which is exceeded and samples within the proposed excavation zone are marked with an X.

There are no HIL exceedance based on Commercial Setting D for assessing exposure risk to future land users with limited access to impacted soil (commercial and residential) and commercial workers involved with the site development works.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Table 25 Soil Analytical Results Compared Against CRC CARE (Friebel & Nadebaum, 2011) Guidelines for Dermal Contact

CRC CARE Health Screening Level Dermal Contact Hazard from Soil Hydrocarbons'		EP080: BTEXN					EP080/071: TRH			
		Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.2	0.5	0.5	0.5	1	10	50	100	100
HSL A Low Density Residential		100	14000	4500	12000	1400	4400	3300	4500	6300
HSL B High Density Residential		140	21000	5900	17000	2200	5600	4200	5800	8100
HSL C Recreational		120	18000	5300	15000	1900	5100	3800	5300	7400
HSL D Commercial/Industrial		430	99000	27000	81000	11000	26000	20000	27000	38000
Intrusive Maintenance Worker		1100	120000	85000	130000	29000	82000	62000	85000	120000
Date	Sample									
31/10/2017	BH01 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH01 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH01 2.7-2.8	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH02 0.7-0.8	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH02 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH02 2.5-2.6	<0.2	<0.5	**1**	**1.4**	<1	**18**	<50	<100	<100
31/10/2017	BH02 2.7-2.8	<0.2	<0.5	**3.1**	**4.6**	**2**	**81**	**120**	<100	<100
31/10/2017	BH03 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH03 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**350**	<100
31/10/2017	BH03 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH03 2.7-2.8	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH04 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**280**	**100**
31/10/2017	BH04 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH04 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH04 2.9-3.0	<0.2	<0.5	<0.5	<0.5	<1	<10	**160**	**120**	<100
31/10/2017	BH05 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	**820**	**220**
31/10/2017	BH05 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH05 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH05 3.6-3.7	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH06 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH06 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH06 2.4-2.5	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH07 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH07 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH07 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH08 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH08 3.4-3.5	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH09 0.5-0.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH09 1.5-1.6	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100
31/10/2017	BH09 2.5-2.6	<0.2	<0.5	<0.5	<0.5	<1	<10	**230**	**170**	<100
31/10/2017	BH09 2.9-3.0	<0.2	<0.5	<0.5	<0.5	<1	<10	<50	<100	<100

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Table 26 Soil Analytical Results Compared Against NEPM (2013) Health Investigation Limit Guidelines

Bold - Indicates LOR Exceedance in Non Metalic Compounds		EA055: Moi	EG005T: Total Metals by ICP-AES														EG035T: Total Recover
NEPM Health Investigation Levels (HIL's) Dust Inhalation and Soil Ingestion Assessment X - Indicates Sample Within Proposed Excavation Zone		Moisture Content	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Selenium	Vanadium	Zinc	Mercury
Units		%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		1	5	10	1	50	1	2	2	5	5	5	2	5	5	5	0.1
HIL A Low Density Residential			100		60	4500	20		100	6000	300	3800	400	200		7400	40
HIL B High Density Residential			500		90	40000	150		600	30000	1200	14000	1200	1400		60000	120
HIL C Recreational			300		90	20000	90		300	17000	600	19000	1200	700		30000	80
HIL D Comercial/Industrial			3000		500	3E+05	900		4000	2E+05	1500	60000	6000	10000		400000	730
Sample date:	Sample ID																
31/10/2017	BH01 1.5-1.6	22	<5	90	<1	<50	<1	16	16	22	12	456	12	<5	66	32	<0.1
31/10/2017	BH01 2.5-2.6	16	<5	10	<1	<50	<1	14	21	17	8	133	19	<5	46	54	<0.1
31/10/2017	BH01 2.7-2.8	13	<5	10	<1	<50	<1	14	29	23	13	227	30	<5	56	77	<0.1
31/10/2017	BH02 0.7-0.8	19	11	120	<1	<50	<1	15	23	56	875	446	24	<5	73	83	0.8
31/10/2017	BH02 1.5-1.6	16	<5	90	<1	<50	<1	15	17	21	22	108	16	<5	75	28	0.1
31/10/2017	BH02 2.5-2.6	23	<5	70	<1	<50	<1	14	11	18	13	95	12	<5	48	37	<0.1
31/10/2017	BH02 2.7-2.8	16	<5	20	<1	<50	<1	11	12	24	15	84	16	<5	25	66	<0.1
31/10/2017	BH03 0.5-0.6	18	<5	100	1	<50	<1	12	20	58	15	613	25	<5	79	87	<0.1
31/10/2017	BH03 1.5-1.6	27	7	310	<1	<50	<1	25	13	124	558	422	17	<5	42	610	4.2
31/10/2017	BH03 2.5-2.6	22	<5	70	<1	<50	<1	25	26	39	11	347	33	<5	78	37	<0.1
31/10/2017	BH03 2.7-2.8	20	<5	60	<1	<50	<1	28	23	45	9	296	27	<5	84	42	<0.1
31/10/2017	BH04 0.5-0.6	20	<5	130	<1	<50	<1	17	23	66	216	229	21	<5	91	226	0.5
31/10/2017	BH04 1.5-1.6	26	<5	60	<1	<50	<1	20	18	30	12	179	14	<5	78	34	<0.1
31/10/2017	BH04 2.5-2.6	20	<5	100	<1	<50	<1	22	17	36	9	245	26	<5	76	38	<0.1
31/10/2017	BH04 2.9-3.0	18	<5	60	<1	<50	<1	19	27	33	11	142	26	<5	63	52	<0.1
31/10/2017	BH05 0.5-0.6	17	<5	220	<1	<50	<1	16	15	83	452	474	18	<5	52	219	1.1
31/10/2017	BH05 1.5-1.6	26	<5	50	<1	<50	<1	28	20	36	10	144	19	<5	86	32	<0.1
31/10/2017	BH05 2.5-2.6	18	<5	230	<1	<50	<1	29	20	41	8	1060	26	<5	83	34	<0.1
31/10/2017	BH05 3.6-3.7	18	<5	100	<1	<50	<1	24	25	43	10	694	27	<5	82	48	<0.1
31/10/2017	BH06 0.5-0.6	20	<5	90	<1	<50	<1	16	19	21	10	85	18	<5	60	31	<0.1
31/10/2017	BH06 1.5-1.6	18	<5	10	<1	<50	<1	13	26	40	10	196	28	<5	66	56	<0.1
31/10/2017	BH06 2.4-2.5	16	<5	10	<1	<50	<1	13	25	37	12	213	25	<5	70	73	<0.1
31/10/2017	BH07 0.5-0.6	4.9	<5	<10	<1	<50	<1	4	<2	<5	<5	19	<2	<5	8	<5	<0.1
31/10/2017	BH07 1.5-1.6	23	<5	60	<1	<50	<1	17	18	26	10	79	19	<5	63	39	<0.1
31/10/2017	BH07 2.5-2.6	23	<5	20	<1	<50	<1	12	8	55	10	83	13	<5	58	58	0.2
31/10/2017	BH08 1.5-1.6	21	<5	160	<1	<50	<1	17	16	27	10	117	18	<5	78	23	<0.1
31/10/2017	BH08 3.4-3.5	20	<5	20	<1	<50	<1	12	13	36	13	210	15	<5	75	54	<0.1
31/10/2017	BH09 0.5-0.6	2.8	<5	<10	<1	<50	<1	4	<2	<5	<5	22	<2	<5	15	13	<0.1
31/10/2017	BH09 1.5-1.6	22	<5	120	<1	<50	<1	12	10	37	120	142	11	<5	45	115	0.9
31/10/2017	BH09 2.5-2.6	16	<5	10	<1	<50	<1	17	19	24	11	148	20	<5	48	76	<0.1
31/10/2017	BH09 2.9-3.0	21	<5	10	<1	<50	<1	15	27	41	12	116	25	<5	61	61	<0.1

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Table 26 Soil Analytical Results Compared Against NEPM (2013) Health Investigation Limit Guidelines

Bold - Indicates LOR Exceedance in Non Metalic Compounds		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons																	
NEPM Health Investigation Levels (HIL's) Dust Inhalation and Soil Ingestion Assessment X - Indicates Sample Within Proposed Excavation Zone		Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	PAHs	Benzo(a)pyrene TEQ (WHO)
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HIL A Low Density Residential																		300	3
HIL B High Density Residential																		400	4
HIL C Recreational																		300	3
HIL D Comercial/Industrial																		4000	40
Sample date:	Sample ID																		
31/10/2017	BH01 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH01 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH01 2.7-2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 0.7-0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH02 2.7-2.8	**1.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.6**	<0.5
31/10/2017	BH03 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH03 1.5-1.6	<0.5	**0.6**	<0.5	<0.5	**2.4**	**0.9**	**6.2**	**6.9**	**4.0**	**3.9**	**5.4**	**2.0**	**4.2**	**2.2**	**0.6**	**2.8**	**42.1**	**6.2**
31/10/2017	BH03 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH03 2.7-2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH04 2.9-3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH05 0.5-0.6	**1.0**	**3.4**	<0.5	**1.3**	**9.9**	**3.5**	**15.9**	**17.7**	**9.4**	**9.4**	**13.7**	**5.9**	**12.6**	**6.2**	**1.8**	**7.7**	**119.0**	**18**
31/10/2017	BH05 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH05 2.5-2.6	<0.5	<0.5	<0.5	<0.5	**1.2**	<0.5	**1.1**	**1.0**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**3.3**	<0.5
31/10/2017	BH05 3.6-3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 2.4-2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH07 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH07 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH07 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH08 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH08 3.4-3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 2.5-2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH09 2.9-3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

12 INDOOR INHABITANT PVI ASSESSMENT – HSL's

This PVI assessment has been conducted in accordance with relevant CRC CARE Technical Documentation and NEPM 2013 guidelines presented in references section of this report. The HSL assessment approach is generally the first (Tier 1) investigation phase adopted for assessing PVI risk at petroleum hydrocarbon (PHC) impacted sites. HSL guidelines have been applied for samples collected from the site to account for risks that may be associated with volatile hydrocarbon vapour intrusion into confined spaces where there may be an inhalation risk through longer term exposure. This does not constitute a full vapour risk assessment but provides additional information from which to further quantify any risk.

A detailed investigation (Tier 2 to 3) is recommended over an HSL assessment where an acute risk has been identified at the site (CRC CARE 2013) because of:

- Migrating product on surface soils beneath buildings;
- Strong PHC odors;
- Flammable risk in confined spaces; and/or
- Health complaints from occupants.

Based on the preliminary site visit, none of the above conditions have been identified at the site. If the outcome of this Tier 1 assessment reveals HSL exceedances for hydrocarbon vapour intrusion, a more detailed (Tier 2) assessment will be required to further evaluate the human health risk.

PVI risk is initially interpreted through the development of HSL threshold limits from the following classifications:

- The geology and or hydrogeology of the investigation point; and
- Land use sensitivity:

The resulting HSL threshold limits are compared with laboratory analytical results.

The following checklists have been filled in for this assessment:

- Appendix 10. Health Screening Level Application Checklist. CRC CARE Technical Report No.10 Part 2, Appendix A (Friebel & Nadebaum 2011b);

12.1 Land Use Class

For surrounding properties, the potential PVI risk is characterized through application of CRC CARE HSL's for each individual properties based on their existing land use (NEPM 2013; Friebel & Nadebaum 2010). The CRC CARE guidelines have been referenced to ensure that the correct land use and density category has been adopted for surrounding land use to ensure health risks are consistent with the HSL models. Aspects considered include the:

- Sensitivity of the existing or potential land use;
- Percentage of paved area for defining potential vapour migration risk;
- Type of basement garage which may influence the confinement of PHC vapors;
- Presence of a slab or cavity for discerning vapour intrusion risk.

If hydrocarbon impacted soil is discerned at the site, consideration is given to downgradient receptors. Site land use class and land use class of downgradient receptors (where onsite HSL exceedances have been identified) are indicated in Table 27.

Table 27 Summary of Land Use Setting and Density for Determining Exposure Risk

Property	Land Use Class	Land Use Density	Paved Area	Sensitive Land Use
67 Harrington Street	D	High	100%	No

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

A land use class D has been applied (in accordance with Friebel & Nadebaum 2011) on the basis that a the ground floor carpark is proposed which will vent and create a vapour barrier with the overlying residential apartments. Ground floor retail shops are similarly classed as commercial.

12.2 Selected Media for Assessing PVI Risk

Table 28 presents a summary of the preferred HSL approach to assessing PVI risk.

Table 28 Preferred Methods for Determining Site PVI Risk

Media Analysed	Method	Limitations	Order of Preference
Soil Gas	Concentrations of a soil gas through a soil vapor probe	This approach provides the most reliable data in interpreting PVI risk, although direct modelling should be applied if concentrations exceed HSL threshold limits.	Primary
Groundwater	Concentrations of PHC in groundwater through deployment of monitoring wells	Determining PVI risk based on groundwater is inherently conservative when interpreting vapour risk to account for not readily discernable preferential pathways. Reference may be drawn to alternative assessment approaches: 1) Application of site specific conditions to the CRC CARE model for assessing PVI risk 2) Soil gas interpretation for areas where a PVI risk is identified from groundwater analysis.	Secondary
Soil	Concentrations of PHC in soil	Concentrations in soil may be subject variability due to soil moisture, organic content and oxygen ingress all which create significant bias in threshold values. Reliance is placed on utilizing groundwater analysis over soil.	Tertiary

12.3 Soil

12.3.1 Guidelines

Soil HSL's are specific to each soil sample and involves characterisation based on the following variables:

- Land use class;
- Dominant grain size class of material at the soil sample depth or based on the dominant grain class of the backfill material based on US Agriculture Soil Classification System (SCS) and partitioning into either sand, silt or clay; and
- Classifying soil according to depth ranges: 0 to 1 m; 1 to 2 m; 2 to 4 m; and greater than 4 m;

Table 29 summarises soil bores and land use classification used to characterise PVI risk for various properties near the site.

Table 29 Classification Used to Assess Petroleum Vapour Intrusion Risk to Local Receptors from Soil

Property	*Soil Bores*	*Land Use Class*
67 Harrington Street	*All soil Bores*	*D*

12.3.2 Findings

Residual soil samples soil samples (non-excavated soil which is to remain at the site) have been assessed against the elected NEPM (2013) health screening levels (HSL) to determine potential hydrocarbon vapour risk to site users. Laboratory analytical results are presented in Appendix 9.

Specific grain, depth and land use classes are presented in Table 30.

Concentrations which exceeded laboratory LOR are highlighted in bold, and HSL exceedances are highlighted with a colored cell.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Table 30 Soil Analytical Results Compared Against HSL A

Soil Hydrocarbon HSL's for Assessing Indoor Vapour Intrusion (NEPM 2013) Soil Sample Analysis					EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances					Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	F1	F2
Colour Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x											
Sample ID	Sample Date	Depth Class	Grain Class	HSL	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
					LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH01 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.7-2.8	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 0.7-0.8	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	**1**	**1.4**	<1	**16**	<50
BH02 2.7-2.8	31/10/2017	4+	SAND	D	<0.2	<0.5	**3.1**	**4.6**	**2**	**74**	**120**
BH03 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.7-2.8	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.9-3.0	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	**160**
BH05 0.5-0.6	31/10/2017	1 - 2	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 2.5-2.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 3.6-3.7	31/10/2017	4+	CLAY	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 2.4-2.5	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 0.5-0.6	31/10/2017	1 - 2	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 2.5-2.6	31/10/2017	2 - 4	CLAY	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 1.5-1.6	31/10/2017	1 - 2	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 3.4-3.5	31/10/2017	2 - 4	CLAY	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 0.5-0.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 1.5-1.6	31/10/2017	2 - 4	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 2.5-2.6	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	**230**
BH09 2.9-3.0	31/10/2017	4+	SAND	D	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

None of the soil samples exceeded HSL limits for assessing petroleum vapour intrusion risk.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

12.4 Groundwater

12.4.1 LNAPL Classification

Determining the presence of LNAPL at the site is important for understanding petroleum vapour intrusion risk and refining the conceptual site model. The presence of LNAPL is based on CRC CARE (2013 page 8) guidelines for defining LNAPL based on 20% effective solubility of hydrocarbon concentrations in groundwater.

12.4.2 HSL Guidelines

Concentrations of hydrocarbons in groundwater have been assessed against NEPM (2013) HSL's to determine potential risk to nearby habitable buildings because of PVI from the aquifer. Groundwater HSL's are specific to each monitoring well and involves characterisation based on the following variables:

- The HSL's for surrounding properties (already identified);
- The dominant grain class overlying the hydrocarbon impacted groundwater based on US Agriculture Soil Classification System (SCS) and partitioning into either sand, silt or clay; and
- A depth class range is selected in accordance with the depth at which hydrocarbon impacted groundwater was intercepted. The groundwater will fit into one of the following depth classes 2 to 4 m; 4 to 8 m and greater than 8 m. A depth class is not applicable for groundwater shallower than 2 m BGS and in this case, vapour probes are recommended to be installed.

Table 31 summarises groundwater wells and land use classification to characterise PVI risk at the site. The land use classification adopted for the site is HSL D which all analytical results will be compared against.

Table 31 Classification Used to Assess Petroleum Vapour Intrusion Risk to Local Receptors from Soil

Property	Monitoring Wells	Land Use Class
67 Harrington Street	All Monitoring Wells	D

12.4.3 Findings

Groundwater sampling results Certificate of Analysis is presented in Appendix 9. Hydrocarbon concentrations within groundwater have been compared against CRC CARE 2013 Guidelines for Assessing for the Presence of LNAPL in Table 32. No LNAPL has been identified at the site.

Groundwater has been assessed against the elected NEPM ASC health screening levels (HSL) to determine potential hydrocarbon vapour risks to site users. Specific grain, depth and land use classes as well as nominated guideline limits are presented in Table 33.

Although two of the historically impacted wells located on the northeastern side of the site could not be sampled, it is expected that the low-level impacted groundwater will have migrated offsite and largely biodegraded over the space of 10 years. The historical vapour intrusion assessment (Coffey 2007) did not reveal any petroleum vapour intrusion risks based on indoor vapour intrusion model. In this case, the basement carpark presents a lower risk due to the potential for mixing and ventilation within the carpark space.

There are no HSL exceedances identified in groundwater collected from the site indicating there is a low risk of petroleum vapour intrusion into the underground carpark.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Investigation Levels		Benzene	Toluene	Ethyl-benzene	Xylene			BTEX	Napthalene	TPH Carbon Chain Fractions		TRH Carbon Chain Fractions							
Indicates >Laboratory LOR					M, P Xylene	O Xylene	Total Xylene			C6 - C14	C10 - C14	C6 - C10	C6 - C16	F1	>C10 - C16	>C16 - C34	>C34 - C40	>C10 - C40	F2
Indicates Likley LNAPL																			
UNITS		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
Date Collected	**Water Sample**																		
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<20	<20	<20	<100	<100	<100	<100	<100
25/09/2017	CC2	<1	<2	<2	<2	<2	<2	<1	<5	40	<50	20	20	20	<100	<100	<100	<100	<100
25/09/2017	CC4	<1	<2	<2	<2	<2	<2	<1	<5	130	<50	120	120	120	<100	<100	<100	<100	<100
26/09/2017	CC6	<1	<2	<2	<2	<2	<2	<1	<5	160	<50	150	150	150	<100	<100	<100	<100	<100

Table 32 Summary of Groundwater Concentrations Compared Against CRC CARE (Friebel & Nadebaum, 2011) Guidelines for Assessing for the Presence of LNAPL

Table 33 Summary of Groundwater Samples That Exceeded Threshold HSL Limits

						Benzene	Toluene	Ethylbenzene	Xylene	Naphthalene	F1	F2
Units						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR						<1	2	2	2	5	20	100
Water Sample ID	Date	Groundwater Depth Class (m)	Grain Class	HSL								
CC1	25/9/17	4 - 8	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	<20	<100
CC2	25/9/17	2 - 4	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	20	<100
CC4	25/9/17	2 - 4	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	120	<100
CC6	26/9/17	2 - 4	Clay	D	Limit	30000	NL	NL	NL	NL	NL	NL
					Result	<1	<2	<2	<2	<5	150	<100

#N/A - Requires alternative assessment approach if PHC identified ie. soil vapour assessment
NL – Non Limiting applicable as any derived HSL will exceed analyte solubility limit

13 TRENCH WORKER PVI ASSESSMENT – HSL's

13.1 Classification

The following Health Screening Assessment is based on hydrocarbon vapour intrusion risk to subsurface excavation workers within excavations. This is assessed through analysis of vapors from soil and soil vapours. Groundwater is generally not used to assess risk as threashold limits for all depth and grain classes are non-limiting. Land use classes are not applicable when assessing vapour intrusion into trenches.

Soil and soil vapour HSL's for assessing hydrocarbon risk to maintenance workers are based on CRC CARE Technical Report 10 guidelines (Friebel & Nadebaum 2011) and the following variables:

- Dominant grain size class of material at the soil sample depth or based on the dominant grain class of the backfill material based on US Agriculture Soil Classification System (SCS) and partitioning into either sand, silt or clay; and
- Classifying soil according to depth ranges: 0 to 2 m; 2 to 4 m; 4 to 8 m; and greater than 8 m;

13.2 Findings

13.2.1 Soil

Laboratory analytical results are presented in Appendix 9.

Table 34 compares soil analytical results for residual samples (non-excavated soil which is to remain at the site) against relevant CRC CARE HSL's for shallow intrusive maintenance workers. Concentrations which exceeded laboratory levels of reporting (LOR) are highlighted in bold, and ESL exceedances are highlighted with a colored cell.

Of all samples collected only three samples exceeded the laboratory LOR. None of the soil samples collected at the site exceeds the hydrocarbon HSL's for assessing petroleum vapour intrusion risk to intrusive maintenance workers

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Table 34 Summary of Soil Analytical Results Compared against HSL's for Assessing PVI Risk to Trench Workers

CRC CARE Health Screening Level Assessment for PHC Inhalation Risk To Trench Workers From Soil Sample Analysis				EP080: BTEXN					EP080/071: TRH	
Bold - Indicates LOR Exceedances										
Dark Grey Shading - Indicates HSL Exceedances: >1 x, * 2-5 x, ** 5-20 x, *** 20-50 x, **** >50 x				Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	C6 - C10 Fraction	>C10 - C16 Fraction
Sample ID	Sample Date	Depth Class	Grain Class	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				LOR 0.2	LOR 0.5	LOR 0.5	LOR 0.5	LOR 1	LOR 10	LOR 50
BH01 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH01 2.7-2.8	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 0.7-0.8	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH02 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	**1**	**1.4**	<1	**18**	<50
BH02 2.7-2.8	31/10/2017	4 to 8m	SAND	<0.2	<0.5	**3.1**	**4.6**	**2**	**81**	**120**
BH03 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH03 2.7-2.8	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH04 2.9-3.0	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	**160**
BH05 0.5-0.6	31/10/2017	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 2.5-2.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH05 3.6-3.7	31/10/2017	4 to 8m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH06 2.4-2.5	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 0.5-0.6	31/10/2017	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH07 2.5-2.6	31/10/2017	2 to 4m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 1.5-1.6	31/10/2017	0 to 2m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH08 3.4-3.5	31/10/2017	2 to 4m	CLAY	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 0.5-0.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 1.5-1.6	31/10/2017	2 to 4m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50
BH09 2.5-2.6	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	**230**
BH09 2.9-3.0	31/10/2017	4 to 8m	SAND	<0.2	<0.5	<0.5	<0.5	<1	<10	<50

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

14 SOIL DISPOSAL ASSESSSMENT

14.1.1 Guidelines

Soil which is excavated from the site for landfill disposal is to be assessed against Information Bulletin 105 (IB105) for Classification and Management of Contaminated Soil for Disposal. The EPA uses 4 categories to classify contaminated soil as per Table 35:

- (Level 1) Fill Material;
- (Level 2) Low Level Contaminated Soil;
- (Level 3) Contaminated Soil; and
- (Level 4) Contaminated Soil.

Fixed numerical values are presented for soil concentrations and leachable fraction concentrations.

Table 35 Summary of IB105 Classification Guidelines

	Classification (with reference to Table 2)	Controlled Waste[1]	Comments
Fill Material[2] (Level 1)	Soil that exhibits levels of contaminants below the limits defined under *Fill Material* in Table 2.	Unlikely	Soil classified as *Fill Material* can still be a 'pollutant' under the *Environmental Management and Pollution Control Act 1994* and needs to be responsibly managed.
Low Level Contaminated Soil (Level 2)	Soil that exhibits levels of contaminants above the limits defined under *Fill Material* but below the limits defined under *Low Level Contaminated Soil* in Table 2.	Likely	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil (Level 3)	Soil that exhibits levels of contaminants above the limits defined under *Low Level Contaminated Soil* but below the limits defined under *Contaminated Soil* in Table 2.	Yes	Where leachable concentrations have not been prescribed, maximum total concentrations will be used to classify the soil.
Contaminated Soil for Remediation (Level 4)	Soil that exhibits levels of contaminants above the limits defined under *Contaminated Soil* in Table 2 (regardless of the maximum total concentrations) is generally ***not*** considered acceptable for off-site disposal without prior treatment.	Yes	Soil that contains contaminants that do not have criteria for leachable concentrations (*e.g.* petroleum hydrocarbons), and the levels of contaminants exceed the maximum total concentrations listed in *Contaminated Soil*, are generally classified as *Contaminated Soil for Remediation*.

[1] Controlled Waste is defined in the *Environmental Management and Pollution Control Act 1994*.
[2] Criteria for *Fill Material* are the limits set by the Director for the purposes of R.9(2)(a)(ii) in the *Regulations*.

14.1.2 Findings

With the revised site finished floor levels of 32.1 and 32.7 m AHD, there is minimal excavation disturbance. There are no soil bores within the proposed excavation zone on the southeast corner of the site and all soil which is proposed to be excavated soil should be stockpiled and tested against IB105 guidelines before it is potentially reused onsite, removed offsite to a landfill or to a licensed storage and handling facility for managing contaminated soil.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

15 CONCEPTUAL SITE MODEL

15.1 Primary Sources of Contamination

15.1.1 Potential Primary Sources

Primary sources of contamination include:

- Leaded and diesel fuel historically stored at the site;
- Heavy metals and hydrocarbons (including PAH's) sourcing from the interceptor trap on the northern corner of the site;
- Residual hydrocarbons including PAH compounds which are likely to source from leaking oils within the former wrecking yard on the northern side of the lot;
- Lead from disused batteries within the former wreckers;
- Zinc from corroding galvanized iron products (corrugated roofing etc); and
- Residual hydrocarbons including PAH compounds as well as heavy metals sourcing from fill at the site.

Upgradient offsite potential primary sources have not been identified in the historical information search.

There may be other unknown potential sources of onsite or offsite impact (outside of the sampling areas) which GES are unaware of and therefore have not been investigated within this assessment.

Contaminates of potential concern associated with these potential sources have already been identified in a previous section.

15.1.2 Confirmed Primary Sources

The following primary sources have been identified:

- Leaded and diesel fuel historically stored at the site;
- Heavy metals and hydrocarbons (including PAH's) sourcing from the interceptor trap on the northern corner of the site; and
- Zinc from corroding galvanized iron products (corrugated roofing etc).

15.2 Potential Secondary Sources of Contamination

Secondary source is contamination which may sources from a primary source (soil, groundwater, surface water and vapour). Secondary sources are typically spatially separated from the primary source, and may have a direct pathway linkage impacting or affecting receptors of interest.

15.2.1 Soil

Potential secondary soil impact may occur because of:

- Leaking underground storage tanks and associated fuel lines; and
- Interceptor traps which may be beyond their service life.

15.2.2 Groundwater

Potential groundwater impact may occur as a result of leaking underground storage tanks or fuel lines. For groundwater impact to occur, the tanks or fuel lines must have perished and be leaking directly to the water table via infiltration through permeable soils.

The aquifer system at the site is expected to be an:

- Tertiary age, poorly-consolidated interbedded claystone, sandstone and pebble conglomerate.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

15.3 Identified Secondary Source of Contamination

15.3.1 Soil

The following contaminants have been identified based on the current and historical site investigations:

- PAH compounds (including benzo(a)pyrene) and various heavy metals sourcing from the interceptor trap; and
- Petroleum hydrocarbons sourcing from underground storage tanks.

15.3.2 Groundwater

The following can be summarized about site groundwater impact:

- Historically, hydrocarbon impacted water was encountered on the northeastern side of the site. The impact is not hydraulically downgradient (spread to the northeast as opposed to the east to south/east) of the bowsers and UST's, and it is inferred that the hydrocarbons may have migrated downhill (to then northeast) within perched aquifer on top of the natural clays in the base of the granular fill material; and
- Hydrocarbon impact historically identified in the aquifer at the site is largely depleted to concentrations near the laboratory limits of reporting. BTEX compounds are no longer identified (where they have been historically) and residual hydrocarbon contaminants identified are in the F1 type category (TRH C6 to C10 less BTEX).
- Groundwater impact has not been identified in upgradient wells at the site indicating unlikely upgradient groundwater impact.

15.4 Potential Receptors

The following presents a summary of all potential receptors considered in the assessment.

15.4.1 Potential Onsite Receptors

- Commercial workers developing the site;
- Commercial workers inhabiting the site;
- Residential receptors inhabiting all levels above the ground floor level; and
- All people using the basement carpark (visitors, residences, commercial workers)

15.4.2 Potential Offsite Receptors

- Residential receptors downgradient of and immediately adjacent to the site to the east which includes 75, 77, 81 & 83 Patrick Street; and
- Commercial receptors downgradient of the site to the east which includes Audi Centre at 246 Murray Street, and the Tasmanian Key Service at 240-244 Murray Street;

15.5 Transport Mechanisms

Potential contaminant migration pathways for the chemicals of concern include:

- Vertical percolation with rainwater to underlying soils and groundwater;
- Horizontal groundwater flow in the aquifers;
- Vertical movement within the vadose zone through seasonal fluctuations in groundwater levels;
- Volatilization of soil-gas through the vadose zone from impacted soils and groundwater; and,
- Surface runoff.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

15.6 Exposure Routes

15.6.1 Incomplete Contaminant Exposure Pathways

Incomplete contaminant exposure pathways relate to present unmanaged risk. **Error! Reference source n ot found.** presents a summary of potential receptors identified in Section **Error! Reference source not found.** with incomplete exposure pathways deducted based on site desktop assessment or soil analysis.

Table 36 Summary of Incomplete Contaminant Exposure Pathways

Medium	Pathways Ruled Out	Specific Receptor	Basis
Soil	Dust inhalation Soil Ingestion	Onsite inhabitants, construction workers & future trench workers	There are no HIL exceedances based land used class D for limited soil access
	Dermal contact	Onsite inhabitants, construction workers & future trench workers	There are no HSL exceedances.
	Plant root absorption & burrowing animals	Ecosystem - Onsite flora and fauna	No sensitive onsite flora and fauna
Groundwater	Groundwater Use	Drinking Water	Not a PEV given groundwater is identified as Class B (State Policy on Water Quality Management EPA Tasmania 1997)
		Stock, Irrigation, industry	No applicable to the land use setting
		Ecosystem	No receptors within 750 m of the site.
Petroleum Hydrocarbon Vapours	Onsite Indoor Vapour Inhalation	Commercial & Residential Spaces	The risk of hazardous vapour migration into indoor commercial and residential spaces is considered low as identified soil vapour analysis and Tier 1 groundwater HSL screening.
	Onsite Trench and Excavation Vapour Inhalation	Trench and construction workers	The risk of hazardous vapour migration into trenches and excavations is considered low as identified soil vapour analysis and Tier 1 groundwater HSL screening.

15.6.2 Potential Pathways

Potential and plausible transport mechanisms and exposure routes are presented in Table 37 and Figure 11 model. Incomplete exposure pathways are not included in Figure 11.

The following potential pathways have been identified:

- GES have not investigated offsite migration of any potential contaminant plume, and therefore a petroleum vapour intrusion risk to offsite residential and commercial receptors has not been identified and therefore remains a plausible pathway unless proven otherwise;
- There is a potential pathway for shallow impacted soil (exceeding ESL's) to erode/discharge offsite. Provided that a soil and water management plan is put in place, the is unlikely to present a risk and become a plausible contaminant exposure pathway.

Table 37 Summary of Potential Complete Contaminant Exposure Pathways

Medium	Specific Pathway	Receptors	Basis
Soil	Soil erosion and water discharge to storm water drains	Ecosystem – Marine environment	HSL's exceeded for primarily benzo(a)pyrene
Petroleum Hydrocarbon Vapours	Offsite Indoor Vapour Inhalation	Commercial & Residential Spaces	The risk of hazardous vapour migration into indoor commercial and residential spaces located to the east of the site is unknown and unidentified.

15.6.3 Plausible Contaminant Exposure Pathway Scenarios

Provided that the soil is adequately managed as indicated in the recommendations, plausible exposure pathways are not identified at the site.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

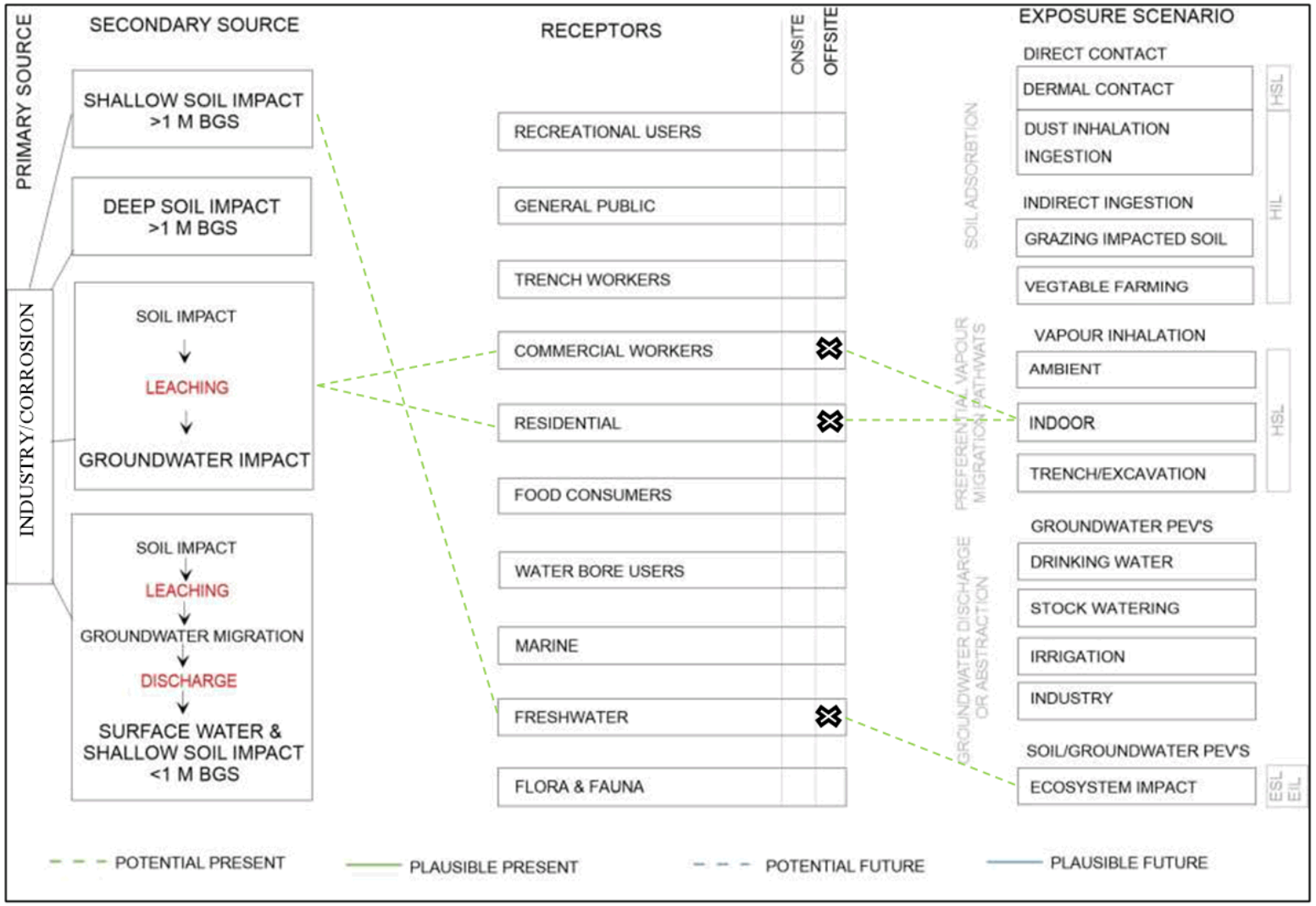


Figure 11 Conceptual Site Model Identifying Contamination Source, Receptors and Transport Mechanisms/Exposure Routes

16 CONCLUSIONS

16.1 Desktop Assessment

From the desktop assessment, it is concluded that:

- Based on a review of previous environmental site assessments, it has been identified that there was historical hydrocarbon impact in both soil and groundwater at the site;
- Historical contaminating activities were identified on the northern three lots which included:
  - The northern two lots were historically used as a vehicle wrecking/storage yard;
  - City Cabs yard in which underground petroleum storage systems were used at the site which is expected to be historical source of hydrocarbons in groundwater and soil;
  - The city Cabs yard had a triple interceptor trap which is likely to be source of heavy metals and hydrocarbons;

16.2 Adopted Guideline Settings

The following investigation limits were adopted for the site:

- Ecosystem – Commercial/industrial land use;
- Future land users access to soil – limited soil access in commercial space (all paved) therefore:
  - HIL D for soil ingestion and inhalation and
  - HSL D for dermal contact;
- Future land users vapour inhalation risk – HSL D for commercial workers
- Site development works & future trench workers
  - HSL D for vapour intrusion risk based on commercial land use;
  - Standard guidelines for assessing dermal contact risk; and
  - HIL D for assessing dust inhalation and soil ingestion risk
- Groundwater at the site is classified as Category B and PEV's need to be protected include Freshwater ecosystems. As the groundwater is not Category A, it is not considered a potable water source. Other PEV's needing to be protected including groundwater use for irrigation, stock watering and industrial purposes are not relevant to the site.

16.3 Soil Assessment

The following can be summarized:

- There were no vapour intrusion risks (PVI HSL) to site development workers, future land users and future trench workers;
- A soil ingestion and dust inhalation risk (HIL) and a dermal contact (HSL) risk has not been identified for site development workers, future land users and future trench workers; and
- EIL's were not exceeded, but given ESL's were exceeded for benzo(a)pyrene, management measures need to be put in place to manage offsite sediment transport from stormwater and vehicle trafficking.

16.4 Groundwater Assessment

The following can be summarized:

- Groundwater at the site did not exceed guidelines for assessing risk to freshwater ecosystems;
- Petroleum hydrocarbon concentrations are below threshold investigation limits for assessing petroleum vapour intrusion risk;
- Although not all hydrocarbon in [illegible] further vapour intrusion assessment is required given the basement [illegible] ventilation requirements; and
- Assessing offsite groundwater impact was not in the scope of works of this assessment. Onsite groundwater quality does not present an impediment to site development works.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikhb
Permit #: PLN-18-770
Date: 20/5/2019

16.5 Proposed Development Works

In summary, provided the recommendations herein are implemented, the following conclusions can be made:

- A risk to potential receptors has not been identified during and after development.
- All samples collected at the site are below threshold concentrations for assessing risk to human health;
- No particular health and safety issues are identified which may originate from onsite contamination activities;
- Other than advice provided within the recommendations section of this report, there are no specific remediation and protection measures required to be implemented before excavation commences;
- As a result of proposed site infilling, there is a very low human health risk to future users of the site; and
- GES advise that during site excavation works for site redevelopment, there is a low risk that site contamination will present an environmental risk.

17 RECOMMENDATIONS

GES recommends that a dust screen is placed around the site in conjunction with a general fence barrier to be erected.

A soil and water management plan is required to reduce the spread of onsite soils and water. Water should be collected and tested before it is discharged to the stormwater system.

Level 2 and 3 materials proposed to be excavated which require management were identified in fill and natural soils on the western corner of the site and near the former interceptor trap.

An excavation management plan is recommended to minimize the risk of contaminating clean Level 1 soil at the site which is proposed to be excavated. Additional soil sampling prior to excavation works is optional to further classify proposed material for disposal at a licensed landfill.

Yours faithfully,

Kris J Taylor BSc (Hons)

Environmental Geologist

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

18 REFERENCES

SEMF 2007 Heath Risk Assessment, City Cabs, 215-217 Harrington Street, Hobart. Dated 14 August 2007.

Coffey Environments 2007. Former City Cabs Site 215-217 Harrington Street, Hobart, Tasmania. Prepared for BSH Electrical Pty Ltd 213 Harrington Street Hobart, Tasmania 7000, 31 October 2007.

ANZECC, 1992. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand.

ANZECC, 2000. *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*. Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council.

AS/NZS 1726:1993. Geotechnical Site Investigations. Standards Australia, 1993.

AS 4482:2005 Guide to the sampling and investigation of potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds, Standards Australia, 2005.

AS/NZS 5667.1:1998 Water quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples, Standards Australia, 1998.

AS/NZS 5667.11:1998 Water quality – Sampling, Part 11: *Guidance on the sampling of groundwater*, Standards Australia, 1998.

CRC CARE 2013, Petroleum Petroleum Vapour Intrusion assessment: Australian guidance, CRC CARE Technical Report no. 23, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Merrick, NP & McLaughlan, RG 2006, Protocols and techniques for characterising sites with subsurface petroleum hydrocarbons – a review, Technical Report no. 2, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Patterson, BM & Trefry, MG 2009a, Biodegradation of petroleum hydrocarbon vapours, Technical Report no. 12, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Davis, GB, Wright, J & Patterson, BM 2009, Field assessment of vapours, CRC CARE Technical Report no. 13, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

Enrisks 2013. Review of Site Investigation Reports for 66 Regent Street, Sandy Bay. Environmental Risk Sciences. November 2013.

Freeze, R.A., and Cherry, J.A., 1979, Groundwater: Englewood Cliffs, NJ, Prentice-Hall, 604 p.

Friebel, E & Nadebaum, 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document', CRC for Contamination Assessment and Remediation of the Environment, CRC CARE Technical Report no. 10, Adelaide.

GES 2011. Environmental Site Assessment. 66 Regent Street, Sandy Bay. December 2011.

GES 2015. Remediation Goals Paper. 66 Regent Street, Sandy Bay. Geo-Environmental Solutions. Revised December 2015.

GES 2016. UST Decommissioning Report. 66 Regent Street, Sandy Bay. Geo-Environmental Solutions. October 2016.

MCRWBA 2012. Minimum Construction Requirements for Water Bores in Australia. National Uniform Drillers Licensing Committee. National Water Commission's Raising National Water Standards Program. Editing, design, and layout by Robee Bureau Services Pty Ltd, West Lakes, South Australia Printed by Doran Printing Pty Ltd, Braeside, Victoria.

NEPC, 1999. Guideline on Data Collection, Quality and Reporting Schedule B (2), National Environmental Protection Measure (Assessment of Site Contamination), National Environment Protection Council, 1999. Measure as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

NEPM, 1999.Guideline on Investigation Levels for Soil and Groundwater, Schedule B (1), National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 1999. Measures as amended, taking into account amendments up to National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)

NHMRC, 2004. National Water Quality Management Strategy; Australian Drinking Water Guidelines. National Health and Medical Research Council.

Queensland Government Natural Resources and Water 'Land Series' bulletin, Measuring Salinity. 2007. Managing Queensland's natural resources for today and tomorrow.

SGS, 2017: Waterloo Membrane Sampler *Installation Methodology.* SGS Environment, Health and Safety: www.sgs.com.au. 19 June 2017.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

LIMITATIONS STATEMENT

This monitoring Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and Chau Nominees Pty Ltd ('the Client'). To the best of GES's knowledge, the information presented herein represents the Client's requirements at the time of printing of the Report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that described in this Report. In preparing this Report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this Report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible soil and groundwater contaminant over the whole area of the site. Samples collected from the investigation area are assumed to be representative of the areas from where they were collected and indicative of the contamination status of the site at that point in time. The conclusions described within this report are based on these samples, the results of their analysis and an assessment of their contamination status.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third party.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Appendix 1 GES Staff

Geo-Environmental Solutions (GES) is a specialist geotechnical and environmental consultancy providing advice on all aspects of soils, geology, hydrology, and soil and groundwater contamination across a diverse range of industries.

Geo Environmental Solutions Pty Ltd:

- ACN – 115 004 834
- ABN – 24 115 004 834

GES STAFF - ENGAGED IN SITE INVESTIGATION WORKS

Dr John Paul Cumming B.Agr.Sc (Hons) Phd CPSS GAICD

- Principle Author and Principle Environmental Consultant
- PhD in Environmental Soil Chemistry from the University of Tasmania in 2007
- 12 years' experience in environmental contamination assessment and site remediation.

Ms Sarah Joyce BSc (Hons)

- Senior Environmental Scientist
- Honours in Geography and Environmental Science at the University of Tasmania in 2003;
- Undergraduate Degree Double Major in Geology and Geography & Environmental Science
- 15 years professional work experience and six years contaminated site assessment

Mr Kris Taylor Bsc (Hons)

- Senior Environmental & Engineering Geologist
- Honours in Environmental Geology at the University of Tasmania in 1998
- 15 years' experience in environmental contamination assessments and hydrogeology (including honours in mine site tailing pollution assessment)

Mr Grant McDonald (Adv. cert. hort.)

- Soil Technician
- 6 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

GES STAFF – CONTAMINATED SITES EXPERIENCE

Mr Aaron Plummer(Cert. IV)

- Soil Technician
- 3 years' experience in hydrocarbon and heavy metal contamination sampling of soils and groundwater.

Mr Mark Downie B.Agr.Sc (Hons)

- Soil Scientist
- 3 Year experience in contamination assessment and reporting of soils and groundwater.

Mr Sam Rees B.Agr.Sc (Phd)

- Soil & Environmental Scientist
- 6 years' experience in hydrocarbon and heavy metal contamination assessment and reporting of soils and groundwater.

Ms Robyn Doyle B.Agr.Sc (Hons)

- Soil & Environmental Scientist
- 3 Years' experience in contamination assessment and reporting of soils and groundwater.

Ms Peri Lucas B.Agr.Sc (Hons)

- Soil Scientist
- 1 Year experience in contamination assessment and reporting of soils and groundwater.

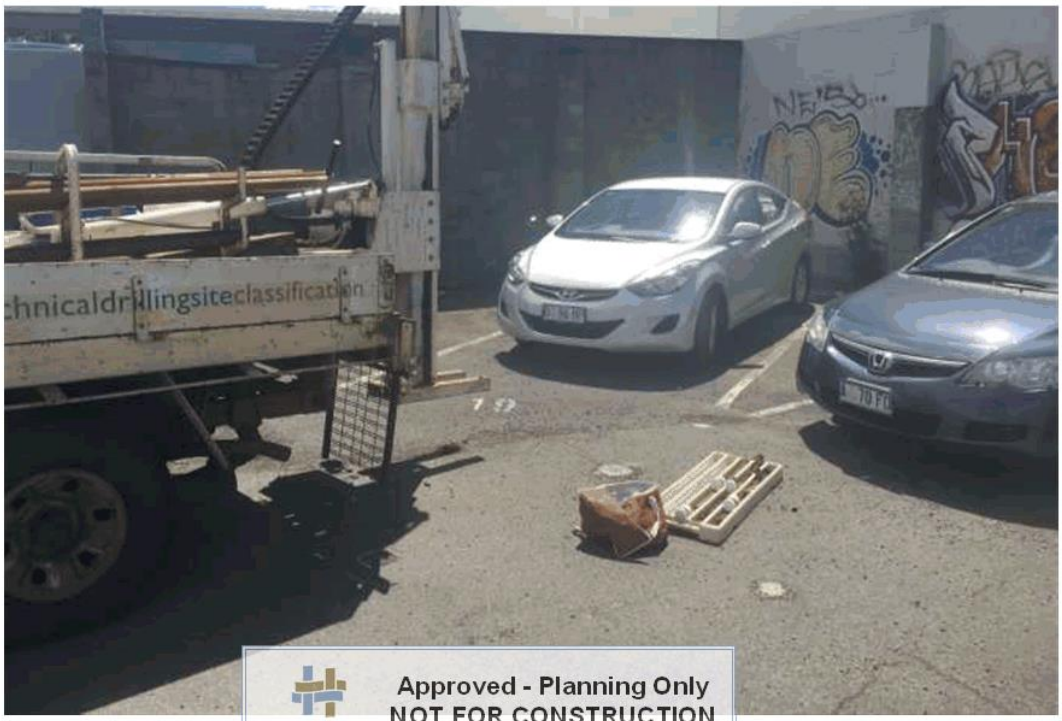
City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Appendix 2 Site Photographs

View of the former City Cabs Carpark From Harrington Street

Small Carpark Fronting on Patrick Street

Small Yard Servicing The Side Entry Door



Northern Corner of the Former City Cabs Site

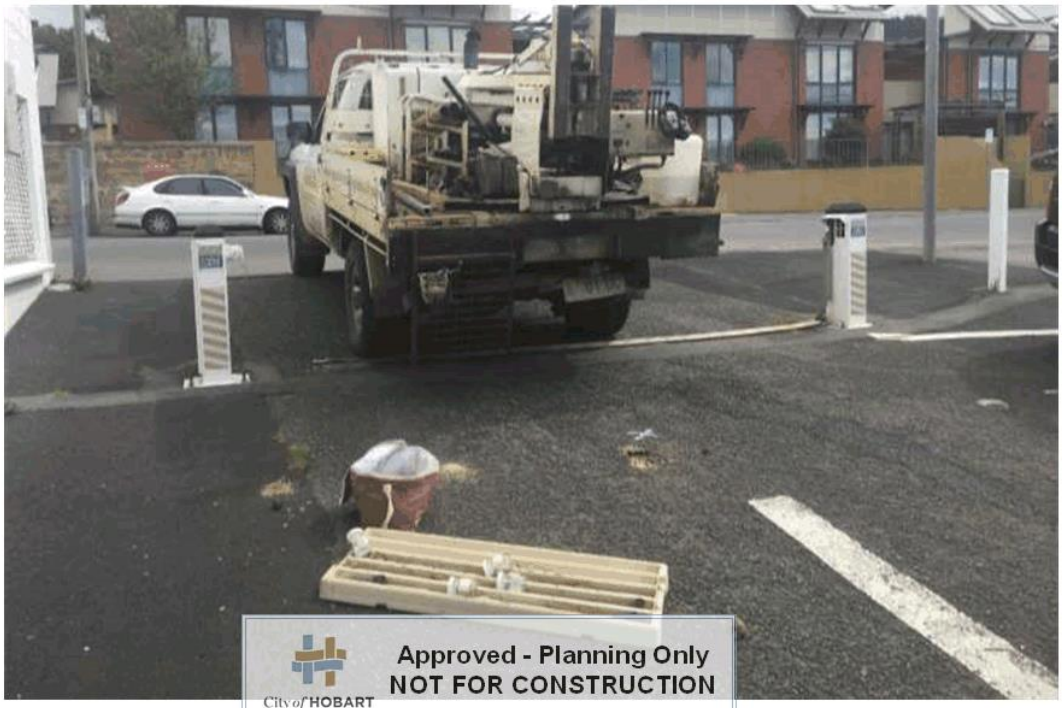
City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Northern Corner of the Former City Cabs Site

Western Corner and Street Frontage of the Former City Cabs Site

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Norther End of the Former City Cabs Call Centre Building

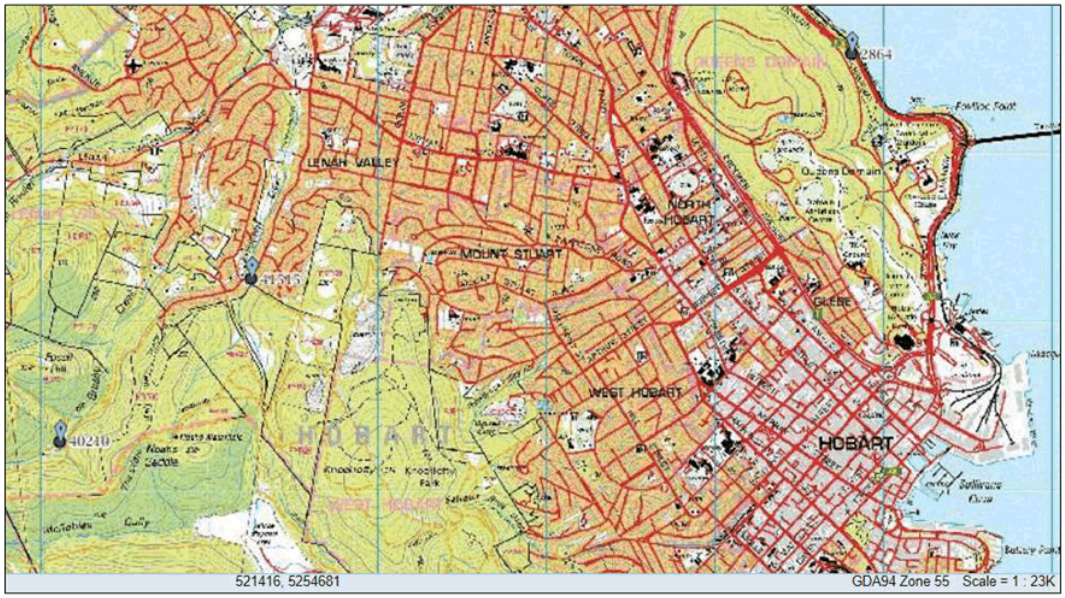


Entrance to The Existing Carpark

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

View to the Northwest through to the Northeast From the Centre of the Former City Cabs Site

Appendix 3 Registered Water Bore Database



Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Groundwater Feature Detailed Report

Identification

Feature id: 2864 **Feature type:** Bore

Location

Locality: Hobart
Easting: 526814 **Datum:** GDA94
Northing: 5254583 **Accuracy:** 200
Ground level (m ASL):

Construction

Date drilled: 21/02/1983
Drilling company: Mines Department (=Tasmania Department of Mines)
Depth (metres): 54.00
Initial yield (L/sec): 0.23
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	54.0	54.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	3.0	soil and boulders
3.0	54.0	dolerite

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
21/02/1983	40.0		0.23

Main aquifer geology: Jurassic Dolerite
Final TDS (mg/L): 1800

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

03/07/2017 Page 1

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Groundwater Feature Detailed Report

Current status

Last recorded statuses

Type	Value	Date recorded
function	Unknown	21/02/1983

03/07/2017 Page 2

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Groundwater Feature Detailed Report

Identification

Feature id: 40210 **Feature type:** Bore

Location

Locality: Lenah Valley
Easting: 522117 **Datum:** GDA94
Northing: 5252281 **Accuracy:** 25
Ground level (m ASL):

Construction

Date drilled: 20/10/2010
Drilling company: Gerald Spaulding Drillers Pty Ltd
Depth (metres): 54.00
Initial yield (L/sec):
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
3.0	54.0	178.00	Downhole Hammer (Rotary Hammer)
0.0	3.0	212.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	1.0	Top soil
1.0	15.0	Clay & mudstone shale
15.0	42.0	Limestone grey
42.0	54.0	Dolerite white

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Permian
Final TDS (mg/L):

03/07/2017 Page 3

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Groundwater Feature Detailed Report

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	20/10/2010

03/07/2017

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Page 4

Groundwater Feature Detailed Report

Identification

Feature id: 41515 **Feature type:** Bore

Location

Locality: Lenah Valley
Easting: 523252 **Datum:** GDA94
Northing: 5253248 **Accuracy:** 2
Ground level (m ASL):

Construction

Date drilled: 05/03/2015
Drilling company: KMR Drilling Pty Ltd
Depth (metres): 48.00
Initial yield (L/sec): 1.00
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	0.5	225.00	Downhole Hammer (Rotary Hammer)
0.5	48.0	171.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	0.5	185.00	200.00	"unplasticised polyvinylchloride uPVC, Class 9"
0.0	36.0	132.00	140.00	unplasticised polyvinylchloride uPVC
46.0	48.0	132.00	140.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
36.0	46.0	slotted casing

Seals

From (m)	To (m)	Material type
0.0	0.6	cement

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	0.5	Soil Clay
0.5	48.0	Triassic

03/07/2017 Page 5

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Groundwater Feature Detailed Report

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
05/03/2015	39.0	39.0	0.30
05/03/2015	45.0	45.0	0.75
05/03/2015	48.0	48.0	1.00

Main aquifer geology: Triassic
Final TDS (mg/L): 1700

Standing Water Levels

Standing water levels

Date	SWL (metres)
05/03/2015	8.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	05/03/2015
purpose	domestic garden	05/03/2015

03/07/2017

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Page 6

Appendix 4 Equipment (PID Meter) Calibration Certificates

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration and Service Report – PID

Company:	Geo-Environmental Solutions	**Manufacturer:**	RAE	**Serial #:**	590-902123
Contact:	John-Paul Cumming	**Instrument:**	MINIRAE LITE SN: 590-902123	**Asset #:**	
Address:	86 Queen Street SANDY BAY, TAS	**Model:**	MiniRAE Lite	**Part #:**	-
		Configuration:	VOC	**Sold:**	04.09.2012
		Wireless:	-	**Last Cal:**	18.02.2014
Phone:	03 6223 1839	**Network ID:**	-	**Job #:**	35744
Fax:	03 6223 4539	**Unit ID:**	-	**Cal Spec:**	Standard
Email:	jcumming@geosolutions.net.au	**Details:**	-	**Order #:**	EFT

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	P		
	Cradle, Travel Charger	P		
Pump	Flow	P		
Filter	Filter, fitting, etc	F	Replaced	
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P		
Datalogger	Operation	P		
Monitor Housing	Condition	P		
Case	Condition / Type	P		
Sensors		P		
PID	Sensor	P	Replaced	
PID	Lamp	P		
THP	THP	P		

Engineer's Report

Service and calibration. Found SUnit is moisture sensitive due to corroded PID sensor. Replace sensor. Replace metal filter.Clean pump and adjust stall settings. Check PC communications, configuration settings and data download. Test sensor response-OK- unit is not moisture sensitive. Fit new inlet filter. Calibrate.

Melbourne	**Head Office**	2 Merchant Avenue	THOMASTOWN VIC 3074	T: +(613) 9464 2300	F:+ (613) 9464 3421
Sydney	S14 Lvl 2	6-8 Holden Street	ASHFIELD NSW 2131	T: +(612) 9716 5966	F:+ (612) 9716 5988
Perth	Unit 6	41 Holder Way	MALAGA WA 6090	T: +(618) 9249 5663	F:+ (618) 9249 5362
Brisbane	Unit 17	23 Ashtan Place	BANYO QLD 4014	T: +(617) 3267 1433	F:+ (617) 3267 3559

sales@aesolutions.com.au ISO Certified 9001:2008 www.aesolutions.com.au

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6eV	1062N322047	Isobutylene	100ppm	S110317-1		0	100

Calibrated/Repaired by: MATTHEW WEIGHT Date: 21.06.2017 Next Due: 21.12.2017

Melbourne	**Head Office**	2 Merchant Avenue	THOMASTOWN VIC 3074	T: +(613) 9464 2300	F: + (613) 9464 3421
Sydney	S14 Lvl 2	6-8 Holden Street	ASHFIELD NSW 2131	T: +(612) 9716 5966	F: + (612) 9716 5988
Perth	Unit 6	41 Holder Way	MALAGA WA 6090	T: +(618) 9249 5663	F: + (618) 9249 5362
Brisbane	Unit 17	23 Ashtan Place	BANYO QLD 4014	T: +(617) 3267 1433	F: + (617) 3267 3559

sales@aesolutions.com.au ISO Certified 9001:2008 www.aesolutions.com.au

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Appendix 5 Laboratory Chain of Custody (COC)

CHAIN OF CUSTODY

ALS Laboratory: please tick →

Sydney | Brisbane | Melbourne | Perth | Newcastle | Townsville | Adelaide | Launceston

FREIGHT

CLIENT:	Geo-Environemtnal Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	86 Queen Street Sandy Bay		
PROJECT:	215-217 Harrington Street (H'Ton)	ALS QUOTE NO.:	N/A
ORDER NUMBER:			COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
PROJECT MANAGER:	Sarah Joyce	CONTACT PH: 0438 255 259	
SAMPLER:	Sarah Joyce	SAMPLER MOBILE: 0438255259	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	
Email Reports to:	jcumming@geosolutions.net.au, sjoyce@geosolutions.net.au & PM		
Email Invoice to:	jcumming@geosolutions.net.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Sarah Joyce			Marn (ALS CO-00)
DATE/TIME: 25/9/17	DATE/TIME:	DATE/TIME:	DATE/TIME: 26/9

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID (SAMPLE DETAILS, MATRIX: Solid(S) Water(W))	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TRH/TPH/PAH	BTEXN	Lead					Additional Information
1	CC1 ✓	25/09/2017	W			X	X	X					
2	CC2 ✓	25/09/2017	W			X	X	X					
	~~CC3~~	~~25/09/2017~~	~~W~~			~~X~~	~~X~~	~~X~~					
3	CC4 ✓	25/09/2017	W			X	X	X					
	~~CC5~~	~~25/09/2017~~	~~W~~			~~X~~	~~X~~	~~X~~					
4	Duplicate (Dup 1)	25/09/2017	W			X	X	X					
5	Rinse Blank	25/09/2017	W			X	X						
				TOTAL									

Environmental Division Melbourne
Work Order Reference
EM1713195

Telephone : + 61-3-9549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

CHAIN OF CUSTODY

ALS Laboratory: please tick →

★ **FREIGHT**

CLIENT:	Geoenvironmental Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005		
PROJECT:	Harrington St (H'Ton)	ALS QUOTE NO.:	N/A
ORDER NUMBER:			COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
PROJECT MANAGER:	Sarah Joyce	CONTACT PH: 0438255259	
SAMPLER:		SAMPLER MOBILE:	
COC emailed to ALS? (YES / (NO))		EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au		
Email Invoice to:	jcumming@geosolutions.net.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 26/9/17	DATE/TIME:	DATE/TIME:	DATE/TIME: 27/9 9.05

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

SAMPLE DETAILS MATRIX: Solid(S) Water(W)				CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (full filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					Hold	Extract & Hold	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	CC6	26/9/17	W	2V, 1P, 1Amber	4	✓	✓							
					TOTAL									

Environmental Division
Melbourne
Work Order Reference
EM1713260

Telephone : + 61-3-8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

CHAIN OF CUSTODY

ALS Laboratory: please tick →

Sydney | Brisbane | Melbourne | Newcastle | Townsville | Adelaide | Launceston

URGENT

CLIENT:	Geoenvironmental Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date): 3 DAY TAT
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005		
PROJECT:	Harrington street	ALS QUOTE NO.:	N/A
ORDER NUMBER:			COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
PROJECT MANAGER:	Sarah Joyce	CONTACT PH: 0438255259	
SAMPLER:	Grant	SAMPLER MOBILE:	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au		
Email Invoice to:	jcumming@geosolutions.net.au; miran@geosolutions.net.au; sjoyce@geosolutions.net.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 1·11·17 1500	DATE/TIME:	DATE/TIME:	DATE/TIME: 3/11 9-30

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					Hold	Cancel & Hold	Additional Information
1	BH01 1·5-1·6	31·10·17 1130	S	1 Soil Jar	1	✓	✓							
2	BH01 2·5-2·6	1135	S		1	✓	✓							
3	BH01 2·7-2·8	1140	S		1	✓	✓							
4	BH02 0·7-0·8	1150	S		1	✓	✓							
5	BH02 1·5-1·6	1155	S		1	✓	✓							
6	BH02 2·5-2·6	1200	S		1	✓	✓							
7	BH02 2·7-2·8	1205	S		1	✓	✓							
8	BH03 0·5-0·6	1220	S		1	✓	✓							
9	BH03 1·5-1·6	1230	S		1	✓	✓							
10	BH03 2·5-2·6	1237	S		1	✓	✓							
11	BH03 2·7-2·8	1247	S		1	✓	✓							
12	BH04 0·5-0·6	1300	S		1	✓	✓							
				TOTAL										

Environmental Division
Melbourne
Work Order Reference
EM1715132

Telephone : - 61-3 8549 9600

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	Geoenvironmental Solutions
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005
PROJECT:	HARRINGTON ST
ORDER NUMBER:	
PROJECT MANAGER:	Sarah Joyce
CONTACT PH:	0438255259
SAMPLER:	Grant
SAMPLER MOBILE:	
COC emailed to ALS? (YES / (NO))	
EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au
Email Invoice to:	jcumming@geosolutions.net.au, miran@geosolutions.net.au, sjoyce@geosolutions.net.au

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

★ Standard TAT (List due date):

☐ Non Standard or urgent TAT (List due date): 3 DAY TAT

ALS QUOTE NO.: N/A

COC SEQUENCE NUMBER (Circle)

COC: 1 (2) 3 4 5 6 7

OF: 1 2 (3) 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 1·11·17 1500	DATE/TIME:	DATE/TIME:	DATE/TIME: 3/11 9-50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					HAH	Extract & Hold	Additional Information: Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	BH04 1.5-1.6	31.10.17 1307	S	[illegible] / Soil Jar		✓	✓							
14	BH04 2.5-2.6	1317				✓	✓							
15	BH04 2.9-3.0	1325				✓	✓							
16	BH05 0.5-0.6	1340				✓	✓							
17	BH05 1.5-1.6	1348				✓	✓							
18	BH05 2.5-2.6	1356				✓	✓					[illegible]		
19	BH05 3.6-3.7	1405				✓	✓							
20	BH06 0.5-0.6	1420				✓	✓							
21	BH06 1.5-1.6	1430				✓	✓							
22	BH06 2.4-2.5	1437				✓	✓							
23	BH07 0.5-0.6	1450				✓	✓							
24	BH07 1.5-1.6	1459				✓	✓							
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	Geoenvironmental Solutions	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	★ Standard TAT (List due date): 3 Day TAT
OFFICE:	86 Queen Street, Sandy Bay, Hobart Tas, 7005		✓ Non Standard or urgent TAT (List due date):
PROJECT:	HARRINGTON ST	ALS QUOTE NO.:	N/A
ORDER NUMBER:			COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
PROJECT MANAGER:	Sarah Joyce	CONTACT PH: 0438255259	
SAMPLER:	Ciraud	SAMPLER MOBILE:	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	
Email Reports to:	sjoyce@geosolutions.net.au jcumming@geosolutions.net.au		
Email Invoice to:	jcumming@geosolutions.net.au; miran@geosolutions.net.au; sjoyce@geosolutions.net.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 31·10·17 1500	DATE/TIME:	DATE/TIME:	Miran (ALS) DATE/TIME: 3/11 9-50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

SAMPLE DETAILS MATRIX: Solid(S) Water(W)				CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals					Hold	Extract & Hold	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
25	BH07 2.5-2.6	31·10·17 1515	S	1 Soil Jar		✓	✓							
26	BH07 2.8-2.9	1526										✓		
27	BH08 0.5-0.6	1545										✓		Brick
28	BH08 1.5-1.6	1551				✓	✓							
29	BH08 2.5-2.6	1559										✓		
30	BH08 3.4-3.5	1607				✓	✓							
31	Rinsate 1	31·10·17 1620	W	1P, 2V, 1A		✓	✓							
32	BH09 0.5-0.6	1625	S	1 Soil Jar		✓	✓							
33	BH09 1.5-1.6	1630				✓	✓							
34	BH09 2.5-2.6	1640				✓	✓							
35	BH09 2.9-3.0	1645				✓	✓							
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Appendix 5 Laboratory Chain of Custody (COC)

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

CHAIN OF CUSTODY

ALS Laboratory: please tick ✓

CLIENT: GEOENVIRONMENTAL SOLUTIONS
OFFICE:
PROJECT: HARRINGTON STREET PROJECT NO.:
ORDER NUMBER: PURCHASE ORDER NO.:
PROJECT MANAGER: CONTACT PH:
SAMPLER: SAMPLER MOBILE:
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed):
Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)
☐ Standard TAT (List due date):
☐ Non Standard or urgent TAT (List due date):
ALS QUOTE NO.:
COUNTRY OF ORIGIN:

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
SOC: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free ice / frozen ice bricks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, identify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	Extra Samples:													
36	Dup 1	31/10/17												
37	Dup 2	31/10/17												
					TOTAL									

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide/Cd Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl preserved Plastic, HS = HCl preserved Speciation bottle, SP = Sulfuric Preserved Plastic, F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottles, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag, LI = Lignin Iodine Preserved Bottles, STT = Sterile Sodium Thiosulfate Preserved Bottles

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

ALS Sydney

CHAIN OF CUSTODY

CLIENT: [redacted]
OFFICE: [redacted] Tas, 7005
PROJECT: [redacted]
ORDER: [redacted]
CONTACT PH: 0438255259
SAMPLER MOBILE:
EDD FORMAT (or default):
EMAIL: [redacted]@geosolutions.net.au
EMAIL: [redacted]@geosolutions.net.au, sjoyce@geosolutions.net.au
CONTACT: [redacted]

TURNAROUND REQUIREMENTS: Standard TAT (List due date): 3 Day Turn Around
(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) Non Standard or urgent TAT (List due date):
ALS QUOTE NO.: N/A
COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7; OF: 1 2 3 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 1-11-17 1500	DATE/TIME: 3/11 9-50	DATE/TIME:	DATE/TIME: 7/11/17 12:30

SAMPLE DETAILS (Solid(S) Water(W))

		DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	TPH/BTEX/PAH	15 Metals							Additional Information
1	[redacted]	31-10-17 1405	S	1 Soil Jar	1	✓	✓							
2	[redacted]	1551	S	1	1	✓	✓							
		* PLEASE FORWARD FOR TRIPLICATE ANALYSIS *												
					TOTAL									

TAT

Environmental Division Sydney
Work Order Reference
ES1727873

Telephone: + 61-2-8784 8555

Appendix 5 Laboratory Chain of Custody (COC) 82

Appendix 6 Quality Control

Duplicate Comparrison		EG005T: Total Metals by ICP-AES												EG035T	EP075(SIM)B: Polyr	
		Arsenic	Barium	Beryllium	Cadmium	Chromium Total	Cobalt	Copper	Lead	Manganese	Nickel	Vanadium	Zinc	Mercury	Naphthalene	Acenaphthylene
31/10/2017	TRIPLICATE 1	<5	120	<1	<1	19	24	40	9	424	24	70	44	<0.1	<0.5	<0.5
31/10/2017	BH01 1.5-1.6	<5	90	<1	<1	16	16	22	12	456	12	66	32	<0.1	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	28.6	NA	NA	17.1	40.0	58.1	28.6	7.3	66.7	5.9	31.6	NA	NA	NA
Method Detection Limit (MDL)		NA	200	NA	NA	40	40	100	100	>500	40	500	100	NA	NA	NA
MDL Class		NONE	LOW	NONE	NONE	LOW	LOW	LOW	LOW	HIGH	LOW	MED	LOW	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	21	NONE	NONE	33	10	-8	21	8	-17	44	18	NONE	NONE	NONE
31/10/2017	TRIPLICATE 2	<5	140	<1	<1	13	10	25	10	78	13	68	20	<0.1	<0.5	<0.5
31/10/2017	BH06 0.5-0.6	<5	90	<1	<1	16	19	21	10	85	18	60	31	<0.1	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	43.5	NA	NA	20.7	62.1	17.4	0.0	8.6	32.3	12.5	43.1	NA	NA	NA
Method Detection Limit (MDL)		NA	200	NA	NA	40	40	100	100	500	40	100	100	NA	NA	NA
MDL Class		NONE	LOW	NONE	NONE	LOW	LOW	LOW	LOW	MED	LOW	LOW	LOW	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	7	NONE	NONE	29	-12	33	50	21	18	38	7	NONE	NONE	NONE

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Duplicate Comparrison		Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Sum of polycyclic aromatic hydro	Benzo(a)pyrene TEQ (WHO)
31/10/2017	TRIPLICATE 1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH01 1.5-1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Method Detection Limit (MDL)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MDL Class		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
31/10/2017	TRIPLICATE 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
31/10/2017	BH06 0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Relative Percentage Difference (RPD) %		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Method Detection Limit (MDL)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MDL Class		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
RPD Compliance With MDL?		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Deviation from MDL (%)		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Date Collected	Water Sample	Benzene	Toluene	Ethyl-benzene	Xylene			BTEX Total	Napth-alene	TPH Carbon Chain Fractions					Metal
					M, P	O	Total			6 - 9	10 - 14	15 - 28	29 - 36	10 - 36	Pb
Blanks															
25/09/2017	Rinse Blank	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	----
Groundwater Splits - Fixed RPD Method															
25/09/2017	Duplicate	<1	<2	<2	<2	<2	<2	<1	<5	140	<50	<100	<50	<50	<0.001
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	<0.001
RPD		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
25/09/2017	CC1	<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	<0.001
RPD		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Date Collected	Water Sample	Benzene	Toluene	Ethyl-benzene	Xylene			BTEX Total	Napth-alene	TPH Carbon Chain Fractions					Metal
					M, P	O	Total			6 - 9	10 - 14	15 - 28	29 - 36	10 - 36	Pb
Groundwater Splits - MDL Method															
Mean Detection Limit		<1	<2	<2	<2	<2	<2	<1	<5	<20	<50	<100	<50	<50	0.001
Duplicate															
Level Calculation		NONE	NONE	NONE	NONE	NONE	NONE		NONE	LOW	NONE	NONE	NONE	NONE	NONE
Compliance?		**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**FALSE**	**YES**	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**
Triplicate															
Hide This Row															
Hide This Row		1	2	2	2	2	2	0	5	20	50	100	50	50	<0.001
Level Calculation		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Compliance?		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: EM1715132	Page	: 1 of 17
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: SARAH JOYCE	Contact	: Shirley LeComu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: Harrington Street	Date Samples Received	: 03-Nov-2017
Order number	: ----	Date Analysis Commenced	: 03-Nov-2017
C-O-C number	: ----	Issue Date	: 09-Nov-2017
Sampler	: Grant		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 37		
No. of samples analysed	: 32		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 17
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1220163)									
EM1715130-034	Anonymous	EA055: Moisture Content	----	1	%	8.9	9.1	1.77	No Limit
EM1715132-010	BH03 2.5-2.6	EA055: Moisture Content	----	1	%	21.9	21.2	2.95	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1220164)									
EM1715132-020	BH06 0.5-0.6	EA055: Moisture Content	----	1	%	20.1	19.9	0.777	0% - 20%
EM1715132-034	BH09 2.5-2.6	EA055: Moisture Content	----	1	%	16.2	16.1	0.00	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1220251)									
EM1715132-004	BH02 0.7-0.8	EG005T: Lead	7439-92-1	5	mg/kg	875	# 286	101	0% - 20%
EM1715118-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	270	260	0.00	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	35	36	0.00	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	48	51	6.23	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	21	22	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	22	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	52	50	4.67	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	389	386	0.794	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	85	82	4.08	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	46	47	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	322	323	0.390	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	120	130	12.6	0% - 50%

Page : 3 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG005T: Total Metals by ICP-AES (QC Lot: 1220251) - continued									
EM1715132-004	BH02 0.7-0.8	EG005T: Chromium	7440-47-3	2	mg/kg	15	15	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	23	22	4.92	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	24	26	5.53	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	14	29.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	56	54	3.78	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	446	429	3.84	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	73	70	4.01	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	83	82	1.92	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1220253)									
EM1715132-015	BH04 2.9-3.0	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	24	21.4	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	27	21	22.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	26	26	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	33	39	15.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	8	26.6	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	142	170	18.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	63	79	22.6	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	52	44	16.0	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	60	60	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	16	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	18	17	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	18	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	26	26	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.00	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	79	83	4.85	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	63	58	8.09	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	39	37	4.44	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1220252)									

Page : 4 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1220252) - continued									
EM1715118-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.9	1.1	21.7	0% - 50%
EM1715132-004	BH02 0.7-0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.8	0.8	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1220254)									
EM1715132-015	BH04 2.9-3.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1220226)									
EM1715132-001	BH01 1.5-1.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1715132-011	BH03 2.7-2.8	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page : 5 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1220228)									
EM1715121-020	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220108)									
EM1715130-001	Anonymous	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220109)									
EM1715132-014	BH04 2.5-2.6	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP080: C6 - C9 Fraction	---	10	mg/kg	<10	<10	0.00	No Limit

Page : 6 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220227)									
EM1715132-001	BH01 1.5-1.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-011	BH03 2.7-2.8	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220229)									
EM1715121-020	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220108)									
EM1715130-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220109)									
EM1715132-014	BH04 2.5-2.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220227)									
EM1715132-001	BH01 1.5-1.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-011	BH03 2.7-2.8	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220229)									
EM1715121-020	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Page : 7 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220229) - continued									
EM1715132-024	BH07 1.5-1.6	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1220108)									
EM1715130-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1715132-004	BH02 0.7-0.8	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1220109)									
EM1715132-014	BH04 2.5-2.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1715132-024	BH07 1.5-1.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1222778)									
EM1715132-031	Rinsate 1	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Page : 8 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1222778) - continued									
EM1715132-031	Rinsate 1	EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1715165-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.059	0.062	4.10	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.032	0.031	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.05	0.05	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.09	0.09	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1222779)									
EM1715132-031	Rinsate 1	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1715165-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1220557)									
EM1715160-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1222454)									
EM1715121-030	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1715196-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1220557)									
EM1715160-004	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1222454)									
EM1715121-030	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit

Page : 9 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1222454) - continued									
EM1715196-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1222454)									
EM1715121-030	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1715196-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Page : 10 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1220251)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.3	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	89.9	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	105	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	102	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	91.3	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	99.0	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	91.8	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	89.6	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	99.3	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.1	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	94.1	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	92.1	82	111
EG005T: Total Metals by ICP-AES (QCLot: 1220253)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.0	79	113
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	93.9	79	110
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	106	85	120
EG005T: Boron	7440-42-8	50	mg/kg	<50	33.2 mg/kg	102	82	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.4	85	109
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.5	83	109
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	102	78	112
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	94.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.2	78	106
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	102	82	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.7	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	96.6	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	94.2	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220252)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	95.0	77	104
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220254)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.1	77	104
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220226)								

Page : 11 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220226) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	97.6	80	121
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	85.0	70	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	107	80	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	108	70	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	110	80	122
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	121	80	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	116	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	120	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	104	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	111	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	101	70	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	107	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	90.5	65	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	83.8	65	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	84.4	65	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	77.5	65	127
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220228)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	109	80	121
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	118	70	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	112	80	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	120	70	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	116	80	122
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	116	80	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	118	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	120	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	119	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	115	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	112	70	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	111	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	99.2	65	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	99.2	65	128
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	107	65	126
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	89.8	65	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220108)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	36 mg/kg	82.9	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220109)								

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 12 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220109) - continued								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	98.5	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220227)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	98.2	65	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	101	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	96.7	70	122
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220229)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	117	65	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	119	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	120	70	122
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220108)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	80.1	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220109)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	96.7	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220227)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	98.4	68	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	101	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	99.2	38	132
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220229)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	118	68	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	116	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	119	38	132
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1220108)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	86.6	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	90.2	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	84.7	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	89.7	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	93.7	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	91.2	66	130
EP080: BTEXN (QCLot: 1220109)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	95.7	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	97.3	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	96.9	73	125

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 13 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP080: BTEXN (QCLot: 1220109) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	98.3	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	101	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	90.0	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1222778)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.0	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.3	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100.0	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.5	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.9	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.8	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	95.4	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.4	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.4	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	97.1	84	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1222779)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	85.2	81	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220559)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	62.5	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.7	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	71.4	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	79.9	51	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.3	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	2.5 µg/L	68.0	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	92.4	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	85.4	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	85.8	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	91.5	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	92.5	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	94.9	57	126

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 14 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220559) - continued								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	88.8	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	92.8	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	92.0	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	92.2	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220557)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	82.1	53	123
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	93.6	57	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	93.1	55	141
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1222454)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	109	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220557)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	87.1	54	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	92.6	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	95.1	51	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1222454)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	105	65	125
EP080: BTEXN (QCLot: 1222454)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	109	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	110	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	111	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	111	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	116	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.5	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1220251)							
EM1715121-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	106	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	108	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	102	79	121

Page : 15 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1220251) - continued							
EM1715121-003	Anonymous	EG005T: Copper	7440-50-8	50 mg/kg	110	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	96.1	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	97.7	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	94.8	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	98.8	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	105	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	95.0	74	128
EG005T: Total Metals by ICP-AES (QCLot: 1220253)							
EM1715132-016	BH05 0.5-0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	105	78	124
		EG005T: Barium	7440-39-3	50 mg/kg	95.3	71	135
		EG005T: Beryllium	7440-41-7	50 mg/kg	105	85	125
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	95.8	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	94.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Manganese	7439-96-5	50 mg/kg	# Not Determined	68	136
		EG005T: Nickel	7440-02-0	50 mg/kg	96.0	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	91.6	71	125
		EG005T: Vanadium	7440-62-2	50 mg/kg	93.5	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	83.1	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220252)							
EM1715121-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	100	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1220254)							
EM1715132-016	BH05 0.5-0.6	EG035T: Mercury	7439-97-6	5 mg/kg	91.0	76	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220226)							
EM1715132-002	BH01 2.5-2.6	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	116	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	121	52	148
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1220228)							
EM1715121-021	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	107	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	120	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220108)							
EM1715130-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	89.5	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220109)							
EM1715132-015	BH04 2.9-3.0	EP080: C6 - C9 Fraction	----	28 mg/kg	86.4	42	131

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 16 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220227)							
EM1715132-003	BH01 2.7-2.8	EP071: C10 - C14 Fraction	----	806 mg/kg	95.4	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	98.4	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	93.5	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220229)							
EM1715121-022	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	113	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	110	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	103	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220108)							
EM1715130-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	85.4	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220109)							
EM1715132-015	BH04 2.9-3.0	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	83.8	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220227)							
EM1715132-003	BH01 2.7-2.8	EP071: >C10 - C16 Fraction	----	1160 mg/kg	95.9	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	97.9	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	93.2	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220229)							
EM1715121-022	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	113	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	108	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	101	44	126
EP080: BTEXN (QCLot: 1220108)							
EM1715130-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	92.3	50	136
		EP080: Toluene	108-88-3	2 mg/kg	92.3	56	139
EP080: BTEXN (QCLot: 1220109)							
EM1715132-015	BH04 2.9-3.0	EP080: Benzene	71-43-2	2 mg/kg	122	50	136
		EP080: Toluene	108-88-3	2 mg/kg	118	56	139

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1222778)							
EM1715132-031	Rinsate 1	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	96.1	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	104	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	96.4	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	99.6	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	94.0	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	95.8	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.4	76	130

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 17 of 17
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1222778) - continued							
EM1715132-031	Rinsate 1	EG020A-F: Lead	7439-92-1	0.2 mg/L	94.3	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	95.0	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.4	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	95.4	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.4	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1222779)							
EM1715163-037	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	92.6	70	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1220557)							
EM1715160-004	Anonymous	EP071: C10 - C14 Fraction	----	3368 µg/L	87.6	50	130
		EP071: C15 - C28 Fraction	----	14735 µg/L	101	54	136
		EP071: C29 - C36 Fraction	----	7856 µg/L	101	50	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1222454)							
EM1715132-031	Rinsate 1	EP080: C6 - C9 Fraction	----	280 µg/L	96.9	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1220557)							
EM1715160-004	Anonymous	EP071: >C10 - C16 Fraction	----	5225 µg/L	93.1	50	128
		EP071: >C16 - C34 Fraction	----	19994 µg/L	99.8	50	150
		EP071: >C34 - C40 Fraction	----	1449 µg/L	103	51	159
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1222454)							
EM1715132-031	Rinsate 1	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	93.2	44	122
EP080: BTEXN (QCLot: 1222454)							
EM1715132-031	Rinsate 1	EP080: Benzene	71-43-2	20 µg/L	109	68	130
		EP080: Toluene	108-88-3	20 µg/L	112	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1715132**	Page	: 1 of 12
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: SARAH JOYCE	Telephone	: +61-3-8549 9630
Project	: Harrington Street	Date Samples Received	: 03-Nov-2017
Site	: ----	Issue Date	: 09-Nov-2017
Sampler	: Grant	No. of samples received	: 37
Order number	: ----	No. of samples analysed	: 32

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 12
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	EM1715132--004	BH02 0.7-0.8	**Lead**	7439-92-1	101 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1715132--016	BH05 0.5-0.6	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1715132--016	BH05 0.5-0.6	**Manganese**	7439-96-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	1	17	5.88	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Page : 3 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	----	----	----	03-Nov-2017	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	03-Nov-2017	29-Apr-2018	✓	03-Nov-2017	29-Apr-2018	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Page : 4 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**03-Nov-2017**	28-Nov-2017	✓	**03-Nov-2017**	28-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**06-Nov-2017**	14-Nov-2017	✓	**06-Nov-2017**	16-Dec-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Page : 5 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	03-Nov-2017	14-Nov-2017	✓	03-Nov-2017	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
Soil Glass Jar - Unpreserved (EP071)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	16-Dec-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Page : 6 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**03-Nov-2017**	14-Nov-2017	✓	**03-Nov-2017**	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								
Soil Glass Jar - Unpreserved (EP071)								
BH01 1.5-1.6,	BH01 2.5-2.6,	**31-Oct-2017**	**06-Nov-2017**	14-Nov-2017	✓	**06-Nov-2017**	16-Dec-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Page : 7 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BH01 1.5-1.6,	BH01 2.5-2.6,	31-Oct-2017	03-Nov-2017	14-Nov-2017	✓	03-Nov-2017	14-Nov-2017	✓
BH01 2.7-2.8,	BH02 0.7-0.8,							
BH02 1.5-1.6,	BH02 2.5-2.6,							
BH02 2.7-2.8,	BH03 0.5-0.6,							
BH03 1.5-1.6,	BH03 2.5-2.6,							
BH03 2.7-2.8,	BH04 0.5-0.6,							
BH04 1.5-1.6,	BH04 2.5-2.6,							
BH04 2.9-3.0,	BH05 0.5-0.6,							
BH05 1.5-1.6,	BH05 2.5-2.6,							
BH05 3.6-3.7,	BH06 0.5-0.6,							
BH06 1.5-1.6,	BH06 2.4-2.5,							
BH07 0.5-0.6,	BH07 1.5-1.6,							
BH07 2.5-2.6,	BH08 1.5-1.6,							
BH08 3.4-3.5,	BH09 0.5-0.6,							
BH09 1.5-1.6,	BH09 2.5-2.6,							
BH09 2.9-3.0								

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)							
Rinsate 1	31-Oct-2017	----	----	----	08-Nov-2017	29-Apr-2018	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)							
Rinsate 1	31-Oct-2017	----	----	----	06-Nov-2017	28-Nov-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
Rinsate 1	31-Oct-2017	06-Nov-2017	07-Nov-2017	✓	08-Nov-2017	16-Dec-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate 1	31-Oct-2017	06-Nov-2017	07-Nov-2017	✓	08-Nov-2017	16-Dec-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate 1	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	14-Nov-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Rinsate 1	31-Oct-2017	06-Nov-2017	07-Nov-2017	✓	08-Nov-2017	16-Dec-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate 1	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	14-Nov-2017	✓

Page : 8 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Rinsate 1	31-Oct-2017	06-Nov-2017	14-Nov-2017	✓	06-Nov-2017	14-Nov-2017	✓

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 9 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	31	12.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	5	38	13.16	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 10 of 12
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 11 of 12
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: ES1727873	Page	: 1 of 7
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Sydney
Contact	: SARAH JOYCE	Contact	: Shirley LeComu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: HARRINGTON ST	Date Samples Received	: 07-Nov-2017
Order number	: ----	Date Analysis Commenced	: 08-Nov-2017
C-O-C number	: ----	Issue Date	: 10-Nov-2017
Sampler	: GRANT M		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 2		
No. of samples analysed	: 2		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1229329)									
ES1727873-001	TRIPLICATE 1	EA055: Moisture Content	----	1	%	19.8	19.9	0.00	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1229386)									
ES1727929-004	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	150	120	22.2	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	12	10	16.5	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	6	15.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	36	33.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	32	31.3	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	219	209	4.66	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	33	25	29.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	35	46	27.0	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
ES1727873-001	TRIPLICATE 1	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	120	120	0.00	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	19	18	7.42	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	24	23	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	24	24	0.00	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	40	43	5.42	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	9	0.00	No Limit

Page : 3 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1229386) - continued									
ES1727873-001	TRIPLICATE 1	EG005T: Manganese	7439-96-5	5	mg/kg	424	404	4.78	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	70	74	5.20	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	44	43	2.39	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1229387)									
ES1727873-001	TRIPLICATE 1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1226921)									
ES1727851-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.9	0.9	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.9	1.1	20.6	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.6	0.7	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.5	0.6	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	3.4	4.4	25.6	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.6	0.7	24.1	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1226923)									
ES1727851-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	160	180	13.7	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1228535)									
ES1727856-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1727857-023	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1226923)									
ES1727851-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	180	200	9.17	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	150	190	22.6	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Page : 4 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1228535)									
ES1727856-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1727857-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 1228535)									
ES1727856-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1727857-023	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Page : 5 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1229386)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	86	126
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	95.7	85	115
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	111	90	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.5	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	89.7	76	128
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	104	88	120
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	107	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.3	80	114
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	101	85	117
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	101	87	123
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	106	75	131
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	104	92	122
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1229387)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.4	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1226921)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	96.0	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	87.9	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	89.4	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	90.2	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	88.3	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	97.6	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	93.4	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	90.1	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.2	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	91.6	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.4	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	97.4	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.9	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	88.4	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	89.4	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	84.9	63	121

Page : 6 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1226923)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	102	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	106	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1228535)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.0	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1226923)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	100	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	110	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	101	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1228535)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	82.0	68	128
EP080: BTEXN (QCLot: 1228535)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.2	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	85.9	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.6	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.3	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.6	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.0	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1229386)							
ES1727873-001	TRIPLICATE 1	EG005T: Arsenic	7440-38-2	50 mg/kg	84.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.3	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.7	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	98.4	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.5	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	98.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1229387)							
ES1727873-001	TRIPLICATE 1	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70	130

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 7 of 7
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1226921)							
ES1727851-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	89.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1226923)							
ES1727851-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	100	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	112	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	112	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1228535)							
ES1727856-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	93.7	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1226923)							
ES1727851-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	98.5	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	116	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	105	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1228535)							
ES1727856-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	95.7	70	130
EP080: BTEXN (QCLot: 1228535)							
ES1727856-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	91.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.6	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	92.0	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	91.8	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	92.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1727873	Page	: 1 of 4
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Sydney
Contact	: SARAH JOYCE	Telephone	: +61-3-8549 9630
Project	: HARRINGTON ST	Date Samples Received	: 07-Nov-2017
Site	: ----	Issue Date	: 10-Nov-2017
Sampler	: GRANT M	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 4
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	----	----	----	08-Nov-2017	14-Nov-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	29-Apr-2018	✓	08-Nov-2017	29-Apr-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	28-Nov-2017	✓	09-Nov-2017	28-Nov-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	08-Nov-2017	18-Dec-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	08-Nov-2017	18-Dec-2017	✓
Soil Glass Jar - Unpreserved (EP080)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	09-Nov-2017	14-Nov-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	08-Nov-2017	18-Dec-2017	✓
Soil Glass Jar - Unpreserved (EP080)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	09-Nov-2017	14-Nov-2017	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
TRIPLICATE 1,	TRIPLICATE 2	31-Oct-2017	08-Nov-2017	14-Nov-2017	✓	09-Nov-2017	14-Nov-2017	✓

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 3 of 4
Work Order : ES1727873
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : HARRINGTON ST

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 4 of 4
Work Order	: ES1727873
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: HARRINGTON ST

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: EM1713195	Page	: 1 of 4
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Contact	: Shirley LeComu
Address	: 86 QUEEN STREET SANDY BAY TASMANIA, AUSTRALIA 7005	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: 215-217 Harrington Street	Date Samples Received	: 26-Sep-2017
Order number	: ----	Date Analysis Commenced	: 27-Sep-2017
C-O-C number	: ----	Issue Date	: 02-Oct-2017
Sampler	: SARAH JOYCE		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 5		
No. of samples analysed	: 5		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 4
Work Order	: EM1713195
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: 215-217 Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1138496)									
EM1713195-001	CC1	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1713240-003	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1136433)									
EM1713074-022	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713193-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1136433)									
EM1713074-022	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1713193-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1136433)									
EM1713074-022	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1713193-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Page : 3 of 4
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1138496)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83	105
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1136433)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	360 µg/L	98.3	67	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1136479)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	3368 µg/L	95.8	53	123
EP071: C15 - C28 Fraction	---	100	µg/L	<100	14735 µg/L	99.5	57	133
EP071: C29 - C36 Fraction	---	50	µg/L	<50	7856 µg/L	93.4	55	141
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1136433)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	95.1	65	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1136479)								
EP071: >C10 - C16 Fraction	---	100	µg/L	<100	5225 µg/L	95.9	54	122
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	19994 µg/L	95.0	56	132
EP071: >C34 - C40 Fraction	---	100	µg/L	<100	1449 µg/L	99.2	51	137
EP080: BTEXN (QCLot: 1136433)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.9	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	102	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	107	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	106	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	91.2	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1138496)							
EM1713195-001	CC1	EG020A-F: Lead	7439-92-1	0.2 mg/L	92.0	75	133
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1136433)							
EM1713074-020	Anonymous	EP080: C6 - C9 Fraction	---	280 µg/L	64.8	43	125

Page : 4 of 4
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1136433)							
EM1713074-020	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	64.0	44	122
EP080: BTEXN (QCLot: 1136433)							
EM1713074-020	Anonymous	EP080: Benzene	71-43-2	20 µg/L	82.1	68	130
		EP080: Toluene	108-88-3	20 µg/L	88.8	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1713195**	Page	: 1 of 5
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Telephone	: +61-3-8549 9630
Project	: 215-217 Harrington Street	Date Samples Received	: 26-Sep-2017
Site	: ----	Issue Date	: 02-Oct-2017
Sampler	: SARAH JOYCE	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 5
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)								
CC1, CC4,	CC2, Duplicate	**25-Sep-2017**	----	----	----	**27-Sep-2017**	24-Mar-2018	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	**25-Sep-2017**	**27-Sep-2017**	02-Oct-2017	✓	**28-Sep-2017**	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	**25-Sep-2017**	**27-Sep-2017**	09-Oct-2017	✓	**27-Sep-2017**	09-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	**25-Sep-2017**	**27-Sep-2017**	02-Oct-2017	✓	**28-Sep-2017**	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CC1, CC4, Rinse Blank	CC2, Duplicate,	**25-Sep-2017**	**27-Sep-2017**	09-Oct-2017	✓	**27-Sep-2017**	09-Oct-2017	✓

Page	: 3 of 5
Work Order	: EM1713195
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: 215-217 Harrington Street

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
CC1,	CC2,	**25-Sep-2017**	**27-Sep-2017**	09-Oct-2017	✓	**27-Sep-2017**	09-Oct-2017	✓
CC4,	Duplicate,							
Rinse Blank								

Page : 4 of 5
Work Order : EM1713195
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 215-217 Harrington Street

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	5	40.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 5 of 5
Work Order	: EM1713195
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: 215-217 Harrington Street

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1713260**	Page	: 1 of 6
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Contact	: Shirley LeComu
Address	: 86 QUEEN STREET SANDY BAY TASMANIA, AUSTRALIA 7005	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: 115 Harrington Street	Date Samples Received	: 27-Sep-2017
Order number	: ----	Date Analysis Commenced	: 27-Sep-2017
C-O-C number	: ----	Issue Date	: 03-Oct-2017
Sampler	: ----		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page	: 2 of 6
Work Order	: EM1713260
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: 115 Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1141440)									
EM1713222-001	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1713222-012	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	0.006	0.006	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1139218)									
EM1713222-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EM1713222-012	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	204	178	13.9	0% - 20%
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit

Page : 3 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1139218) - continued									
EM1713222-012	Anonymous	EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1139219)									
EM1713222-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	120	14.7	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EM1713222-012	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	210	180	17.6	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	6280	6030	4.06	0% - 20%
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1139526)									
EM1713222-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713222-013	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1139219)									
EM1713222-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	130	24.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EM1713222-012	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	1600	1420	11.7	0% - 50%
		EP071: >C16 - C34 Fraction	----	100	µg/L	190	160	16.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1139526)									
EM1713222-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1713222-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1139526)									
EM1713222-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit

Page : 4 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1139526) - continued									
EM1713222-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1713222-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Page : 5 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1141440)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.6	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1139218)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	54.8	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	57.6	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	57.4	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	61.0	51	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	65.9	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	64.8	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	65.5	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	62.0	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	58.5	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	63.9	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	62.4	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	65.7	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	62.4	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	62.4	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	63.8	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	62.1	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139219)								
EP071: C10 - C14 Fraction	---	50	µg/L	<50	3368 µg/L	63.2	53	123
EP071: C15 - C28 Fraction	---	100	µg/L	<100	14735 µg/L	68.4	57	133
EP071: C29 - C36 Fraction	---	50	µg/L	<50	7856 µg/L	66.2	55	141
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139526)								
EP080: C6 - C9 Fraction	---	20	µg/L	<20	360 µg/L	80.5	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139219)								
EP071: >C10 - C16 Fraction	---	100	µg/L	<100	5225 µg/L	64.0	54	122
EP071: >C16 - C34 Fraction	---	100	µg/L	<100	19994 µg/L	70.3	56	132
EP071: >C34 - C40 Fraction	---	100	µg/L	<100	1449 µg/L	68.9	51	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139526)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	79.2	65	125
EP080: BTEXN (QCLot: 1139526)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	86.5	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	83.2	76	124

Page : 6 of 6
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1139526) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	81.6	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	80.8	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	85.2	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	86.0	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1141440)							
EM1713222-001	Anonymous	EG020A-F: Lead	7439-92-1	0.2 mg/L	95.4	75	133
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1139218)							
EM1713222-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	5 µg/L	57.8	42	122
		EP075(SIM): Pyrene	129-00-0	5 µg/L	57.4	40	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139219)							
EM1713222-003	Anonymous	EP071: C10 - C14 Fraction	----	3368 µg/L	69.2	50	130
		EP071: C15 - C28 Fraction	----	14735 µg/L	76.2	54	136
		EP071: C29 - C36 Fraction	----	7856 µg/L	74.1	50	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1139526)							
EM1713222-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	62.4	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139219)							
EM1713222-003	Anonymous	EP071: >C10 - C16 Fraction	----	5225 µg/L	70.4	50	128
		EP071: >C16 - C34 Fraction	----	19994 µg/L	78.5	50	150
		EP071: >C34 - C40 Fraction	----	1449 µg/L	79.4	51	159
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1139526)							
EM1713222-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	62.1	44	122
EP080: BTEXN (QCLot: 1139526)							
EM1713222-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	85.2	68	130
		EP080: Toluene	108-88-3	20 µg/L	79.8	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1713260**	Page	: 1 of 4
Client	: **GEO-ENVIRONMENTAL SOLUTIONS**	Laboratory	: Environmental Division Melbourne
Contact	: S JOYCE	Telephone	: +61-3-8549 9630
Project	: 115 Harrington Street	Date Samples Received	: 27-Sep-2017
Site	: ----	Issue Date	: 03-Oct-2017
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

RIGHT SOLUTIONS | RIGHT PARTNER

Page : 2 of 4
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified (EG020A-F)							
CC6	26-Sep-2017	----	----	----	28-Sep-2017	25-Mar-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
CC6	26-Sep-2017	27-Sep-2017	03-Oct-2017	✓	02-Oct-2017	06-Nov-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
CC6	26-Sep-2017	27-Sep-2017	03-Oct-2017	✓	02-Oct-2017	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
CC6	26-Sep-2017	27-Sep-2017	10-Oct-2017	✓	28-Sep-2017	10-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
CC6	26-Sep-2017	27-Sep-2017	03-Oct-2017	✓	02-Oct-2017	06-Nov-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
CC6	26-Sep-2017	27-Sep-2017	10-Oct-2017	✓	28-Sep-2017	10-Oct-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
CC6	26-Sep-2017	27-Sep-2017	10-Oct-2017	✓	28-Sep-2017	10-Oct-2017	✓

Page : 3 of 4
Work Order : EM1713260
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : 115 Harrington Street

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Appendix 7 Soil Bore Logs

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH01

EASTING: 526057.7 GDA94
NORTHING: 5252470.7 GDA94
ELEVATION: 29.8 m AHD
TOTAL DEPTH (m): 3
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class.	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–0.9	FILL - Mixed CLAY/GRAVEL: brown/grey, slightly moist to moist, loose, fine to coarse angular gravel, some FCR,	GC	FILL	M													
1.0–1.7	SANDY CLAY: dark grey-brown/olive-brown, moist, firm to stiff, high plasticity	CH			BH01 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.8–2.9	SANDY CLAY: green, slightly moist, very stiff, low plasticity	CL	Tcbd	SM													
2.5–2.6					BH01 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
2.7–2.8					BH01 2.7-2.8	SAND*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions * PVC SCREEN - EXCEEDANCE CLASSIFICATION: A: 0-5, B: 5-20, D: 20-50, E: 50-200, F: 200-500, G: >500

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street		Log of BH02
CLIENT: Chau Nominees Pty Ltd		EASTING: 526048.6 GDA94
		NORTHING: 5252474.8 GDA94
LOCATION: Hobart	DATE: 31/10/2017	ELEVATION: 29.8 m AHD
CONTRACTOR: Geo-Environmental Solutions		TOTAL DEPTH (m): 3
EQUIPMENT/METHOD: Direct Push Core	SAMPLING: Core	LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances*: Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–1.0	FILL - Mixed CLAYEY GRAVEL: brown/grey, slightly moist to moist, loose, fine to coarse angular gravel, some FCR,	GC	FILL		BH02 0.7-0.8	SAND*	D		<	<	<	<	<	<	<		
1.0–2.1	SANDY CLAY: dark grey-brown/olive-brown, moist, firm to stiff, high plasticity	CH	Tcbd	M	BH02 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.1–2.9	SILTY CLAY: pale olive-brown/trace grey, moist, stiff, high plasticity				BH02 2.5-2.6	SAND*	D		<	<	–	–	<	–	<		
					BH02 2.7-2.8	SAND*	D		<	<	–	–	–	–	–		

Geo-Environmental Solutions * PVC HSL EXCEEDANCES: A: 0-5; B: 5-10; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street

CLIENT: Chau Nominees Pty Ltd

Log of BH03

EASTING: 526043.1 GDA94

NORTHING: 5252477.9 GDA94

LOCATION: Hobart DATE: 31/10/2017

ELEVATION: 30 m AHD

CONTRACTOR: Geo-Environmental Solutions

TOTAL DEPTH (m): 3

EQUIPMENT/METHOD: Direct Push Core SAMPLING: Core

LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances*: Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1	FILL - CLAYEY SAND: dark brown/black, moist, meidum dense	SC		M													
0.2																	
0.3																	
0.4																	
0.5	FILL - CLAYEY GRAVEL: yellow-brown, slightly moist, dense, fine to coarse angular Dolerite gravel, some small pockets of sandy	GC	FILL		BH03 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.6																	
0.7																	
0.8																	
0.9				SM													
1.0	FILL - GRAVELLY CLAYEY SAND: dark brown/red, slightly moist, dense, fine to coarse angular gravel & red brick fragments																
1.1																	
1.2																	
1.3		SC															
1.4	CLAYEY SAND: dark grey-brown/black, slightly moist, dense																
1.5					BH03 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.6																	
1.7	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity																
1.8																	
1.9																	
2.0																	
2.1			Tcbd														
2.2																	
2.3		CH		M													
2.4	SILTY CLAY: pale olive-brown/trace green, moist, stiff, high plasticity																
2.5					BH03 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
2.6																	
2.7					BH03 2.7-2.8	SAND*	D		<	<	<	<	<	<	<		
2.8																	
2.9																	

Geo-Environmental Solutions * PVC HSL EXCEEDANCES: A: 5-20; B: 20-50; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street		Log of BH04
CLIENT: Chau Nominees Pty Ltd		EASTING: 526038 GDA94
		NORTHING: 5252472.5 GDA94
LOCATION: Hobart	DATE: 31/10/2017	ELEVATION: 30.3 m AHD
CONTRACTOR: Geo-Environmental Solutions		TOTAL DEPTH (m): 3
EQUIPMENT/METHOD: Direct Push Core	SAMPLING: Core	LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances*: Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen																
0.1–0.6	FILL - Mixed CLAY/GRAVEL: brown/grey, slightly moist to moist, loose, fine to coarse angular Dolerite gravel	GC	FILL	SM	BH04 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.6–1.0	FILL - SANDY GRAVEL: grey, dry, very dense, fine to coarse angular Dolerite gravel	GW	FILL	D													
1.0–1.3	FILL - GRAVELLY CLAY: brown/grey, moist, stiff, medium plasticity, fine to coarse angular Dolerite gravel	CI	FILL	M													
1.3–1.4	CLAYEY SAND: dark grey-brown/black, slightly moist, dense	SC	Tcbd	SM													
1.4–1.9	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M	BH04 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.9–2.9	SILTY CLAY: pale olive-brown/trace green, moist, stiff, high plasticity	CH	Tcbd	M	BH04 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
					BH04 2.9-3.0	SAND*	D		<	<	<	<	<	<	–		

Geo-Environmental Solutions * PVC HSL EXCEEDANCES: C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street
CLIENT: Chau Nominees Pty Ltd

Log of BH05

EASTING: 526023.8 GDA94
NORTHING: 5252460.9 GDA94
ELEVATION: 31.5 m AHD
TOTAL DEPTH (m): 4
LOGGED BY: G. McDonald

LOCATION: Hobart
DATE: 31/10/2017
CONTRACTOR: Geo-Environmental Solutions
EQUIPMENT/METHOD: Direct Push Core
SAMPLING: Core

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Naphtalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0–0.1	FILL - Bitumen	P															
0.1–0.6	FILL - GRAVELLY CLAYEY SAND: dark brown/black, slightly moist, dense	SC	FILL	SM	BH05 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.6–1.1	FILL - CLAYEY SAND: dark brown/black, slightly moist, dense, some red brick fragments	SC	FILL	SM													
1.1–1.3	CLAYEY SAND: dark grey-brown/black, slightly moist, dense	SC	FILL	SM													
1.3–2.5	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M	BH05 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.5–3.6	SILTY CLAY: pale olive-brown/trace green, moist, stiff, high plasticity	CH	Tcbd	M	BH05 2.5-2.6	SAND*	D		<	<	<	<	<	<	<		
3.6–3.9		CH	Tcbd	M	BH05 3.6-3.7	CLAY*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions * PVHs EXCEEDANCE ... 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

GES GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street		Log of BH05
CLIENT: Chau Nominees Pty Ltd		EASTING: 526023.8 GDA94
		NORTHING: 5252460.9 GDA94
LOCATION: Hobart	DATE: 31/10/2017	ELEVATION: 31.5 m AHD
CONTRACTOR: Geo-Environmental Solutions		TOTAL DEPTH (m): 4
EQUIPMENT/METHOD: Direct Push Core	SAMPLING: Core	LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene Toluene Ethylbenz. Xylene Napthalene F1 F2	MONITORING WELL	ELEVATION (metres)

Geo-Environmental Solutions * PVC HSL EXCEEDANCE ... C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GES GEO-ENVIRONMENTAL SOLUTIONS

PROJECT:	215-217 Harrington Street
CLIENT:	Chau Nominees Pty Ltd
Log of	BH06
EASTING:	526050 GDA94
NORTHING:	5252462.5 GDA94
LOCATION:	Hobart
DATE:	31/10/2017
ELEVATION:	30.3 m AHD
CONTRACTOR:	Geo-Environmental Solutions
TOTAL DEPTH (m):	2.5
EQUIPMENT/METHOD:	Direct Push Core
SAMPLING:	Core
LOGGED BY:	G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances*: Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.4	FILL - GRAVELLY CLAYEY SAND: dark brown/black, slightly moist, dense	SC	FILL														
0.5–0.8	SANDY CLAY: pale olive-brown, slightly moist, very stiff, high plasticity	CH			BH06 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.8–1.2	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, high plasticity	CH															
1.2–2.4	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, medium plasticity. Refusal	CI	Tcbd	SM	BH06 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
					BH06 2.4-2.5	SAND*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions * PVC HSL EXCEEDANCE ... C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street		Log of BH07
CLIENT: Chau Nominees Pty Ltd		EASTING: 526034.5 GDA94
		NORTHING: 5252453.1 GDA94
LOCATION: Hobart	DATE: 31/10/2017	ELEVATION: 31.5 m AHD
CONTRACTOR: Geo-Environmental Solutions		TOTAL DEPTH (m): 2.8
EQUIPMENT/METHOD: Direct Push Core	SAMPLING: Core	LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.3	FILL - GRAVELLY CLAYEY SAND: olive-brown, slightly moist, dense	SC	FILL	SM													
0.3–0.7	FILL - SAND: pale yellow-brown, slightly moist to dry, loose	SW	FILL	SM	BH07 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.7–1.4	SANDY CLAY: pale olive-brown, slightly moist, very stiff, high plasticity	CH	Tcbd	SM													
1.4–2.0	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, high plasticity	CH	Tcbd	SM	BH07 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
2.0–2.7	SANDY SILTY CLAY: dark olive-grey, slightly moist, very stiff, high plasticity. Refusal on likely gravels	CH	Tcbd	SM	BH07 2.5-2.6	CLAY*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions * PVC HSL EXCEEDANCES: A: 0-5; B: 5-20; C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street		Log of BH08
CLIENT: Chau Nominees Pty Ltd		EASTING: 526067.2 GDA94
		NORTHING: 5252445.5 GDA94
LOCATION: Hobart	DATE: 31/10/2017	ELEVATION: 31.9 m AHD
CONTRACTOR: Geo-Environmental Solutions		TOTAL DEPTH (m): 3.5
EQUIPMENT/METHOD: Direct Push Core	SAMPLING: Core	LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances* Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–1.0	FILL - SANDY GRAVEL: red/grey, dry, dense, many red brick fragments	GW	FILL														
1.0–1.9	SANDY CLAY: dark grey-brown, moist, stiff, high plasticity	CH	Tcbd	M	BH08 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.9–2.8	SILTY SANDY CLAY: pale brown, slightly moist, very stiff, high plasticity	CH	Tcbd	SM													
2.8–3.4	SANDY SILTY CLAY: dark olive-grey, slightly moist, very stiff, high plasticity. Refusal on likely gravels	CH	Tcbd	SM	BH08 3.4-3.5	CLAY*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions * PVC HSL EXCEEDANCES: C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GEO-ENVIRONMENTAL SOLUTIONS

PROJECT: 215-217 Harrington Street		Log of BH09
CLIENT: Chau Nominees Pty Ltd		EASTING: 526044 GDA94
		NORTHING: 5252469.1 GDA94
LOCATION: Hobart	DATE: 31/10/2017	ELEVATION: 30.3 m AHD
CONTRACTOR: Geo-Environmental Solutions		TOTAL DEPTH (m): 3
EQUIPMENT/METHOD: Direct Push Core	SAMPLING: Core	LOGGED BY: G. McDonald

DEPTH (metres)	MATERIAL DESCRIPTION	USCS LITHOLOGY	UNIT	MOISTURE	SAMPLES: Sample	Grain Class	HSL	Field PID (ppm)	Helath Screening Level Exceedances*: Benzene	Toluene	Ethylbenz.	Xylene	Napthalene	F1	F2	MONITORING WELL	ELEVATION (metres)
0.0	FILL - Bitumen	P															
0.1–0.3	FILL - GRAVEL: grey/yellow-brown, slighty moist to dry, dense	GW															
0.3–0.7	FILL - SAND: pale yellow-brown, slightly moist to dry, loose	SW	FILL	SM	BH09 0.5-0.6	SAND*	D		<	<	<	<	<	<	<		
0.7–1.6	FILL - SANDY CLAY: dark grey, moist, stiff, high plasticity	CH	FILL	M	BH09 1.5-1.6	SAND*	D		<	<	<	<	<	<	<		
1.6–2.0	SANDY SILTY CLAY: dark olive-grey, slightly moist, very stiff, high plasticity	CH															
2.0–2.9	SANDY SILTY CLAY: pale olive-grey, slightly moist, very stiff, low to medium plasticity. Refusal on likely gravels	CI	Tcbd	SM	BH09 2.5-2.6	SAND*	D		<	<	<	<	<	<	–		
					BH09 2.9-3.0	SAND*	D		<	<	<	<	<	<	<		

Geo-Environmental Solutions * PVC HSL EXCEEDANCE: C: 5-20; D: 20-50; E: 50-200; F: 200-500; G: >500

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Appendix 8 Groundwater Purge Records

GES GEO-ENVIRONMENTAL SOLUTIONS — **GROUNDWATER MONITORING LOG**

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC1 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 9.52 A 31.26ft
Groundwater Depth (m): 6.22 B 20.42 ft.
Water Column Volume: 3.3 (A-B) x F 2.6 x3 = 19.8 Volume to be Purged (L): 19.8
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3 (Min. x3 Water Volume)

Bore Water Purging:
Purging Method: Waterra
Sampling Method: ?

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time			
Finish Time			
Minutes			
Volume (L)			
Recovery Time Minutes			

Dry @ 20L
Total Volume Purged (L):
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	18.5	16.2			
pH (units)	7.42	7.38			
Redox Potential (mV)	197	186		Sampled @ 1045	
Conductivity (uS/cm)	3.76mS	4.36mS			
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity	✓				
Odour					
Colour	Light B/	Beigh			
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:
Well full H_2O under gatic. Good Sealt on well. Good. Syringed water out. Sandy, Silty Sediment

GES GEO-ENVIRONMENTAL SOLUTIONS — **GROUNDWATER MONITORING LOG**

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC2 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature: 1/01/1900
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (35/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 9.49 A 31.15
Groundwater Depth (m): 3.30 B 10.85 ft
Water Column Volume: 6.19 (A-B) x F 13 x3 = 37.14 Volume to be Purged (L):
35mm: F=0.5; 50mm: F=3; 65mm: F=x3.3 (Min. x3 Water Volume)

Bore Water Purging:
Purging Method: ?
Sampling Method: ?

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time	1058	1106	1113
Finish Time	1102	1111	1115
Minutes	4		
Volume (L)	13		
Recovery Time Minutes			

Purged 36L.
Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	15.9	15.7	15.5		
pH (units)	7.00	7.7	7.26		
Redox Potential (mV)	82.9		103.7	Sampled @	
Conductivity (uS/cm)	2420	3790	2443		1125.
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC3 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m) ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m) ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): A
Groundwater Depth (m): B
Water Column Volume: (A-B) x F x3 =
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ?
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time			
Finish Time			
Minutes			
Volume (L)			
Recovery Time Minutes			

Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)					
pH (units)					
Redox Potential (mV)					
Conductivity (uS/cm)					
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments: Gatic Damaged.

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC4 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m) ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m) ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm):
Station:

Measurements from top of collar:
Borehole Depth (m): 6.5 A 21.45 ft.
Groundwater Depth (m): 3.01 B 9.88 ft
Water Column Volume: 3 (A-B) x F 6 x3 = 20.52 volume to be Purged (L):
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ? Waterra
Sampling Method: ?
(Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time	1302		
Finish Time	1302		1311
Minutes	~1		
Volume (L)	6		
Recovery Time Minutes			

Sampled @
Total Volume Purged (L) 1320
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	14.4	13.9	13.9		
pH (units)	7.24	7.37	7.35		Duplicate
Redox Potential (mV)	161.6	69.9	10.5		collected
Conductivity (uS/cm)	1711	1926	1798		= Dup 1
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity	✓		✓		
Odour	Beige	✓	✓		
Colour	✓	Light Brown			
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:
420 ingate. PID read 125ppm when opened well. H_2O, sediment in bottom of well.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC5 MISSING | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm): | Station:

Measurements from top of collar:
Borehole Depth (m): A
Groundwater Depth (m): B
Water Column Volume: (A-B) x F x3 =
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ?
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time			
Finish Time			
Minutes			
Volume (L)			
Recovery Time Minutes			

Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)					
pH (units)					
Redox Potential (mV)					
Conductivity (uS/cm)					
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:

GES GEO-ENVIRONMENTAL SOLUTIONS

GROUNDWATER MONITORING LOG

Client: | Date/Time: 25/09/2017
Project: 215-217 Harrington Street | Sampled by: Sarah Joyce

Borehole No: CC6 | Easting: ? | Northing: ?
Estimated Bore Yield (l/m): ? | Weather Conditions:
Well Depth BTOC (m): | Height of Collar (mm): ? | Temperature:
Groundwater Depth RL (m): ? | Bore Intern Diameter (mm): ? (25/mm50mm/65mm) | Rainfall 7 Days (mm): | Station:

Measurements from top of collar:
Borehole Depth (m): 6.37 A 20.96
Groundwater Depth (m): 3.27 B 10.75 Ft.
Water Column Volume: 3.1 (A-B) x F 6.2 x3 = 18.6
25mm: F=0.5; 50mm: F=2; 65mm: F=x3.3

Bore Water Purging:
Purging Method: ?
Sampling Method: ?
Volume to be Purged (L): (Min. x3 Water Volume)

Purging Cycles:	Cycle 1	Cycle 2	Cycle 3
Start Time	1150		
Finish Time			1205
Minutes			
Volume (L)			
Recovery Time Minutes			

Total Volume Purged (L)
Recovery Rate (L/m)

Site Water Quality Measurements:	Cycle 1	Cycle 2	Cycle 3	Calibration:	Comments:
Temperature (oC)	16.2	14.8	14.6		
pH (units)	7.0	7.16	7.15		Sampled
Redox Potential (mV)	10	-23	11.1		@ 1215
Conductivity (uS/cm)	1426	1460	1474		26/9/17
Salinity (mg/L)					
Dissolved Oxygen (%)					
Dissolved Oxygen (mg/L)					
Turbidity					
Odour					
Colour					
Sheen					

Sampling Details:
Sample Number: | Sample Bottles: Total No.
Sampling Time:

1000mL plastic (non-pres)	x1 Green	250mL plastic (Cd Nitrate)	x1 Blue	/Add NaOH
500mL amber glass (non-pres)	x1 Orange	125mL plastic (sulph acid)	x1 Purple	
40mL amber glass (sulph acid)	x2 Maroon	60mL plastic (non-pres)	x2 Red/Green	
40mL amber glass (sulph acid)	x1 Purple	600mL plastic (Na bisulph)	x1 Grey	

General Comments:
Gatic Damaged. PID 567 ppm when well cap removed.
Triplicate Sample Collected HCO.
Sampled for natural attenuation

Appendix 9 Soil & Groundwater Certificate of Analysis

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: EM1715132	Page	: 1 of 27
Client	: GEO-ENVIRONMENTAL SOLUTIONS	Laboratory	: Environmental Division Melbourne
Contact	: SARAH JOYCE	Contact	: Shirley LeCornu
Address	: 29 KIRKSWAY PLACE BATTERY POINT TASMANIA, AUSTRALIA 7004	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 6223 1839	Telephone	: +61-3-8549 9630
Project	: Harrington Street	Date Samples Received	: 03-Nov-2017 09:50
Order number	: ----	Date Analysis Commenced	: 03-Nov-2017
C-O-C number	: ----	Issue Date	: 09-Nov-2017 12:57
Sampler	: Grant		
Site	: ----		
Quote number	: Blanket quote 2017		
No. of samples received	: 37		
No. of samples analysed	: 32		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

RIGHT SOLUTIONS | RIGHT PARTNER

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page	: 2 of 27
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG005T: EM1715132 #4; Poor duplicate precision for lead due to sample heterogeneity. Confirmed by re-digestion and re-analysis. It's been noticed that repeated results vary greatly. Results obtained were 147mg/kg, 286 mg/kg, 386mg/kg and 875mg/kg.
- EG005T: EM1715132 #4; Poor duplicate precision for lead due to sample heterogeneity. Confirmed by re-digestion and re-analysis. It's been noticed that repeated results vary greatly. Results obtained were 147mg/kg,286 mg/kg, 386mg/kg and 875mg/kg.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 3 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH01 1.5-1.6	BH01 2.5-2.6	BH01 2.7-2.8	BH02 0.7-0.8	BH02 1.5-1.6
			Client sampling date / time	31-Oct-2017 11:30	31-Oct-2017 11:35	31-Oct-2017 11:40	31-Oct-2017 11:50	31-Oct-2017 11:55
Compound	CAS Number	LOR	Unit	EM1715132-001	EM1715132-002	EM1715132-003	EM1715132-004	EM1715132-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.4	16.3	13.4	18.9	16.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	11	<5
Barium	7440-39-3	10	mg/kg	90	10	10	120	90
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	14	14	15	15
Cobalt	7440-48-4	2	mg/kg	16	21	29	23	17
Copper	7440-50-8	5	mg/kg	22	17	23	56	21
Lead	7439-92-1	5	mg/kg	12	8	13	875	22
Manganese	7439-96-5	5	mg/kg	456	133	227	446	108
Nickel	7440-02-0	2	mg/kg	12	19	30	24	16
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	66	46	56	73	75
Zinc	7440-66-6	5	mg/kg	32	54	77	83	28
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.8	0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 4 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 1.5-1.6	BH01 2.5-2.6	BH01 2.7-2.8	BH02 0.7-0.8	BH02 1.5-1.6
				Client sampling date / time	31-Oct-2017 11:30	31-Oct-2017 11:35	31-Oct-2017 11:40	31-Oct-2017 11:50	31-Oct-2017 11:55
Compound	CAS Number	LOR	Unit		EM1715132-001	EM1715132-002	EM1715132-003	EM1715132-004	EM1715132-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		106	98.1	101	90.6	105
2-Chlorophenol-D4	93951-73-6	0.5	%		101	94.9	96.6	85.8	101
2.4.6-Tribromophenol	118-79-6	0.5	%		99.0	81.5	96.4	74.7	72.1

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page	: 5 of 27
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH01 1.5-1.6	BH01 2.5-2.6	BH01 2.7-2.8	BH02 0.7-0.8	BH02 1.5-1.6
			Client sampling date / time	31-Oct-2017 11:30	31-Oct-2017 11:35	31-Oct-2017 11:40	31-Oct-2017 11:50	31-Oct-2017 11:55
Compound	CAS Number	LOR	Unit	EM1715132-001	EM1715132-002	EM1715132-003	EM1715132-004	EM1715132-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	115	108	104	110	109
Anthracene-d10	1719-06-8	0.5	%	111	122	120	114	114
4-Terphenyl-d14	1718-51-0	0.5	%	120	130	130	119	117
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	79.3	83.3	83.6	80.7	85.4
Toluene-D8	2037-26-5	0.2	%	76.5	77.7	78.3	77.6	81.1
4-Bromofluorobenzene	460-00-4	0.2	%	84.4	84.6	89.6	83.5	86.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 6 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH02 2.5-2.6	BH02 2.7-2.8	BH03 0.5-0.6	BH03 1.5-1.6	BH03 2.5-2.6
			Client sampling date / time	31-Oct-2017 12:00	31-Oct-2017 12:05	31-Oct-2017 12:20	31-Oct-2017 12:30	31-Oct-2017 12:37
Compound	CAS Number	LOR	Unit	EM1715132-006	EM1715132-007	EM1715132-008	EM1715132-009	EM1715132-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.7	16.2	18.2	26.8	21.9
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	7	<5
Barium	7440-39-3	10	mg/kg	70	20	100	310	70
Beryllium	7440-41-7	1	mg/kg	<1	<1	1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	14	11	12	25	25
Cobalt	7440-48-4	2	mg/kg	11	12	20	13	26
Copper	7440-50-8	5	mg/kg	18	24	58	124	39
Lead	7439-92-1	5	mg/kg	13	15	15	558	11
Manganese	7439-96-5	5	mg/kg	95	84	613	422	347
Nickel	7440-02-0	2	mg/kg	12	16	25	17	33
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	48	25	79	42	78
Zinc	7440-66-6	5	mg/kg	37	66	87	610	37
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	4.2	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.6	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	2.4	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	0.9	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	6.2	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	6.9	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	4.0	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	3.9	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	5.4	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	2.0	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	4.2	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	2.2	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 7 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH02 2.5-2.6	BH02 2.7-2.8	BH03 0.5-0.6	BH03 1.5-1.6	BH03 2.5-2.6
			Client sampling date / time	31-Oct-2017 12:00	31-Oct-2017 12:05	31-Oct-2017 12:20	31-Oct-2017 12:30	31-Oct-2017 12:37
Compound	CAS Number	LOR	Unit	EM1715132-006	EM1715132-007	EM1715132-008	EM1715132-009	EM1715132-010
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	2.8	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	1.6	<0.5	42.1	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	6.2	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	6.2	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	6.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	15	62	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	110	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	220	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	180	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	110	<50	400	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	18	81	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	16	74	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	120	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	350	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	120	<50	350	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	120	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	1.0	3.1	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	1.4	4.6	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	2.4	7.7	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	1.4	4.6	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	2	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	92.1	106	101	103	104
2-Chlorophenol-D4	93951-73-6	0.5	%	89.1	101	96.7	98.6	99.0
2.4.6-Tribromophenol	118-79-6	0.5	%	76.4	80.5	62.2	81.6	68.8

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 8 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH02 2.5-2.6	BH02 2.7-2.8	BH03 0.5-0.6	BH03 1.5-1.6	BH03 2.5-2.6
			Client sampling date / time	31-Oct-2017 12:00	31-Oct-2017 12:05	31-Oct-2017 12:20	31-Oct-2017 12:30	31-Oct-2017 12:37
Compound	CAS Number	LOR	Unit	EM1715132-006	EM1715132-007	EM1715132-008	EM1715132-009	EM1715132-010
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	112	111	105	94.1	108
Anthracene-d10	1719-06-8	0.5	%	127	120	114	120	125
4-Terphenyl-d14	1718-51-0	0.5	%	128	129	116	120	122
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	89.1	82.8	75.2	78.7	81.0
Toluene-D8	2037-26-5	0.2	%	90.8	74.4	74.5	75.9	74.8
4-Bromofluorobenzene	460-00-4	0.2	%	98.4	90.5	82.8	81.3	86.3

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 9 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH03 2.7-2.8	BH04 0.5-0.6	BH04 1.5-1.6	BH04 2.5-2.6	BH04 2.9-3.0
			Client sampling date / time	31-Oct-2017 12:47	31-Oct-2017 13:00	31-Oct-2017 13:07	31-Oct-2017 13:17	31-Oct-2017 13:25
Compound	CAS Number	LOR	Unit	EM1715132-011	EM1715132-012	EM1715132-013	EM1715132-014	EM1715132-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.7	20.0	26.3	20.2	17.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	60	130	60	100	60
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	28	17	20	22	19
Cobalt	7440-48-4	2	mg/kg	23	23	18	17	27
Copper	7440-50-8	5	mg/kg	45	66	30	36	33
Lead	7439-92-1	5	mg/kg	9	216	12	9	11
Manganese	7439-96-5	5	mg/kg	296	229	179	245	142
Nickel	7440-02-0	2	mg/kg	27	21	14	26	26
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	84	91	78	76	63
Zinc	7440-66-6	5	mg/kg	42	226	34	38	52
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 10 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH03 2.7-2.8	BH04 0.5-0.6	BH04 1.5-1.6	BH04 2.5-2.6	BH04 2.9-3.0
				Client sampling date / time	31-Oct-2017 12:47	31-Oct-2017 13:00	31-Oct-2017 13:07	31-Oct-2017 13:17	31-Oct-2017 13:25
Compound	CAS Number	LOR	Unit		EM1715132-011	EM1715132-012	EM1715132-013	EM1715132-014	EM1715132-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	110
C15 - C28 Fraction	----	100	mg/kg		<100	150	<100	<100	180
C29 - C36 Fraction	----	100	mg/kg		<100	170	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	320	<50	<50	290
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	160
>C16 - C34 Fraction	----	100	mg/kg		<100	280	<100	<100	120
>C34 - C40 Fraction	----	100	mg/kg		<100	100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	380	<50	<50	280
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	160
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.1	92.6	106	93.2	100
2-Chlorophenol-D4	93951-73-6	0.5	%		86.9	89.1	102	89.2	95.1
2.4.6-Tribromophenol	118-79-6	0.5	%		66.8	77.6	78.6	74.8	89.0

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 11 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH03 2.7-2.8	BH04 0.5-0.6	BH04 1.5-1.6	BH04 2.5-2.6	BH04 2.9-3.0
			Client sampling date / time	31-Oct-2017 12:47	31-Oct-2017 13:00	31-Oct-2017 13:07	31-Oct-2017 13:17	31-Oct-2017 13:25
Compound	CAS Number	LOR	Unit	EM1715132-011	EM1715132-012	EM1715132-013	EM1715132-014	EM1715132-015
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	108	109	93.7	96.3	120
Anthracene-d10	1719-06-8	0.5	%	123	124	121	123	124
4-Terphenyl-d14	1718-51-0	0.5	%	122	123	127	127	126
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	77.5	83.2	80.6	83.3	80.1
Toluene-D8	2037-26-5	0.2	%	74.1	84.8	76.9	86.5	80.9
4-Bromofluorobenzene	460-00-4	0.2	%	83.1	91.1	83.7	90.0	84.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 12 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH05 0.5-0.6	BH05 1.5-1.6	BH05 2.5-2.6	BH05 3.6-3.7	BH06 0.5-0.6
			Client sampling date / time	31-Oct-2017 13:40	31-Oct-2017 13:48	31-Oct-2017 13:56	31-Oct-2017 14:05	31-Oct-2017 14:20
Compound	CAS Number	LOR	Unit	EM1715132-016	EM1715132-017	EM1715132-018	EM1715132-019	EM1715132-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	17.4	26.2	17.5	18.3	20.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	220	50	230	100	90
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	28	29	24	16
Cobalt	7440-48-4	2	mg/kg	15	20	20	25	19
Copper	7440-50-8	5	mg/kg	83	36	41	43	21
Lead	7439-92-1	5	mg/kg	452	10	8	10	10
Manganese	7439-96-5	5	mg/kg	474	144	1060	694	85
Nickel	7440-02-0	2	mg/kg	18	19	26	27	18
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	52	86	83	82	60
Zinc	7440-66-6	5	mg/kg	219	32	34	48	31
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	1.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	1.0	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	3.4	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	1.3	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	9.9	<0.5	1.2	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	3.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	15.9	<0.5	1.1	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	17.7	<0.5	1.0	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	9.4	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	9.4	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	13.7	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	5.9	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	12.6	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	6.2	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	1.8	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 13 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH05 0.5-0.6	BH05 1.5-1.6	BH05 2.5-2.6	BH05 3.6-3.7	BH06 0.5-0.6
				Client sampling date / time	31-Oct-2017 13:40	31-Oct-2017 13:48	31-Oct-2017 13:56	31-Oct-2017 14:05	31-Oct-2017 14:20
Compound	CAS Number	LOR	Unit		EM1715132-016	EM1715132-017	EM1715132-018	EM1715132-019	EM1715132-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		7.7	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		119	<0.5	3.3	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		18.1	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		18.1	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		18.1	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		530	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		400	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		930	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		820	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		220	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		1040	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		100	104	103	92.4	87.5
2-Chlorophenol-D4	93951-73-6	0.5	%		95.0	101	96.7	88.6	83.8
2.4.6-Tribromophenol	118-79-6	0.5	%		100	76.5	72.4	66.1	62.2

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 14 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH05 0.5-0.6	BH05 1.5-1.6	BH05 2.5-2.6	BH05 3.6-3.7	BH06 0.5-0.6
			Client sampling date / time	31-Oct-2017 13:40	31-Oct-2017 13:48	31-Oct-2017 13:56	31-Oct-2017 14:05	31-Oct-2017 14:20
Compound	CAS Number	LOR	Unit	EM1715132-016	EM1715132-017	EM1715132-018	EM1715132-019	EM1715132-020
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	120	94.8	110	112	104
Anthracene-d10	1719-06-8	0.5	%	126	114	125	112	128
4-Terphenyl-d14	1718-51-0	0.5	%	128	124	117	129	118
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	59.8	71.6	69.9	65.6	79.4
Toluene-D8	2037-26-5	0.2	%	69.4	73.5	64.8	63.2	77.5
4-Bromofluorobenzene	460-00-4	0.2	%	68.7	76.4	72.3	70.7	80.6

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 15 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH06 1.5-1.6	BH06 2.4-2.5	BH07 0.5-0.6	BH07 1.5-1.6	BH07 2.5-2.6
			Client sampling date / time	31-Oct-2017 14:30	31-Oct-2017 14:37	31-Oct-2017 14:50	31-Oct-2017 14:59	31-Oct-2017 15:15
Compound	CAS Number	LOR	Unit	EM1715132-021	EM1715132-022	EM1715132-023	EM1715132-024	EM1715132-025
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	18.2	16.0	4.9	22.6	23.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	10	10	<10	60	20
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	13	13	4	17	12
Cobalt	7440-48-4	2	mg/kg	26	25	<2	18	8
Copper	7440-50-8	5	mg/kg	40	37	<5	26	55
Lead	7439-92-1	5	mg/kg	10	12	<5	10	10
Manganese	7439-96-5	5	mg/kg	196	213	19	79	83
Nickel	7440-02-0	2	mg/kg	28	25	<2	19	13
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	66	70	8	63	58
Zinc	7440-66-6	5	mg/kg	56	73	<5	39	58
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 16 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH06 1.5-1.6	BH06 2.4-2.5	BH07 0.5-0.6	BH07 1.5-1.6	BH07 2.5-2.6
				Client sampling date / time	31-Oct-2017 14:30	31-Oct-2017 14:37	31-Oct-2017 14:50	31-Oct-2017 14:59	31-Oct-2017 15:15
Compound	CAS Number	LOR	Unit		EM1715132-021	EM1715132-022	EM1715132-023	EM1715132-024	EM1715132-025
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		111	100	100	102	96.8
2-Chlorophenol-D4	93951-73-6	0.5	%		109	98.5	99.0	100.0	95.8
2.4.6-Tribromophenol	118-79-6	0.5	%		73.3	67.0	65.9	66.6	64.1

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 17 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH06 1.5-1.6	BH06 2.4-2.5	BH07 0.5-0.6	BH07 1.5-1.6	BH07 2.5-2.6
			Client sampling date / time	31-Oct-2017 14:30	31-Oct-2017 14:37	31-Oct-2017 14:50	31-Oct-2017 14:59	31-Oct-2017 15:15
Compound	CAS Number	LOR	Unit	EM1715132-021	EM1715132-022	EM1715132-023	EM1715132-024	EM1715132-025
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	118	121	120	124	119
Anthracene-d10	1719-06-8	0.5	%	119	111	111	112	112
4-Terphenyl-d14	1718-51-0	0.5	%	124	126	125	126	125
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	84.3	77.7	78.9	73.7	68.8
Toluene-D8	2037-26-5	0.2	%	75.6	67.1	70.4	65.4	63.1
4-Bromofluorobenzene	460-00-4	0.2	%	85.6	77.1	79.7	73.9	69.6

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 18 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH08 1.5-1.6	BH08 3.4-3.5	BH09 0.5-0.6	BH09 1.5-1.6	BH09 2.5-2.6
			Client sampling date / time	31-Oct-2017 15:51	31-Oct-2017 16:07	31-Oct-2017 16:25	31-Oct-2017 16:30	31-Oct-2017 16:40
Compound	CAS Number	LOR	Unit	EM1715132-028	EM1715132-030	EM1715132-032	EM1715132-033	EM1715132-034
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.7	20.1	2.8	22.4	16.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	160	20	<10	120	10
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	17	12	4	12	17
Cobalt	7440-48-4	2	mg/kg	16	13	<2	10	19
Copper	7440-50-8	5	mg/kg	27	36	<5	37	24
Lead	7439-92-1	5	mg/kg	10	13	<5	120	11
Manganese	7439-96-5	5	mg/kg	117	210	22	142	148
Nickel	7440-02-0	2	mg/kg	18	15	<2	11	20
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	78	75	15	45	48
Zinc	7440-66-6	5	mg/kg	23	54	13	115	76
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.9	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 19 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 1.5-1.6	BH08 3.4-3.5	BH09 0.5-0.6	BH09 1.5-1.6	BH09 2.5-2.6
				Client sampling date / time	31-Oct-2017 15:51	31-Oct-2017 16:07	31-Oct-2017 16:25	31-Oct-2017 16:30	31-Oct-2017 16:40
Compound	CAS Number	LOR	Unit		EM1715132-028	EM1715132-030	EM1715132-032	EM1715132-033	EM1715132-034
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	**140**
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	**260**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**400**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	**230**
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	**170**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	**400**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	**230**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**99.8**	**97.2**	**98.7**	**92.5**	**96.8**
2-Chlorophenol-D4	93951-73-6	0.5	%		**98.4**	**97.4**	**96.2**	**90.3**	**94.9**
2.4.6-Tribromophenol	118-79-6	0.5	%		**68.4**	**64.3**	**68.5**	**68.6**	**63.5**

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 20 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH08 1.5-1.6	BH08 3.4-3.5	BH09 0.5-0.6	BH09 1.5-1.6	BH09 2.5-2.6
			Client sampling date / time	31-Oct-2017 15:51	31-Oct-2017 16:07	31-Oct-2017 16:25	31-Oct-2017 16:30	31-Oct-2017 16:40
Compound	CAS Number	LOR	Unit	EM1715132-028	EM1715132-030	EM1715132-032	EM1715132-033	EM1715132-034
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	122	119	119	115	107
Anthracene-d10	1719-06-8	0.5	%	114	110	110	110	112
4-Terphenyl-d14	1718-51-0	0.5	%	131	121	124	119	125
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	74.8	73.6	75.7	65.7	76.7
Toluene-D8	2037-26-5	0.2	%	69.6	68.3	67.3	55.2	63.9
4-Bromofluorobenzene	460-00-4	0.2	%	77.8	76.9	75.6	60.7	73.7

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 21 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH09 2.9-3.0	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:45	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-035	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.7	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	10	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	15	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	27	----	----	----	----
Copper	7440-50-8	5	mg/kg	41	----	----	----	----
Lead	7439-92-1	5	mg/kg	12	----	----	----	----
Manganese	7439-96-5	5	mg/kg	116	----	----	----	----
Nickel	7440-02-0	2	mg/kg	25	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	61	----	----	----	----
Zinc	7440-66-6	5	mg/kg	61	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 22 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH09 2.9-3.0	----	----	----	----
				Client sampling date / time	31-Oct-2017 16:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715132-035	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		93.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		92.6	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		61.9	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 23 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH09 2.9-3.0	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:45	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-035	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	114	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	104	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	119	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	72.0	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	67.4	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	73.5	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 24 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	Rinsate 1	----	----	----	----
			Client sampling date / time	31-Oct-2017 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1715132-031	--------	--------	--------	--------
				Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L	<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.6	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page : 25 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate 1	----	----	----	----
				Client sampling date / time	31-Oct-2017 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715132-031	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.6	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		33.8	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		70.8	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		80.4	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		84.3	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		98.9	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		94.2	----	----	----	----

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

Page	: 26 of 27
Work Order	: EM1715132
Client	: GEO-ENVIRONMENTAL SOLUTIONS
Project	: Harrington Street

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate 1	----	----	----	----
				Client sampling date / time	31-Oct-2017 16:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1715132-031	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		92.5	----	----	----	----
Toluene-D8	2037-26-5	2	%		88.0	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		105	----	----	----	----

Page : 27 of 27
Work Order : EM1715132
Client : GEO-ENVIRONMENTAL SOLUTIONS
Project : Harrington Street

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Appendix 10 CRC CARE Technical Report 10 HSL Application Checklist

HSL APPLICATION CHECKLIST

INTRODUCTION

This checklist is designed to allow assessors to conceptualise potential issues with contaminated land, and how to apply the HSLs. The checklist is designed to trigger responses from the assessor in determining whether the HSLs are applicable or whether consideration should be given to a more site-specific determination of risk. It highlights the key limitations and considerations that are common to contamination assessments and risk assessment.

The checklist summarises the key items from this Application Document.
It is recommended that the Application Document be read in conjunction with the use of this Checklist.

	Summary of Steps
Step 1	Identification of key limitations to the application of health screening levels
Step 2	Identification of key receptors and scenarios
Step 3	Identification of relevant soil type
Step 4	Identification of impacted media and depths
Step 5	Identification of source concentrations to be compared with health screening levels
Step 6	Selecting appropriate HSL and consideration of combining vapour intrusion and direct contact exposure
Step 7	Applying adjustments to the HSLs based on vapour biodegradation, soil organic carbon content, air exchange rate, and soil moisture content Consideration given to soil saturation and water solubility limits
Step 8	Adjustments for cancer risk assessment - modification of acceptable cancer risk level, assessment of cumulative cancer risk

CRC CARE

Step 1 – Limitations to HSLs

Assessing contamination in soil and groundwater should only be carried out by a qualified professional.
Are guidelines relevant for site? Check the following limitations:

Have chemicals other than petroleum hydrocarbons been identified at the site?	n	May consider site-specific risk assessment (refer to Section 5.2 of the Application Document)
Is the groundwater to be used for irrigation purposes?	n	May consider site-specific risk assessment (refer to Section 2.4.5 of the Application Document)
Is the site conservation land?	n	May be required to also assess ecological values (refer to Section 2.4.6 of the Application Document)
Is the depth to groundwater impact less than 2m bgs ?	n	May consider site-specific risk assessment for direct contact May consider soil vapour sampling for vapour intrusion (refer to Section 2.4.2 of the Application Document)
Has significant odour been observed at the site?	n	May be required to also assess odour for sensitive land uses (refer to Section 5.4 of the Application Document)
Is the identified chemical a result of a solvent spill rather than petroleum spill/leak?	n	HSLs may be used where saturation point is not considered (refer to Section 5.3 of the Application Document)
Is the identified contamination an atypical petroleum mixture?	n	May consider site-specific risk assessment to consider cumulative effects between chemicals (refer to Section 3.6 of the Application Document)
Is the soil source thickness significantly different than 2 m?	n	For small source thicknesses, HSLs may be overly conservative if source fully depletes. For larger thicknesses HSLs may not adequately characterise risk, however lateral extent of contamination should also be considered. A site-specific HRA may be considered. (refer to Section 2.4.7 of the Application Document)
Does the building have a crawl space rather than slab-on-ground construction?	y	HSLs may be used as likely to be conservative. However, for situations where habitants may be exposed in crawl space area such as spaces under dwellings which incorporate garages/workshop then consideration may be given to ambient air sampling. (refer to Section 2.3.4 of the Application Document)
Does the building have or is likely to have a habitable basement?	n	May consider site-specific risk assessment (refer to Section 2.3.3 of the Application Document)

Note that the HSLs may be used for assessing health risk. In addition to this assessment, legislation requirements still need to be fulfilled which may include other considerations and assessments. Such considerations may include:

- Assessment of environmental values and ecological impacts
- Consideration of sustainability issues
- Risks for extraction and use of groundwater
- Soil source ongoing source to groundwater contamination
- Local planning requirements, such as sensitive uses under commercial zones, or future land use zones
- Social impacts and consultation with stakeholders

CRC CARE

Step 2 – Identify receptors and scenarios to be considered

Check the receptors and scenarios to be assessed. Note that receptors and scenarios may require consideration of future land use planning and local regulations pertaining to site redevelopment.

	y	Residential use (refer to Sections 2.1.1 and 2.3.1 of the application Document)
HSL-A	n	Low-Density Residential – assumes access to soils with no management controls on site. Assessment may consider surface soils with direct contact, intrusive maintenance worker protection, and consider using surface soil HSL for all soils down to 3 m depth to protect uncontrolled excavation of contamination.
HSL-B	n	High-Density Residential – assumes limited access to surface soils with management controls on site. Assessment may consider surface soils/dust with limited direct contact. Intrusive maintenance workers may be protected under suitable site management plan.
HSL-A	n	Medium-Density Residential with grassed open space – assumes access to soils with management controls on site. Assessment may consider surface soils with direct contact and subsurface soils through vapour intrusion. Intrusive maintenance workers may be protected under suitable site management plan.
HSL-B	n	Medium-Density Residential with permanent paving open space – assumes limited access to soils with management controls on site. Assessment may consider surface soils/dust with limited direct contact. Intrusive maintenance workers may be protected under suitable site management plan.
HSL-A (for VI) *HSL-A or HSL-B (for DC)*	n	Low- or Medium-Density Residential with single basement garage – for vapour intrusion, low-density residential (HSL-A) may apply due to low air exchange rate for basement garage. HSL depth is displaced by depth of basement. For soil direct contact HSLs, select from above medium density scenarios based on access to soils. Intrusive maintenance workers may be protected under suitable site management plan (refer to Section 2.3.3 of the Application Document).
HSL-D (for VI) *HSL-B (for DC outside footprint)*	y	Medium- or High-Density Residential with communal basement car park – assumes no access to soils with management controls on site. HSL depth is displaced by depth of basement. Intrusive maintenance workers may be protected under suitable site management plan. Note that areas outside of the basement footprint may be required to be assessed as a building without basement and with limited direct contact with soil. Also, limited exposure time for basement users and therefore HSL for Commercial Worker may be used for vapour intrusion (refer to Section 2.3.3 of the Application Document)
HSL-C	n	Recreational / Public Open Space (refer to Section 2.1.2 of the Application Document)
		Parks, ovals, pedestrian areas
		National parks, conservation areas – may be required to also assess ecological values (refer to Section 2.4.6 of the Application Document)
HSL-D	n	Commercial / Industrial Workers (refer to Section 2.1.3 of the Application Document) – considers only healthy adults under normal working conditions. Does not consider sensitive commercial uses such as schools, day care centres and medical practices.
		Commercial sensitive users – may consider using residential HSLs or a site-specific HRA (refer to Section 2.4.1of the Application Document)
		Agricultural land – may consider a site specific HRA (refer to Section 2.4.5 of the Application Document)
	n	Shallow intrusive workers down to 1 m deep. May require assessment of direct contact for soils surface to <2 m (refer to Sections 2.1.4 and 2.4.3 of the Application document)
		Deep intrusive workers down to >1 m deep, such as sewer. Should be managed with appropriate procedures and work practices for confined spaces (refer to Section 2.4.4 of the Application Document)

Is a site management plan (that includes specific occupational hazard management for works on the site) to be implemented on the site (controlled site)? → n May not need to consider health risks to intrusive workers

CRC CARE

Step 3 – Identify soil type relevant to site (soils above impacts in soil and/or groundwater)

Note the following before selecting soil type for use in assessment:

1. The prime parameter that influences the value of the HSL is the air filled porosity and volatility of the specific chemical. The higher the air filled porosity the greater the potential for volatile chemicals to migrate vertically through the soil profile.
2. The selection of a generic soil type requires knowledge of the soil profile across the site.
3. The selection of generic soil types should take into account the predominant characteristics of the soil profile and depth of contamination. The generic soil types assume a uniform profile, which at many, if not all, sites will not be the case. Where the overlying profile is predominantly fine materials (clays) (i.e. > 50% for soil column), these may be considered as the generic soil type. If the profile has a significant proportion of loose/coarse materials (including backfill) (i.e. > 50%), these materials may be considered as the generic soil type.
4. Air filled porosity is affected by moisture content. The wetter the soil, the lower the air filled porosity. Generic soil types have assumed a typical moisture content for the profile typical of average soil conditions occurring at depth. Moisture content will vary greatly by location and season. Moisture content will also vary between sub-categories of soil, e.g. between sand and clayey sand. HSLs may be adjusted based on moisture content. This is done in Step 7.
5. The selection of appropriate soil type is discussed in Section 3.2 of the Application Document.

Is there one dominant soil type on the site (> 50% of soil column)?
Or can a geological setting be conservatively identified (i.e. allowing greater vapour transport)?

- [ ] Y - Proceed
- [x] N - Consideration may be given to assuming the more conservative soil type, or may be given to a site-specific HRA (refer to Section 4.6 of the Application Document)

Has excavated area(s) been backfilled with more porous materials ?

- [ ] Y - Consideration should be given to adopting a more porous soil type (refer to Section 3.2 of the Application Document)
- [x] N - Proceed

Does the site lithology contain rock formations or soil with large cracks that can form preferential pathways?

- [ ] Y - The derived HSLs do not include lithologies with rock formations. Consideration may be given to using soil-vapour sampling or carrying out a site-specific HRA (refer to Section 4.6 of the Application Document)
- [x] N - Proceed

Identify HSL soil type relevant to site and assessment (above impacts)

The soil profile properties have been based on a predominant soil texture grouping developed by the US Department of Agriculture. The 12 texture classes have been grouped into 3 groups: sand, silt and clay. The groupings of the classes are based on mean particle size and saturation porosities. Refer to Section 3.2 for further discussion on the soil properties.

HSL soil type selected:

- [ ] **Sand** – Properties selected to be representative of a coarse textured undisturbed soil profile. Consists of texture classes sand, sandy clay.
- [ ] **Silt** – Properties selected to be representative of a coarse textured undisturbed soil profile. Consists of texture classes silt, silty clay.
- [ ] **Clay** – Properties selected to be representative of a fine textured undisturbed soil profile. Consists of texture classes clay.
- [x] **Other** – Including soil with large cracks (preferential pathways) and fractured rock (basalt, sandstone, siltstone, limestone) - refer to Section 4.6 of the Application Document. Soil vapour measurement is preferred to soil or groundwater. Due to fractures and preferential vapour pathways in rock, consideration should be given to overlying weathered soil, or to using HSLs for surface soil in sand.

For soil assessment (texture classification) undertaken in accord with AS 1726 the classifications of sand, silt and clay may be applied as coarse, fine with liquid limit less than 50%, and fine with liquid limit greater than 50% respectively.
Where there is uncertainty, laboratory analysis should be carried out. This may include parameters for detailed particle analysis and exact soil texture sub-class, and saturation porosity.

Environmental Site Assessment: 209-215 Harrington Street, Hobart. November 2017

CRC CARE

Step 4 – Impact media

Are there impacts to media other than soil and groundwater? (e.g surface water, biota, odours etc)
Note: aesthetic issues (odours/staining/ecological impacts etc.) to be addressed separately

[n] As well as human health assessment, consideration of other issues such as ecological, aesthetics, etc. may be required.

Soils

Are there soil impacts remaining on the site?

[x] Y - Proceed
[ ] N - Go to groundwater section

Depth to soil impacts. Note if considering basements, depths need to be displaced e.g. a 3 m deep basement means surface to <1 m represents 3 m to <4 m.

(refer to Section 2.3.3 of the Application Document)

[x] surface to <1 m
[x] 1 m to <2 m
[x] 2 m to <4 m
[ ] 4 m and deeper

[ ] Displacement due to basement
Distance of displacement (m) **1 to 3 m**

Is the site of interest an uncontrolled site where excavation activities such as construction may result in subsurface soil contamination brought to surface in the future?

[y] Consideration may be given to use of HSLs for direct contact and surface HSLs for vapour intrusion, for deeper soils. A site management plan may be used to address uncontrolled excavation at a site. (refer to Sections 2.3.1, 3.4.1, and 4.7 of the Application Document)

Groundwater

Are there groundwater impacts beneath the site?

[ ] Y - Proceed
[n] N - Go to soil vapour section

Is the depth to groundwater less than 2 m?

[n] Y - The HSL values may not adequately address this scenario. A site-specific HRA may be considered.
Soil vapour sampling may be used to assess vapour intrusion.
(refer to Section 2.3.3 of the Application Document)

Depth to groundwater impacts. Note if considering basements, depths should be displaced e.g. a 3 m deep basement means surface to 2 m represents 5 m (refer to Sections 2.3.3 of the Application Document). With basements, groundwater HSLs may not adequately characterise risks where the groundwater level is within 2 m of basement foundation.

[ ] 2 m to <4 m
[y] 4 m to <8 m
[ ] 8 m and deeper

[y] Displacement due to basement
Distance of displacement (m) 1 to 3

Step 4 – Impact media (cont.)

Soil vapour

Has soil vapour sampling been used to characterise vapour intrusion at the site? →

- [ ] Y - Proceed
- [x] N - Proceed to Step 5

Depth to soil impacts. Note if considering basements, depths need to be displaced e.g. a 3 m deep basement means surface to <1 m represents 3 m to <4 m.
(Refer to Section 2.3.3 of the Application Document.)

- [ ] surface to <1 m
- [ ] 1 m to <2 m
- [ ] 2 m to <4 m
- [ ] 4 m to <8 m
- [ ] 8 m and deeper

- [ ] Displacement due to basement
  Distance of displacement (m) _____

In using soil vapour sampling, please note the following:
1) It is recommended that soil vapour samples be taken as laterally close to a vapour source as possible (within or above).
2) Any sample taken within 1 m of the open air is subject to high levels of uncertainty due to atmospheric and meteorological effects. This includes the base and wall of excavation pits.
3) For sites subject to redevelopment with residential or commercial buildings, the soil vapour profiles are subject to change due to presence of concrete slabs. Caution is required on the use of soil vapour samples that are not within a soil source and in locations where buildings currently do not exist (refer to Section 1.6 of the Application Document).

CRC CARE

Step 5 – Selection of relevant source concentrations

Soil concentrations

1. Is the investigation site likely to be subdivided into smaller lots? →
   - [ ] Y - Statistical analysis using entire data set may not be applicable. Consideration may be given to using the maximums or using a sub-set for statistical analysis (refer to Section 3.4.1 of the Application Document)
   - [x] N - Statistical analysis using entire data set may be applicable

2. Is the site public open space / recreational land where users are unlikely to be in the same location for extended period? →
   - [ ] Y - Statistical analysis using entire data set may not be applicable. Consideration may be given to using the maximums or using a sub-set for statistical analysis (refer to Section 3.4.1 of the Application Document)
   - [x] N - Statistical analysis using entire data set may be applicable

If statistical analysis is appropriate consideration should be given to the following methodology (refer to Section 3.4.1 of the Application Document):

1. Samples should be sub-divided into appropriate depth ranges as defined by HSLs (i.e. surface to <1 m, 1 m to <2 m, 2 m to <4 m, 4 m+). Note if considering basement, the appropriate displacement distance should be accounted for.
2. For each depth range, the statistical mean (e.g. 95% UCL arithmetic mean) soil concentration should be calculated for each chemical. One approach is described in the NSW EPA *Contaminated sites: Sampling design guidelines* (1995). The coefficient of variance test described in the document may be used to determine if the distribution is normal or lognormal. Consideration of other statistical methods may be adopted if justified (e.g. distribution does not fit a normal or lognormal distribution).
3. For samples with no detection, it is recommended to use half the detection limit during statistical analysis.
4. If the standard deviation is very large (due to outliers or low number of samples) the statistical mean may be higher than the maximum concentrations. In this case it is recommended to use the maximum.
5. It is recommended to keep note of maximum concentrations as well as statistical mean concentrations. Maximum concentrations may be required to address potential acute exposure issues.

Groundwater concentrations

Has floating product been identified in any well? →
- [n] Y - Refer to point (a)

(a) If PSH is identified, dissolved phase is likely to contain chemicals at solubility limits. Proceed with HSL comparison, noting that if there is at least one chemical for which HSLs in groundwater is limiting (i.e. not all chemical HSLs are NL) then presence of PSH may be a potential vapour risk to site users (refer to Section 3.4.2 of the Application Document). Also note that the presence of PSH may trigger other legislative requirements for remediation/monitoring.

Is the area of interest represented by a single groundwater location or multiple ? →
- [ ] Single - small area of interest such as residential dwelling may be represented by the maximum groundwater concentration if the dwelling location is unknown, otherwise if the building footprint is known, the groundwater well nearest to the point of interest may be used.
- [x] Multiple - where exposure may occur over larger areas such as recreational parkland, consideration may be given to averaging the concentrations across the area of interest.

In deciding which set of monitoring data is most useful for analysis consideration may also be given to:
- Historical results to determine trends in groundwater concentrations (i.e. the likelihood that concentrations may increase)
- Upgradient wells and background concentrations
- Groundwater flow direction

(Refer to Section 3.4.2 of the Application Document.)

Step 5 – Selection of relevant source concentrations (cont)

Soil vapour concentrations

Is the area of interest represented by a single or multiple vapour location?	Single - small area of interest such as residential dwelling may be represented by the maximum soil vapour concentration if the dwelling location is unknown, otherwise if the building footprint is known, the groundwater well nearest to the point of interest may be used. Multiple - where exposure may occur over larger areas such as recreational parkland, consideration may be given to averaging the concentrations across the area of interest.
Are soil vapour samples measured in shallow soil less than 1 m from the surface where there is no existing slab or concrete paving?	Y - Measurements are subject to influence from weather and atmospheric conditions and may not be considered reliable.
Are soil vapour samples measured in areas where there is no existing slab or concrete paving, and the site is planned to be redeveloped where a building will exist (residential/commercial/ industrial use)?	Y - Soil vapour samples not measured within a soil or groundwater source, may not be representative of the soil vapour in the future when a building is located on site. The placement of an impermeable barrier such as a concrete slab can cause build-up of soil vapour within the soil and sub-slab, above levels measured where there is no slab present. Note soil vapour measurements from within soil and groundwater sources are not subject to vapour build-up as the soil vapour is likely to be at its maximum concentration when located within the source.

Soil vapour measurements may be taken at multiple depths, including within the source zone, above the source zone, and directly under a building foundation. Each of the measurement depths should be considered individually.

Refer to Sections 3.4.3 and 1.6 of the Application Document.

CRC CARE

Step 6 – HSL determination and combined vapour intrusion and direct contact

HSL determination

HSLs and satuaration/solubility limits are presented in the Appendix B HSL tables. Select the appropriate HSLs for vapour intrusion from tables for:
1) Each selected receptor listed in Step 2
2) Dominant soil texture classification listed in Step 3
3) Source depth listed in Step 4
HSLs may be compared to soil/groundwater/soil vapour source concentrations determined in Step 5.
Note for TPH C6 to C10, BTEX should be subtracted from analytical result prior to comparing with HSL

1. Is the HSL value Not Limiting 'NL'? →
   - [ ] Y - Indicates that vapour reaches saturation point and cannot increase to a point which would result in an unacceptable health risk
   - [x] N - Continue with Question 2 for groundwater, or proceed to Question 3

2. Is groundwater HSL not 'NL' and PSH identified in water? →
   - [ ] Y - May indicate potential vapour risk (refer to Section 3.4.2 of Application Document)
   - [x] N - Proceed to Question 3

3. Are comparisons being made against soil HSLs? →
   - [x] Y - Proceed to Question 4
   - [ ] N - Proceed to Question 5

4. Does direct contact need to be considered as well as vapour intrusion? →
   - [n] HSL-A Low-Density Residential - surface soils, and possibly subsurface soils if determined to be relevant (refer to Section 4.7 of Application Document). Proceed to 'Combined pathways exposure'
   - [n] HSL-B High-Density Residential – surface soils. Proceed to 'Combined pathways exposure'
   - [n] HSL-C Open Space Recreational – surface soils. Proceed to 'Combined pathways exposure'
   - [y] HSL-D Commercial / Industrial – surface soils. Proceed to 'Combined pathways exposure'
   - [y] Intrusive Maintenance Worker – down to 2 m. Proceed to 'Combined pathways exposure'
   - [ ] N - Proceed to Question 5

5. Do cross-scenario exposure need to be considered? →
   (eg. adjacent residential and open space)
   - [ ] Y - Proceed to 'Combined pathways exposure'
   - [n] N - Proceed to Step 7

Combined pathways exposure
Refer to Section 3.3 of the Application Document.
Combined exposures may occur on the same property where indoor vapour intrusion occurs concurrently with outdoor direct contact.
Combined exposure may also occur on adjacent properties, e.g. vapour intrusion on residential property and direct contact on adjacent open space (park).
For the given scenarios/chemicals, list the HSLs.
Where a vapour intrusion HSL is Not Limiting (NL) the chemical / scenario does not need to be considered in the combined pathway exposure.
The combined exposure is assessed as follows:

Multiple exposure pathways:

$$\textbf{Cumulative Fraction} = \frac{C_{UnderBuilding}}{HSL_{VapourIntrusion}} + \frac{C_{OutsideBuilding}}{HSL_{DirectContact}}$$

where vapour intrusion can refer to soil, groundwater or soil vapour source

Multiple exposure scenarios:

$$\textbf{Cumulative Fraction} = \frac{C_{Land\ use\ 1}}{HSL_{Land\ use\ 1}} + \frac{C_{Land\ use\ 2}}{HSL_{Land\ use\ 2}}$$

where the HSLs may refer to HSLs for vapour intrusion or direct contact

If a given C/HSL fraction is less than 0.1, the contribution of risk may be considered insignificant and the cumulative exposure need not be assessed for this scenario.
Where a cumulative fraction is less than 1 risk is normally acceptable. Where the value exceeds 1 a site-specific assessment should be undertaken, or proceed to Step 7.

Step 7 – HSLs and adjustments (vapour intrusion)

HSL adjustments (vapour intrusion only)
For each adjustment, careful consideration and justification is required.

1. Vapour biodegradation (refer to Section 4.2 of Application Document)
Prior to applying attenuation factor for vapour degradation, it is recommended to read the source documentation (Davis et al. 2009).
The minimum requirements for allowing attenuation factors for vapour degradation are as follows:

1. Is there evidence of oxygen penetration? (refer to Section 4.2.1 of Application Document)		Y - Requires measurement of oxygen in soil gas with at least 5% at 1 m depth
	x	N - Attenuation factor may not be applicable
2. Is the source depth 2 m or deeper? (refer to Section 4.2.2 of Application Document)	x	Y - Continue to Question 3
		N - Attenuation factor may not be applicable
3. Does the slab have one side less than 15m length? (refer to Section 4.2.3 of Application Document)	x	Y - Degradation factor may apply. Less than 4 m depth, a factor of 10 may apply. 4 m and deeper, a factor of 100 may apply.
		N - Attenuation factor may not be applicable

2. Soil organic carbon content (refer to Section 4.3 of Application Document)
May be used to adjust soil HSLs only. Soil HSLs were based on fraction organic carbon content of 0.003.
HSL may be adjusted if background levels of organic carbon content at the same depth as source is different from baseline. Background sample must not be contaminated with hydrocarbons. If surface soil, background sample in open space may not be appropriate to use if comparing for soil under slab.

Adjustment is linear, i.e. doubling the organic carbon will double the HSL. Applies only to soil HSL for vapour intrusion.

3. Air exchange rate (refer to Section 4.4 of Application Document)
HSLs are based on air exchange rate (AER) of 0.6 h^{-1} for residential and 0.83 h^{-1} for commercial.
Careful justification may be required prior to changing AER. Consideration should be given to weather conditions, practice of leaving doors/windows open, or closed in climate controlled building. New buildings tend to be more air tight to comply with energy saving regulations.

For soil and groundwater, adjustment is linear with respect to AER.
For soil vapour, adjustment is variable depending on soil type and depth.
Refer to the charts in Appendix D to determine the adjustment factor.

4. Moisture content (refer to Section 4.5 of Application Document)
HSLs may be adjusted if moisture content in soil is significantly different from baseline HSLs. The baseline moisture contents used were (dry wt) for sand 8%, silt 22% and clay 20%.
Moisture content should be representative of long-term moisture content and not short-term result from recent rain event. Also note that for a development with future building where no building currently exists, moisture contents on site may not be representative for the future state of the site.
HSL scaling factors for different land use/chemicals/soils are presented in Appendix C of the Application Document and may be applied as described in Section 4.5.

CRC CARE

Step 7 – HSLs and adjustments (vapour intrusion) (cont.)

Saturation/solubility limits (soil and groundwater HSLs only)

Apply the adjustments to the HSLs for vapour intrusion by multiplying by the determined factors.

After applying the adjustments to the HSLs, is the revised HSL greater than the solubility / saturation limit? →

- [ ] Y - Indicates that the predicted source concentration to produce an unacceptable vapour risk is higher than the saturation point. The revised HSL is not limiting to vapour (NL). Note this does not apply to soils with direct contact.
- [x] N - Revised HSL may be compared with measured source concentrations.

Multi-Pathway Exposure

1. Is inclusion of direct contact with soils required? →
   - [ ] Y - Repeat Step 6 with Adjusted Vapour Intrusion HSLs and Direct Contact HSLs
   - [x] N - Proceed to Question 2
2. Is cross-scenario exposure required to be assessed?
   - [ ] Y - Repeat Step 6 with Adjusted Vapour Intrusion HSLs and Direct Contact HSLs
   - [x] N - Proceed to 'Screening assessment'

Screening assessment

Is the adjusted HSL less than source concentration? →

- [ ] Y - Indicates potential health risk
- [x] N - Considered within acceptable health risks. If cancer endpoint (benzene) may also need to assess cancer risk level and cumulative cancer risk in Step 8

Is the maximum soil, groundwater or soil-vapour concentration greater than the HSL by more than one or two orders of magnitude? →

- [ ] Y - Indicates potential acute risk around hotspot
- [x] N - Considered within acceptable health risks

If the screening assessment indicates the potential for unacceptable health risk, consideration may be given to further investigations such as further contamination delineation, site-specific health risk assessment or site management. Before deciding the appropriate form of action considerations should include:

- The magnitude of HSL exceedance
- The nature of the source
- The time frame required for managing health risks
- Other statutory requirements

Step 8 – Cancer risk assessment
Acceptable cancer risk (Refer to Section 5.1 of Application Document) HSLs for benzene have been based on 1 x 10^{-5} cancer risk. In some jurisdictions it may be required to assess carcinogenic risks based on 1 x 10^{-6} cancer risk. 1) The HSLs are linearly related to acceptable risk. HSLs based on a cancer risk of 1 x 10^{-6} may be calculated by dividing the HSLs in Appendix B by a factor of 10. 2) If the HSL is NL (vapour only HSL), it is possible that it may become limiting if the HSL is within a factor of 10 of the soil saturation concentration (or solubility limit for groundwater). 3) If soil or groundwater source concentration is less than an order of magnitude of the saturation concentration / solubility limit (in Appendix B), then even dividing the non-limiting HSL by 10 would result in an acceptable risk. Hence there is no need to proceed further. 4) If soil or groundwater source concentration is within an order of magnitude of the saturation concentration / solubility limit it is recommended to calculate the revised HSL from the non-limiting HSL. This process is outlined as follows: **Calculating revised HSL for 10^{-6} cancer risk from non-limiting HSL.** 1) The non-limiting HSLs are presented in Friebel & Nadebaum 2011 (Part 1). 2) The derived HSLs are presented in Appendix F. 3) Find the pages that correspond to the source type (soil, groundwater, soil vapour) for the given scenario (residential / commercial / recreational / intrusive maintenance). Note indicator chemicals and TPH have been separated. 4) For the corresponding soil category, depth and chemical, the Vapour Intrusion HSL and saturation/solubility concentration is presented in the columns on the right. 5) If this HSL is divided by 10 and the result is greater than Csat (for soil) or saturation limit (for groundwater), then the revised HSL is still NL. Otherwise the result is the revised Vapour HSL.
Cumulative cancer risk (Refer to Section 3.6.1 of Application Document) HSLs for benzene have been based on 1 x 10^{-5} cancer risk. In most jurisdictions it is required to assess total carcinogenic risks based on 1 x 10^{-5} cancer risk. If HSLs are not NL for benzene and another carcinogenic chemical is identified, such as PAHs, follow the proedure outlined in Section 3.6.1. The cumulative fraction may also be applied to more than two chemicals. Note that multiple sources should be considered. For example, a resident may be exposed through direct contact with PAHs in surface soil, but also benzene vapours from soil and groundwater. For vapour risk (benzene), the risk contribution should consider the greatest risk for the receptor from all vapour sources. Because multiple sources do not have an additive effect, the source with the greatest risk needs to be identified (refer to Section 3.5 for discussion on multiple vapour sources). This means that for all sources/depths the source concentration should be divided by their respective HSLs to calculate the benzene contribution to cumulative risk. The highest fraction determines which source poses the greatest risk to receptors. The same may be carried out for carcinogenic PAHs. The sum of the highest benzene fraction and the highest PAH fraction results in the highest possible cumulative fraction.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates
ACN 119 043 051
Structural, Civil and Traffic Engineering

Structural and Civil Engineering
Project Design and Management
Forensic Engineering and Structural Inspections
Research and Development Facilitators

Traffic Engineering
Traffic Management Studies and Traffic Impact Assessment
Expert Witness Representation
Road Safety Audits

Traffic Impact Assessment Report

209 - 215 Harrington Street, Hobart
Mixed Use Development

Prepared for

6ty° Pty Ltd obo Stephen Chau

Date
November 2018

Prepared by
Joanne Fisher

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

13 Willowdene Avenue
Sandy Bay, 7005
Tasmania
Australia

Phone +61 (0)3 6225 0619
Fax +61 (0)3 6225 0618
Email:info@howarthfisher.com

Table of Contents

1. **Introduction** **1**
   - 1.1 Client Details 1
   - 1.2 Project Details 1
2. **Scope of Consultancy** **2**
3. **Location of the Development** **3**
4. **Existing Situation** **4**
   - 4.1 Site Details 4
   - 4.2 Road Width 6
   - 4.3 Traffic Volumes 8
   - 4.4 Posted Speed Limits 8
   - 4.5 Accident History 8
   - 4.6 Proposed Development 9
5. **Assessment of Trip Generation** **10**
   - 5.1 Existing Trip Rates 10
   - 5.2 Proposed Trip Generation 10
6. **Assessment of Parking** **12**
   - 6.1 Existing Situation 12
   - 6.2 Parking Requirements 13
   - 6.3 Proposed Parking Provision 14
   - 6.4 Dimensions and Manoeuvring 18
   - 6.5 Circulation and Search Pattern 19
   - 6.6 Accessible Parking 19
   - 6.7 Bicycle Parking 20
7. **Assessment of Access** **22**
   - 7.1 Existing Situation Access Width 22
   - 7.2 Proposed Accesses 23
   - 7.3 Australian Standard Requirement 23
8. **Assessment of Sight Distance** **25**
   - 8.1 Planning Scheme Requirements 25
   - 8.2 Pedestrian Sight Distance 27
9. **Servicing** **28**
10. **Sustainable Transport** **29**
    - 10.1 Pedestrian 29
    - 10.2 Cycling 29
    - 10.3 Buses 29
11. **Conclusion and Recommendation** **30**

Appendix A Parking Survey – Photographic Evidence
Appendix B Development Plans and Autotrack Plans

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

© Howarth Fisher and Associates
This document is and shall remain the property of Howarth Fisher and Associates. The document may only be used for the purposes for which it was commissioned in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form is prohibited.

	Name	Signature	Date
Authorised by:	**Joanne Fisher**		**20th November 2018**

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

1. Introduction

1.1 Client Details

This document has been prepared for the following:

Client Contact Details: Mr George Walker

Planning Consultant

6ty°

Tamar Suite 103

The Charles

287 Charles Street

Launceston

7250

Contact email: gwalker@6ty.com.au obo Stephen Chau

1.2 Project Details

The report is undertaken for the site at 209 -215 Harrington Street, Hobart.

A copy of the proposed development plans can be found at **Appendix B.**

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

2. Scope of Consultancy

The scope of consultancy involves the following:

- To obtain background information and plans.
- Liaise with Hobart City Council
- To undertake a site visit
- To assess sight distances in accordance with the requirements of the Planning Scheme.
- To assess intersection operation in light of the proposed development.
- To assess access provision in accordance with the requirements of the Australian Standard and the Hobart Interim Planning Scheme.
- To assess parking requirements and assess shortfall against the performance criteria outlined in the Planning Scheme.
- Undertake a parking survey (including an inventory) within 400metres walking distance of the proposed site on a Thursday to assess on street parking availability in walking distance of the proposed development between 7am – 7pm (12hrs)
- Analyse and assess findings (4hrs)
- Investigate other similar developments and assessments of parking supply for comparison purposes.
- Assess trip generation rates against current use.
- Assess layout of the car parking and check compliance against the AS2890.1: Off Street parking 2004.
- Assess servicing requirement and provision.
- Run Autotrack paths.
- Assess access against sustainable transport modes.
- Document findings in a Traffic Impact Assessment Report.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

3. Location of the Development

Figure 1 shows the location of the proposed development in the context of the surrounding street network.

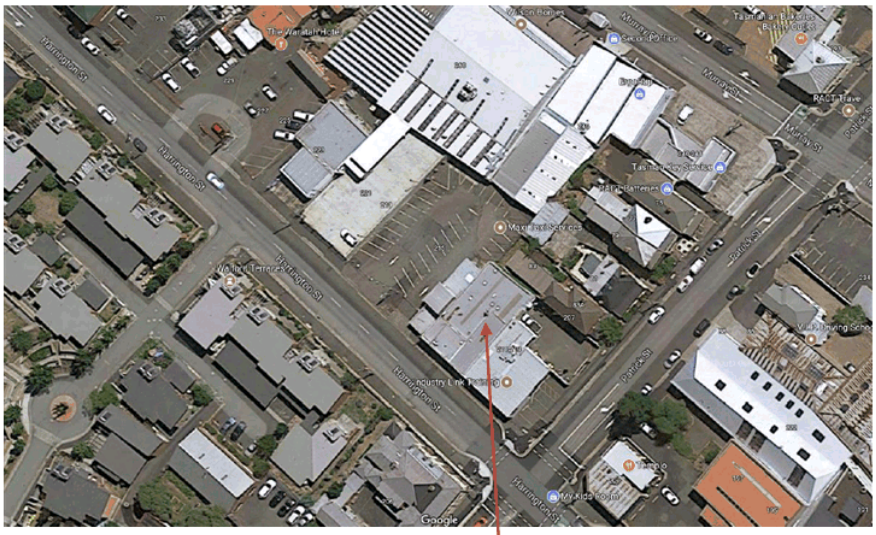


Figure 1: Location *(source: Google Maps 2017)*

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

4. Existing Situation

4.1 Site Details

The site is located at 209-215 Harrington Street, Hobart. The development has frontage onto both Patrick Street and Harrington Street, Hobart. The intersection at Patrick Street and Harrington Street is subject to traffic signal control.

Photograph 1: Traffic Signal control at the intersection of Harrington and Patrick Streets.

Harrington Street operates as a one way northbound road with two through lanes and on street restricted parking on both sides of the road. There are two crossovers / accesses on Harrington Street from the car park (an ingress and egress).

The ingress into the car park located on the Harrington Street frontage is 3.7 metres wide and the separate egress is 4.6 metres wide. The accesses are shown in the photograph overleaf:

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

Photograph 2: Showing the separate access and egress into the carpark on Harrington Street

Photograph 3: The crossover to the Patrick Street off street parking is 15 metres wide as shown in the photograph above

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Photograph 4: Patrick Street has two westbound lanes and one eastbound lane with restricted on street parking on both sides of the road.

There are four on site car parks requiring vehicles to drive in from Patrick Street and reverse out on to Patrick Street. There is also an adjacent off street parking which makes provisions for seven vehicles inclusive of a garage (as shown in the photographs 5 and 6).

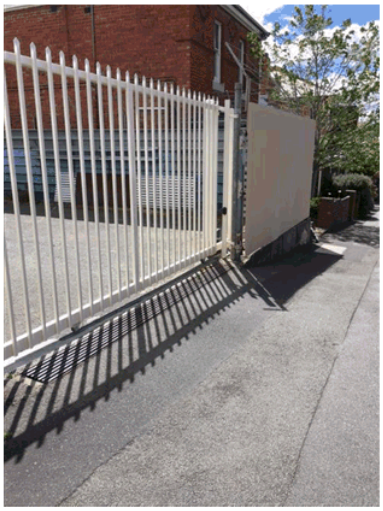
4.2 Road Width

The existing accesses into the site are via both Harrington Street and Patrick Street. The road widths of the two roads are outlined below:

Patrick Street - 11.7 metres wide (measured between kerb face).

Harrington Street - 11.2 metres wide (measured between kerb faces).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019



Photographs 5 and 6: Showing existing crossovers on Patrick Street

The site is currently used as an off street car park accommodating 28 long stay vehicles accessed off Harrington Street. There was formerly a Jackson Security retail outlet on the corner of Harrington Street and Patrick Street and latterly a culinary training centre.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

4.3 Traffic Volumes

The Hobart City Council has been contacted and has advised of the following traffic counts:

Patrick Street No traffic counts available.

Harrington Street 6,836 vehicle movements per day (forecast 2017 flows 7,779 per day).

725 during the evening peak hour (forecast 2017 flows 825 vehicles per hour).

650 during the morning peak hour (forecast 2017 flows 740 per hour).

These figures are based on Hobart City Council Metro Count data from 2004. Given that this data is 13 years old a traffic growth factor of 1%[1] per annum compound growth rate has been applied

Harrington Street is a major collector road providing an important northbound one way link through the City, it provides a connection from Sandy Bay Road, Davey Street and Macquarie Street in the South, to North Hobart.

Patrick Street is a minor collector road operating in an east west direction through the City, it provides an east west connection between West Hobart and Campbell Street.

4.4 Posted Speed Limits

The speed limit along Harrington Street and Patrick Street, in the vicinity of the proposed development is 50km/hr, the standard urban default speed limit.

4.5 Accident History

In line with standard traffic engineering practice, the accident history for the past five years has been obtained from the Department of State Growth.

There have been seven accidents in the vicinity of the proposed development in the last five years.

[1] Estimated - based on traffic growth [illegible] growth on roads in Hobart as outlined in the Traffic Congestion Report, 2016.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Six of these were property damage only accidents and one was a minor damage only accident.

Three were three cross traffic accidents at the intersection of Harrington and Patrick Streets and one side swipe accident. One involved a vehicle emerging from a driveway or lane way, another involved a vehicle entering a parking area and the other was classified as a cross traffic accident involving straight through vehicles.

4.6 Proposed Development

The proposed mixed use development comprises 39 residential apartments, comprising 9 x 3 bedroomed apartments, 27 x 2 bedroomed apartments, 3 x 1 bedroomed apartments and two retail tenancies, (retail tenancy 1 has a floor area of 127m^2 whilst retail tenancy 2 has a floor area of 85m^2).

There are 39 car parking spaces on the ground floor, including one accessible bay. This equates to one parking space per apartment.

There are 9 bicycle parking cages proposed within the car parking area to facilitate and encourage cycling as a mode of transport to and from the site.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

5. Assessment of Trip Generation

5.1 Existing Trip Rates

A survey was undertaken on Monday 31st October between 4.30pm and 5.30pm to determine trip generation to the existing site. The results have been documented in the table below:

Time and Date	Number of Trips	TOTAL
4.30pm - 5.30pm Monday, 31st October 2017	15 trips All vehicles exiting the car park and the Training Centre parking	15 trips

Table 1: Showing trip generation to the existing site during the evening peak hour. October 2017

5.2 Proposed Trip Generation

5.2.1 Survey Data

Surveys of trip generation to Inner City Hobart apartments have been undertaken for comparison purposes. The following peak hourly trip rates were observed.

Land Use	Trip Generation Rates	Total
Hobart city apartments *Block of 76 apartments* *2 and 3 bedroomed*	Evening peak hour 5pm-6pm	12 0.15 per apartment

Table 2: Additional Trip Generation for Apartments: Source: *Howarth Fisher and Associates, 1 Collins Street Survey.*

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Based on a pro rata trip generation the proposed development will generate an estimated 6 trips during the peak hour associated with the residential component. The evening peak hour trip generation for restaurants of 5 per $100m^2$ (based on the rates contained in the NSW, RTA Guide to Traffic Generating Developments 2002). This equates to a worst case scenario of an additional 11 trips in the evening peak period.

5.2.2 Greater Hobart Household Travel Survey

For comparison purposes, trip generation rates based on the results of the Greater Hobart Travel Survey have been made. This survey was undertaken in December 2010 and concluded that on average each resident in Greater Hobart makes 2.7 trips per day on a typical weekday. Based on the typical demographic of predominantly one and two bedroom apartments being accommodated by single people and couples, it can be estimated that the residential element of the development will generate approximately:

TOTAL = 73 trips per day

Based on the assumption that 10% of trips occur during the peak hour this equates to **8 peak hourly trips**.

Also assuming that there is a 50:50 split between single and two persons ownership, the development will generate approximately 73 trips per day of which typically 10% occur in the peak hour (approximately 8 trips per hour). Given its location, the development is well located to take advantage of access to the site by sustainable transport, therefore reducing the dependence on car based transport.

The site is located in close proximity to the City of Hobart as well as the commercial precinct of North Hobart, reducing the reliance on the use of the private car and enabling short distance walking trips.

There is a good network of pedestrian footpaths in the location of the site further facilitating walking as a mode of travel to and from the proposed development site.

The site is also located in close proximity to the Hobart bicycle network. There are also 9 bicycle parking lockers provided to facilitate safe and secure parking for cyclists.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

6. Assessment of Parking

6.1 Existing Situation

There are 28 parking bays on the existing site as shown in the photograph below:

Photograph 7: Existing Parking Bays located at the site

It is anticipated that the 28 long term parking spaces accessed off Harrington Street will be relocated to another private long stay car park in the vicinity of the site. There are a number of private long stay car parks located in the vicinity of the site. Two of the spaces in this car park are leased to the current culinary training centre and therefore this parking demand will not exist once the proposed development proceeds.

There are five on site car parks requiring vehicles to drive in from Patrick Street and reverse out on to Patrick Street. There is also an adjacent off street park which makes provisions for approximately seven vehicles inclusive of a garage (as shown in the photographs 5 and 6).

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

6.2 Parking Requirements

Table 4: Parking requirements for the Proposed Development Land Uses based on the Requirements of the City of Hobart Interim Planning Scheme (2015)

Land Use	Parking Rates	Total Requirement
30 Apartments *2 & 3 bedroomed* *Assumed multiple dwelling containing 2 or more bedrooms* *(including all rooms capable of being used as a bedroom)*	*2 for each dwelling and 1 dedicated visitor parking space per 4 dwellings (rounded up to the nearest whole number).*	60 + 8
9 x 1 bedroomed	*1 for each dwelling and 1 dedicated visitor parking space per 4 dwellings (rounded up to the nearest whole number).*	9 + 2
Retail Area *85m²* *Assumed General Retail / Food services* *127m²*	*General Retail 1 for each 30m² of floor area* *Food Services* *15 for each 100m² of floor area*	7.07 - 31.8
TOTAL		87 – 111 spaces

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

6.3 Proposed Parking Provision

The proposed development comprises 36 parking spaces, which results in a shortfall of between 87 and 111 space shortfall (depending on whether the tenancies are filled with general retail or food services).

As outlined at section E6.6.1 of the City of Hobart Interim Planning Scheme, 2015:

Objective

To ensure that there is enough car parking to meet the reasonable needs of all users of a use or development, taking into account the level of parking available on or outside of the land and the access

Performance Criteria

The number of onsite car parking spaces must be sufficient to meet the reasonable needs of users having regard to all of the following:

a) Car parking demand;

It is assumed that there will be a residential parking demand of at least 1 bay per apartment (a total of 39 spaces). Whilst the parking associated with visitors to the retail, food service and residential function cannot be provided on the site, it is anticipated that they will require short term car parking which will be accommodated within the on street restricted parking area, which operates in the immediate vicinity of the site.

Furthermore, people purchasing or renting the apartment will be aware of the parking space provision and will only chose to live in an apartment of the parking provision is appropriate. There are many examples of apartment in and close to the Hobart CBD where parking spaces is limited. For example, Collins Street / Sun Street apartment provides 1 parking space per apartment (some of which are 2 and 3 bedroomed). In addition the Battery Square apartment, in Battery Point also provide one car parking space for each 2 bedroomed apartment. Two bedroomed apartments at 77 Molle Street and 92 Barrack Street have one parking space per apartment. Whilst the 1 bedroomed apartments located at 156 Bathurst Street have no parking provision associated with them.

b) The availability of on street and public parking in the locality;

Currently there is restricted on street parking in the vicinity of the site on Patrick Street and Harrington Street. There is 1 hour restricted parking along the road frontage operating between 8am-6pm, Monday – Friday and 8am - 12pm Saturday and 15 minutes restricted parking along the Harrington Street frontage which can accommodate approximately 4 vehicles.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

There is 2 hour restricted parking along the opposite side of Harrington Street, which can be utilised for users of the retail function and for visitor parking. There is 1 hour restricted parking along Patrick Street which can be utilised by visitors and residents of the proposed redevelopment

The consolidation of the crossovers in Harrington Street will increase the amount of kerbside parking available and the reduction in crossover widths on Patrick Street from 15 metre to 5.5 metre will provide an additional two on street parking bays in the vicinity of the site.

An inventory of parking was undertaken within a 400metre walking distance of the proposed development site. A parking survey was undertaken on Thursday 1st November 2018, to determine the parking availability within a 400 metre walking distance of the site.

A patrol type survey was undertaken starting at 7am and concluding at 7.30pm.

The results of the survey are tabulated below:

Street Name	**Number of Vacant Spaces**								
	7am	**9am**	**1015am**	**1130am**	**1pm**	**3pm**	**4pm**	**5pm**	**6.30pm**
Elizabeth Street	52	40	36	28	28	27	39	33	10
Murray Street	50	34	24	32	38	34	49	50	48
Harrington Street	35	15	38	37	27	25	58	51	59
Watkins Street	0	1	2	2	2	5	15	10	7
Browne Street	0	0	2	0	0	2	3	3	4
Warwick Street	32	4	3	25	16	21	0	34	20
Patrick Street	45	10	24	19	16	21	32	42	53
Brisbane Street	42	21	22	8	23	10	39	46	40
Melville Street	19	16	18	10	20	18	30	16	16
TOTAL	**275**	**141**	**169**	**161**	**170**	**163**	**265**	**285**	**257**

Table 5: Vacant parking supply within 400 metres walking distance of the site

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Predominantly the parking within a 400metre walking distance of the site is subject to some restriction. However, typically most parking in the vicinity of the site starts at 8.30am and finishes at 6pm, providing a large supply of unrestricted parking between outside these hours, for visitors and or users of the retail and /or restaurant space. Notwithstanding the above, there are a minimum of 141 vacant spaces and a maximum of 285 vacant spaces in a reasonable walking distance of the site. Given the above there are enough on street parking spaces to cater for the shortfall in parking supply, although some may be subject to a short time restriction.

c) *The availability and frequency of public transport within a 400 metres walking distance of the site;*

The site is located in close proximity to a very high frequency public transport service operating along Elizabeth Street which is 300 metres from the proposed mixed use development. The 500, 501, 502, 503, 504, 510, 511, 512, 513, 520, 522 all operate along Elizabeth Street, which provide a 10 minute frequency bus service between Glenorchy and Hobart, Monday to Friday between 7am – 7pm, a twenty minute frequency service on Saturdays between 7am – 7pm and every 30 minutes frequency service on Sundays and public holidays.

This is one of the highest frequency public transport operations in the state which can be readily used by users of the proposed redevelopment.

d) *The availability and likely use of other modes of transport;*

The site is served on both sides by 2.9 metre wide footpaths. There are good pedestrian crossing facilities located at the traffic signal pedestrian controlled intersection of Patrick Street and Harrington Street.

e) *The availability and suitability of alternative arrangements for car parking provision;*

There is restricted short term on street parking in the immediate vicinity of the site, including the street frontage on Harrington Street and Patrick Street which can be used for parking associated with the retail and / or food restaurant land uses proposed on the site. It is anticipated that all residential parking can be contained on the site given that it is unlikely that all residents of a two and three bedroomed apartment will own two cars. Furthermore, people purchasing or renting these apartments will be aware there is a single parking space. The parking restriction on the surrounding street network typically operates between 8.30am to 6pm, Monday to Friday. Therefore, any parking requirement, for example, people visiting a restaurant or residents in the apartments in the evenings, will be able to do so without any issues.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Furthermore, there is a residential parking zone (area II) which can be used by residents in the unlikely case that extra residential parking be required.

f) *Any reduction in car parking demand due to the sharing of car parking spaces by multiple uses;*

It is likely there will be residents of the proposed apartment land use who will also be patrons of the retail and or food tenancies located on the site. This shared parking demand should be considered in order to prevent double counting of total parking demand. Similarly, residents of the proposed apartment development may also work in the retail / food tenancies, thereby reducing further the total overall parking requirement at the site.

The retail / food service land uses will also be utilised by people living and working in the vicinity of the proposed development site. Again many of these people will already be parked in a space and will not require additional parking spaces. There are both residential and commercial land uses in the vicinity of the proposed site that will facilitate users of the proposed development to either walk or cycle to the site.

g) *Any car parking deficiency or surplus associated with the existing use of the land;*

Currently there is a culinary training centre operating on the site with five parking bays. Based on the requirement of the current Hobart Interim Planning Scheme 2015, this land use has eight administrative and teaching staff and a maximum of ten students. The staff use the five bays in the vicinity of the site and have two off site bays. However, it is likely that some of the students park in the vicinity of the site whilst attending courses.

It is anticipated that this shortfall in parking is catered for by the surrounding road network.

h) *Any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site.*

Not Applicable (n/a)

i) *The appropriateness of a financial contribution in lieu of parking toward the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity.*

n/a

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

j) Any verified prior payment of a financial contribution in lieu of parking for the land;

n/a

k) Any relevant parking plan for the area adopted by Council;

Action 3 of the Hobart City Council Parking Plan states that:

The future installation of parking metres in existing high demand timed limited zoned spaces close to shops and restaurants would improve the turnover of spaces and therefore increase the parking opportunities for visitors and shoppers looking for short term parking.

Further actions contained in Action 1 of the Parking Plan which would help ensure the availability of the on street parking supply in the vicinity of the proposed development is outlined below:

Maintain regular reviews of non-metered parking zones and restrictions to ensure they are appropriate to meet the needs of residents and businesses located near to them

Investigate the possible installation of parking meters as an extension of the existing metered area to assist visitors to local businesses to find parking spaces.

l) The impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;

n/a

m) Whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code.

n) n/a

The proposed layout of the parking can be found **in Appendix B** of this report.

6.4 Dimensions and Manoeuvring

In line with the requirements of the Australian Standard staff and residential parking bays are defined as user Class A parking and are required to be 2.4 metres x 5.4 metres long (except where parking is to a low kerb where they can reduce to 4.8metres in length). The parking layout complies with the Standard requirement.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

6.5 Circulation and Search Pattern

Two way circulation patterns are proposed throughout the car park. It is proposed that discretion is sought, given that turning end bays are not being provided at blind aisles, as each space will be allocated to a residential apartment or staff member in the retail / food service outlet.

6.6 Accessible Parking

In line with the requirements of section E6.6.2 of City of Hobart Planning Scheme, 2015, *to ensure that a use or development provides sufficient accessible car parking for people with a disability.*

A1) Acceptable Solution

Car parking spaces provided for people with a disability must:

a) Satisfy the relevant provision of the Building Code of Australia
b) Be incorporated in the overall car parking design.
c) Be located as close as possible to the building entrance.

There is no requirement for accessible parking associated with the apartments. In spite of this there is one accessible bay provided.

There is a requirement for one accessible bay associated with the shops / café (class 6). There is a requirement of one space for every 50 car parking spaces or part thereof.

There is a requirement of one accessible bay associated with this retail use. It is proposed that the disabled bay be located on the street frontage to provide an at grade access to the retail facilities.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

6.7 Bicycle Parking

The requirement for bicycle parking is contained in Table E6.2 of the City of Hobart Interim Planning Scheme, 2015.

Land Use	Parking Rates	Total Requirement
39 Apartments *Assumed multiple dwelling*	*No requirement*	0
Retail Area *212m²* *General Retail* *Food services*	***Food Services*** ***Employee*** *1 for each 100m² of floor area* ***Visitor*** *1 for 200m² floor area after the first 200m²* (minimum 2) ***General Retail*** ***Employee*** *1 for each 500m² floor area after the first 500m²* ***Visitor*** *1 for each 500m² floor area*	2.12 2 0 1
TOTAL		3 employee spaces 2 visitor spaces (for food services land use) or 1 visitor space for general retail

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Table 3: Showing the Bicycle Parking Requirement for the proposed Development

Based on the requirement of the planning scheme the employee spaces need to be locked compounds with communal access using duplicate keys. The visitor bays need to be facilities to which the bicycle frame and wheels can be locked.

A bicycle storage area has been provided within the car park, significantly exceeding the requirement of the Planning Scheme and demonstrating the proponent's commitment to more sustainable transport modes.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

7. Assessment of Access

7.1 Existing Situation Access Width

There are four existing accesses at the site, two located on Patrick Street and two on Harrington Street.

Photograph 8: Showing the existing accesses onto Harrington Street

Photograph 9: Showing the existing 15 metre wide crossover onto Patrick Street

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

The one 15 metre wide crossover on Patrick Street forms an access into the secure off street car park as well as the 90 degree angled parking bays, (which require vehicles to drive in and reverse out on to Patrick Street).

7.2 Proposed Accesses

The proposed development involves the provision of one 5.5 metre wide access serving 28 spaces accessed from Harrington Street.

There is a separate 5.5 metre wide access on Patrick Street which serves 34 bays on a basement floor level. There is also access to a 23 space bicycle storage area and 4 motorcycle bays.

This is in line with the acceptable solution which states at section E.6.7.1:

The number of vehicle access points provided for each road frontage must be no more than 1 or the existing number of vehicle access points, whichever is the greater.

The development provides the opportunity to rationalise and reduce the number of crossovers along the Harrington Street frontage and reduce the overall crossover widths in both Harrington Street and Patrick Street. This is fully compliant with the acceptable solution contained within the City of Hobart Interim Planning Scheme, 2015.

7.3 Australian Standard Requirement

In line with Australian Standard AS2890.1 Off-street car parking facilities the class of the proposed parking facility is determined from the table 1.1 below:

9 AS/NZS 2890.1:2004

TABLE 1.1

CLASSIFICATION OF OFF-STREET CAR PARKING FACILITIES

User class	Required door opening	Required aisle width	Examples of uses (Note 1)
1	Front door, first stop	Minimum for single manoeuvre entry and exit	Employee and commuter parking (generally, all-day parking)
1A	Front door, first stop	Three-point turn entry and exit into 90° parking spaces only, otherwise as for User Class 1	Residential, domestic and employee parking
2	Full opening, all doors	Minimum for single manoeuvre entry and exit	Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking)
3	Full opening, all doors	Minimum for single manoeuvre entry and exit	Short-term city and town centre parking, parking stations, hospital and medical centres
3A	Full opening, all doors	Additional allowance above minimum single manoeuvre width to facilitate entry and exit	Short term, high turnover parking at shopping centres
4	Size requirements are specified in AS/NZS 2890.6 (Note 2)		Parking for people with disabilities

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

From the Table 1.1 it can be seen that the type of the proposed parking facility is a user class 1A residential and employee parking.

7.3.1 Category of Access Driveway

In line with AS2890.1 *to determine access driveway widths and restrictions on their location along frontage road table 3.1 categorizes driveways according to –*

a) the class of parking facility as shown is table 1.1;

b) the frontage road type, either arterial (including sub-arterial) or local (including collector):and

c) the number of parking spaces served by the access driveway

29 AS/NZS 2890.1:2004

TABLE 3.1

SELECTION OF ACCESS FACILITY CATEGORY

Class of parking facility (see Table 1.1)	Frontage road type	Access facility category				
		Number of parking spaces (Note 1)				
		<25	25 to 100	101 to 300	301 to 600	>600
1,1A	Arterial	1	2	3	4	5
	Local	1	1	2	3	4
2	Arterial	2	2	3	4	5
	Local	1	2	3	4	4
3,3A	Arterial	2	3	4	4	5
	Local	1	2	3	4	4

NOTES:

1 When a car park has multiple access points, each access should be designed for the number of parking spaces effectively served by that access.

2 This Table does not imply that certain types of development are necessarily suitable for location on any particular frontage road type. In particular, access to arterial roads should be limited as far as practicable, and in some circumstances it may be preferable to allow left-turn-only movements into and out of the access driveway.

From table 3.1 above it can be shown that the proposed driveway of the user class 1A parking facility serving 28 and 34 spaces accessing a local frontage road falls into a Category –1 driveway.

7.3.2 Access Driveway Widths Requirement

In line with AS2890.1 the recommended width for the proposed category 1 driveway is determined from Table 3.2, which is between 3 metres – 5.5 metres combined. The proposed accesses are both 5.5metres wide and comply with the requirements of the AS2890.1: Off street parking - 2004 and the Hobart City Council Interim Planning Scheme, 2015.

The location of the access and egress points can be found on the plan at **Appendix B** of this report.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

8. Assessment of Sight Distance

8.1 Planning Scheme Requirements

In accordance with the requirements of section E5.6.4 of the Hobart Interim Planning Scheme, 2015 a safe intersection sight distance requirement of 80 metres is required for a road with a 50km/hr posted speed limit.

8.1.1 Harrington Street Access

The sight distance from the proposed Harrington Street access was measured to exceed 80 metres as shown in the photograph below:

Photograph 10: Showing sight distance along Harrington Street exceeding the 80 metre requirement for a 50km/hr road.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

8.1.2 Patrick Street Access

The sight distance from the proposed Patrick Street access was measured to well exceed 80 metres, in both directions, as shown in the photographs below:

Photograph 11: Showing sight distance along Patrick Street to the west

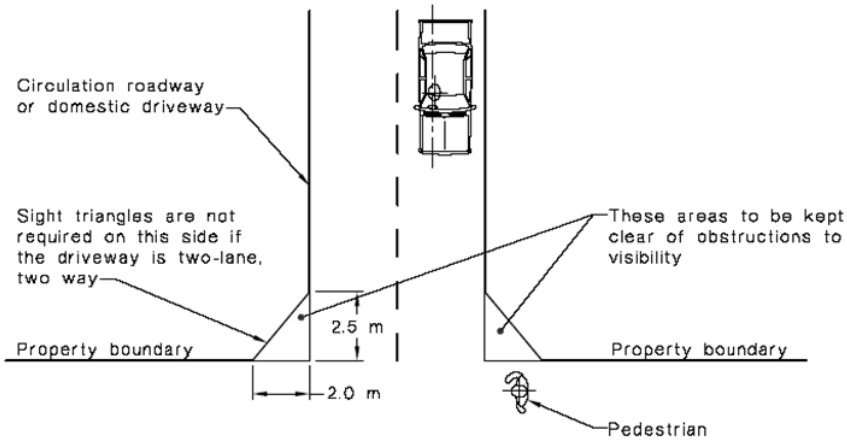
Photograph 12: Showing sight distance along Patrick Street to the east.

The sight distances from the two proposed accesses fully comply with the requirements of the Hobart Interim Planning Scheme 2015, for a road subject to a 50km/hr posted speed limit.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

8.2 Pedestrian Sight Distance

Pedestrian sight distance will be maintained in line with the requirements of the AS2890.1: Off Street parking 2004, at both of the accesses. Materials which enable a vehicle to have visibility on the approach to the pedestrian footpath will be utilised in accordance with the requirements of Figure 3.3 below.



DIMENSIONS IN METRES

FIGURE 3.3 MINIMUM SIGHT LINES FOR PEDESTRIAN SAFETY

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

9. Servicing

It is proposed that the site will be serviced on street. There is currently a 19 metre length of 15 minute parking on the Harrington Street frontage which operates between 8am - 6pm, Monday to Friday, and 8am -12noon on Saturday. It is recommended a 10 metre length of this kerbside space be dedicated to service vehicles as a loading bay to cater for refuse collection and service vehicles at the site.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

10. Sustainable Transport

10.1 Pedestrian

The site is located in close proximity to the City of Hobart and the commercial area of North Hobart, reducing the reliance on the use of the private car and enabling short distance walking trips.

There is a good network of pedestrian footpaths and traffic signal controlled crossing points in the vicinity of the development to further facilitate walking as a mode of travel to the residential and retail development.

10.2 Cycling

The site is located in close proximity to the City of Hobart and the commercial centre of North Hobart, making the proposed residential and retail land uses ideally situated to facilitate bicycle access. A significant number (72) bicycle parking facilities are incorporated into the car park design to further increase support and facilitate access to the site by bicycle.

10.3 Buses

The site is located in close proximity to a very high frequency public transport service operating along Elizabeth Street which is 300 metres from the proposed mixed use development. The 500, 501, 502, 503, 504, 510, 511, 512, 513, 520, 522 all operate along Elizabeth Street, which provide a 10 minute frequency bus service between Glenorchy and Hobart, Monday to Friday between 7am – 7pm, a twenty minute frequency service on Saturdays between 7am – 7pm and every 30 minutes frequency service on public holidays and Sundays. This is one of the highest frequency public transport operations in the state which can be readily used by users of the proposed redevelopment.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

11. Conclusion and Recommendation

The proposed development has been assessed in relation to the following:

Trip Generation

A survey was undertaken to assess evening peak hour trip generation to the site. There were 15 vehicles observed leaving the existing site during a weekday evening peak hour. An estimate of 27 evening peak trips have been calculated (based on Howarth Fisher survey data undertaken at other residential developments that are located close to the CBD), as well as trip generation rates determined from the NSW, RTA, Guide to Traffic Generating Developments,2002, for restaurant land uses.

Parking

Based on the proposed land uses and the requirements of the Hobart City Council Interim Planning Scheme 2015, there is a shortfall in parking ranging between 87-111 spaces dependent upon the uptake of either retail or food land use in the proposed tenancies.

It has been assumed that not all owners of two bedroomed apartments are going to own two cars and the proposed on site provision of 39 spaces and development will adequately cater for the parking demand associated with the site.

The owners and tenants of the apartment will be well aware of the supply of parking and unlikely to purchase an apartment if demand for parking exceeds the supply of one parking space per apartment. The proximity of the apartment development to the CBD makes the development conveniently located for residents to walk into town for work, shopping and for other purposes, given that many commuters park in the nearby streets and walk a similar distance.

The one Collins Development, for example, provides one space for each unit, townhouse or apartment despite some of them being one bedroomed, two bedroomed or three bedroomed. There are other examples, in the City, of other apartment developments only providing one parking.

There is restricted short term parking for the retail /food service land uses along the street frontage and in the immediate vicinity of the site.

There is also likely to be an element of shared parking demand associated with residents of the apartments also visiting the retail / food tenancies below. This element of shared parking needs to be considered when calculating overall parking requirements.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Sight Distance

The sight distances from the two proposed accesses fully comply with the requirements of the Hobart Interim Planning Scheme, 2015, for a road subject to a 50km/hr posted speed limit.

Access

The access widths, 5.5 metres, complies with the requirement for class 1 access driveway servicing 28 and 34 spaces, accessing onto a local road.

Servicing

It is proposed that the site will be serviced on street. There is currently a 19 metre length area of 15 minute parking on the Harrington Street frontage which operates between 8am - 6pm Monday to Friday and 8am - 12noon on Saturday. It is recommended a 10 metre length of this kerbside space be dedicated to service vehicles to cater for refuse collection (typically 8.8metres) and other service vehicles.

Sustainable Transport

The site is located in close proximity to the City of Hobart and the commercial area of North Hobart, reducing the reliance on the use of the private car and enabling short distance walking trips.

The site is also located in close proximity to the Hobart bicycle network and has provided 72 bicycle parking spaces to provide safe and secure parking for cyclists.

The site is located in close proximity to a very high frequency public transport service operating along Elizabeth Street which is 300 metres from the proposed mixed use development. The 500, 501, 502, 503, 504, 510, 511, 512, 513, 520, 522 all operate along Elizabeth Street, which provide a 10 minute frequency bus service between Glenorchy and Hobart, Monday to Friday between 7am – 7pm, a twenty minute frequency service on Saturdays between 7am – 7pm and every 30 minutes frequency service on Sundays and public holidays.

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

Appendix A

PHOTOGRAPHIC EVIDENCE OF PARKING SUPPLY IN THE VICINITY OF DEVELOPMENT SITE TAKEN THROUGHOUT THE DAY

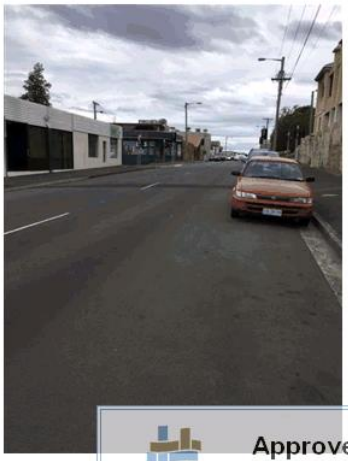
City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

Howarth Fisher and Associates

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates



City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

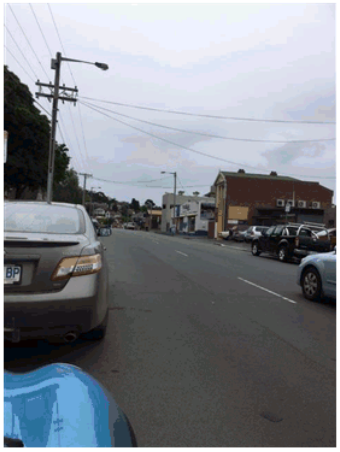
Howarth Fisher and Associates

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

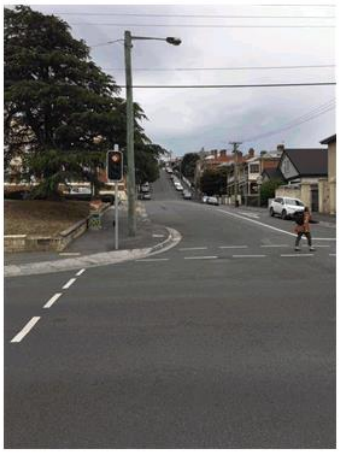
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates



Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates



City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

City of HOBART

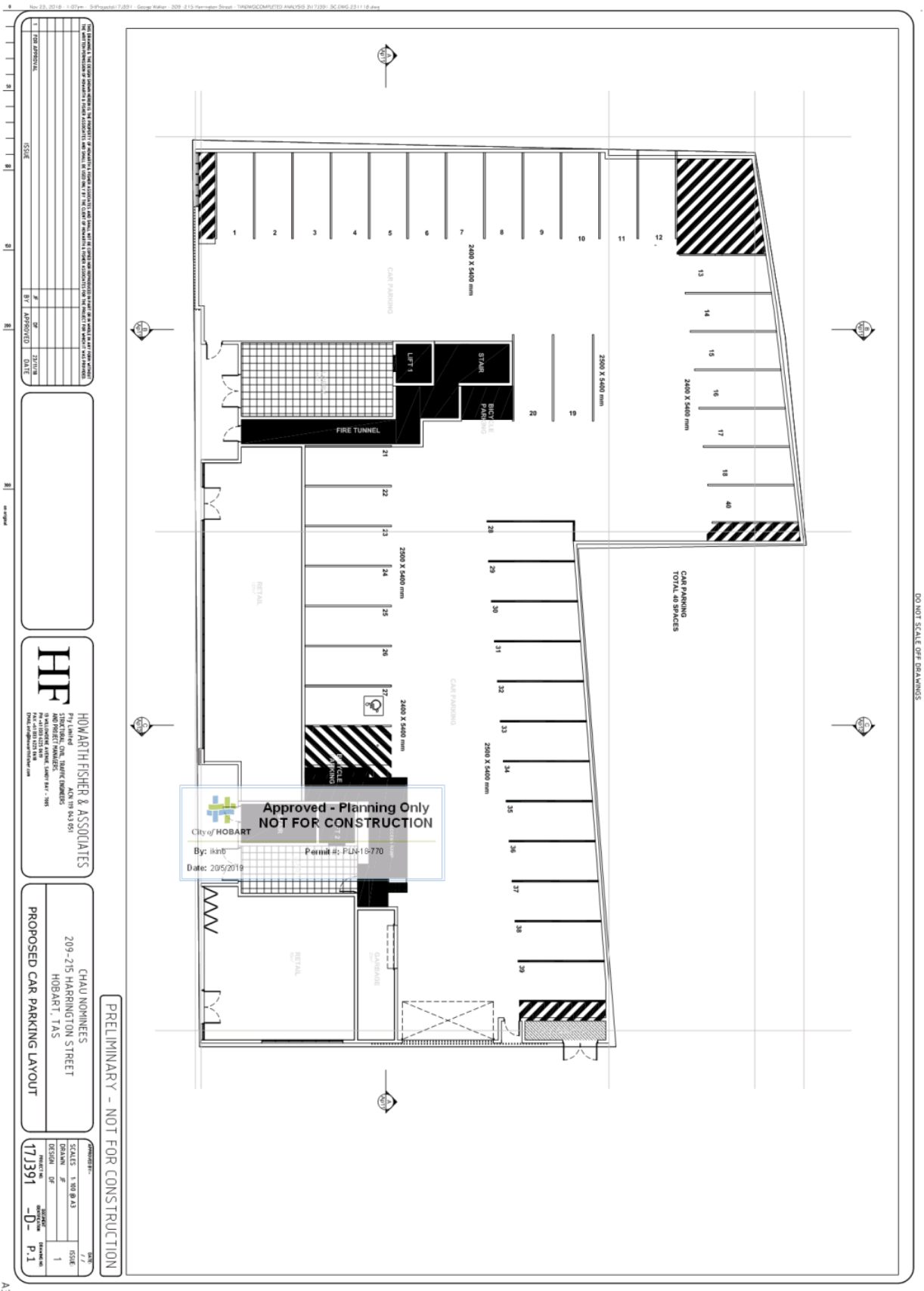
Approved - Planning Only
NOT FOR CONSTRUCTION

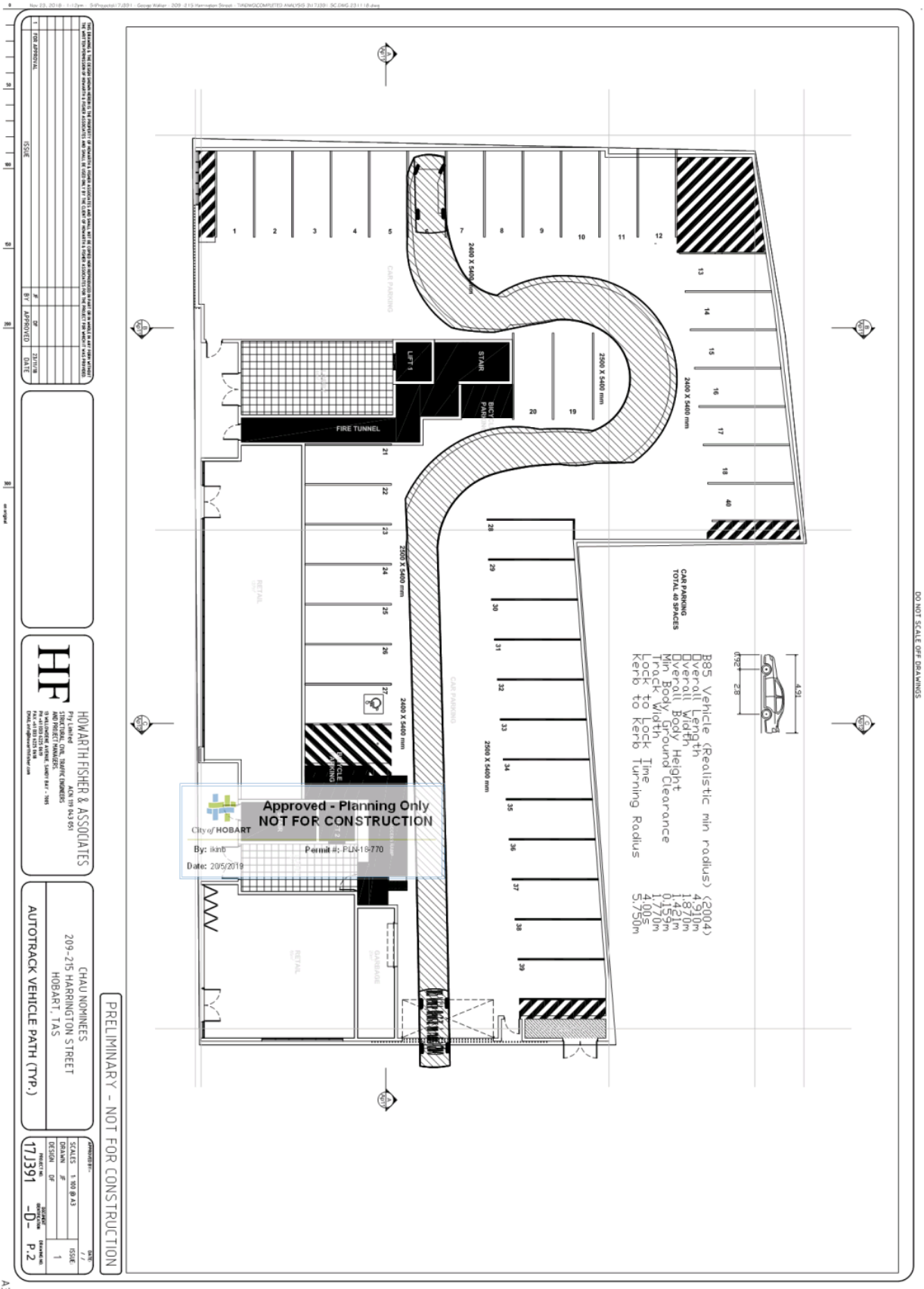
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

Howarth Fisher and Associates

APPENDIX B
DEVELOPMENT PLANS & AUTOTRACK PATHS

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019


PRELIMINARY - NOT FOR CONSTRUCTION
CHAU NOMINEES
209-215 HARRINGTON STREET
HOBART, TAS
PROPOSED CAR PARKING LAYOUT
HOWARTH FISHER & ASSOCIATES
FIRE TUNNEL
LIFT 1
STAIR
BICYCLE PARKING
2400 X 5400 mm
2500 X 5400 mm
CAR PARKING
CAR PARKING TOTAL 40 SPACES
RETAIL
GARBAGE
DO NOT SCALE OFF DRAWINGS
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019
17J391
-D-
P.1


B85 Vehicle (Realistic min radius) (2004)
Overall Length 4910m
Overall Width 1870m
Overall Body Height 1421m
Min Body Ground Clearance 0159m
Track Width 1770m
Lock to Lock Time 4.0s
Kerb to Kerb Turning Radius 5.750m
CAR PARKING
TOTAL 40 SPACES
2500 X 5400 mm
2400 X 5400 mm
LIFT 1
STAIR
FIRE TUNNEL
CAR PARKING
RETAIL
GARBAGE
Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikint
Permit #: PLN-18-770
Date: 20/5/2019
PRELIMINARY - NOT FOR CONSTRUCTION
HOWARTH FISHER & ASSOCIATES
CHAU NOMINEES
209-215 HARRINGTON STREET
HOBART, TAS
AUTOTRACK VEHICLE PATH (TYP.)
17J391
-D-
P.2
DO NOT SCALE OFF DRAWINGS

6ty°

Stormwater Report

209-215 Harrington Street, Hobart

Prepared for:

City of Hobart

Measured form and function 6ty°

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

Issue	01
Date	21 February 2019
Project Name	Harrington Street Apartments
Project Number	17.275
Author	Mark Walters
Document	

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

6ty Pty Ltd ©

Contents

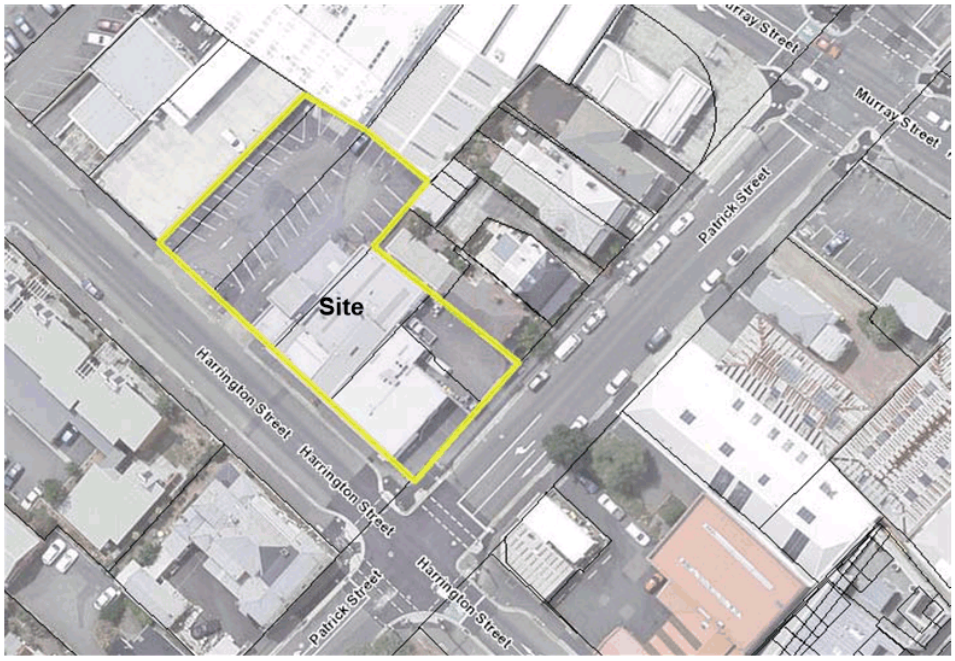
1.0 Introduction 1
2.0 The Existing Stormwater System 1
3.0 The Proposed Development 2
4.0 Stormwater Management 3
5.0 Summary 4

City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

1.0 Introduction

This report examines the stormwater design requirements for the redevelopment of an existing commercial site into a multi-storey apartment building and ground floor retail tenancy. The site is 209-215 Harrington Street, Hobart (the site - refer to Figure 1).

Figure 1 - aerial image identifying the perimeter of the site.



2.0 The Existing Stormwater System

The development site is located on the corner of Patrick Street and Harrington Street in Hobart. The land is comprised of 6 titles of which three titles formed the 209-213 Harrington Street parcel containing the Jacksons Security business and the remaining three being used as a commercial car park with the address of 215 Harrington Street. All of both sites are either buildings or sealed car parking and have a total area of some 1700 m^2.

The land falls away from Harrington Street, with the northern boundary of 215 Harrington Street being some 2.0m lower than the kerbing in Harrington Street. There is no stormwater system in Harrington Street other than the kerbing. Patrick Street descends from Harrington Street intersection and a Council drainage pipe is located along the frontage.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

There are a number of kerb connections on both Harrington Street and Patrick Street. The four connections on Harrington Street collect the downpipes for the roof areas immediate to the street which has an area of roughly 145m^2. Harrington Street kerb

drains to the northwest rather than to Patrick Street making this building the top of the Harrington Street catchment.

The two connectors to Patrick Street pick up the trench grate at the gate to the internal carpark and the down pipes on this side of the buildings. The 90o degree car parking on the Patrick Street corner drain directly to kerb. These car parks on the south eastern side of the building are all directly connected to the kerb of Patrick Street. It can be assumed that some 800m^2 of the site are connected to either the kerbing in Harrington Street or the kerbing in Patrick Street.

The bulk of the land, being the extensive car park on 215 Harrington Street, drain to a grated pit in the low point of the car park, set up as a sump pit with an elevated outlet. There is little on the much-repaired surface to indicate the exact route of this pipe but advice from Council is that the pit drains via an informal connection through the neighbouring properties of 221 and 223 Harrington Street.

Figure 2 - site plan showing existing services.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

3.0 The Proposed Development

The proposal is to remove the existing buildings from the land and to construct a multi-storey apartment building. The building will fully occupy the land, replacing the existing expanse of outside car parking with a building has a floor of parking.

The roofed area is to discharge to Patrick Street via a new connection to the Patrick Street stormwater pipe and will not rely on the existing kerb connections nor on the original piped connection from 215 Harrington Street.

4.0 Stormwater Management

Advice from Council is that stormwater flows from the site, if entirely directed to Patrick Street, must not exceed the flows currently arriving in the Patrick Street system from the site. That is, stormwater is be detained so as not to exceed the 800m^2 are of the existing site that drains to Patrick Street.

Design Flows:

A Watercom Drains model has been developed for the site. For a total catchment area of 1705 m2, developed to 100% impervious, it can be shown:

- Q_{5ARI} = 23 l/sec
- $Q2_{0ARI}$ = 36 l/sec

For the 800m^2 discharging to Patrick Street, the flows are:

- Q_{5ARI} = 11 l/sec
- Q_{20ARI} = 16 l/sec

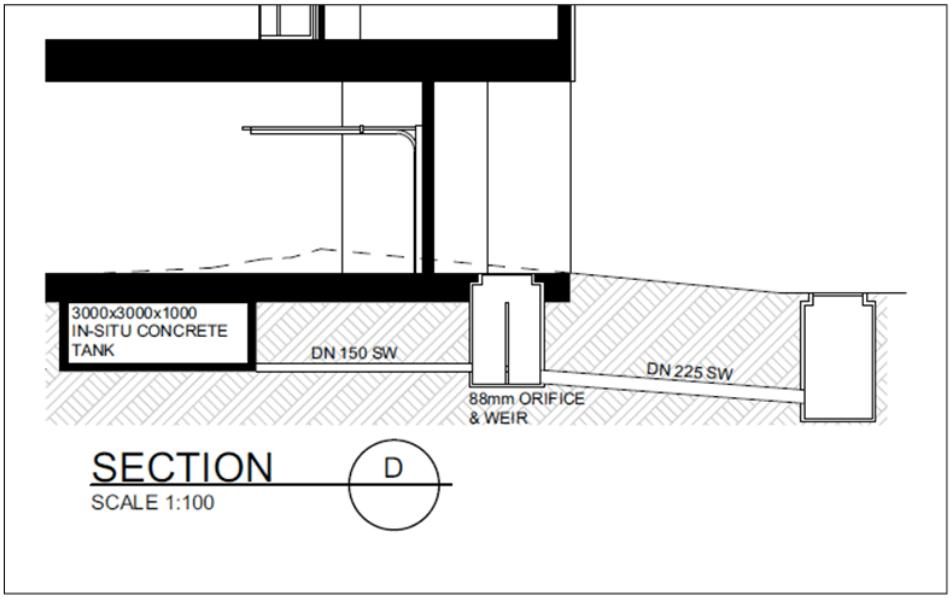
Detention Storage:

Flows from the site are to be limited to 16 l/s for the 20year ARI event by roofed areas being directed into a storage beneath the floor of the parking area. The storage is to discharge to a new pit located within the entrance of the parking area which is to contain a low flow pipe at the base of the pit and an elevated weir at the top of the pit so as to allow the passage of flows from an extreme event. The discharge pit is to be connected to the stormwater pipe in Patrick Street.

The Drains model for system indicates that a 9.0m^3 storage will be sufficient, discharging through a 0.88mm orifice as shown on the following section:

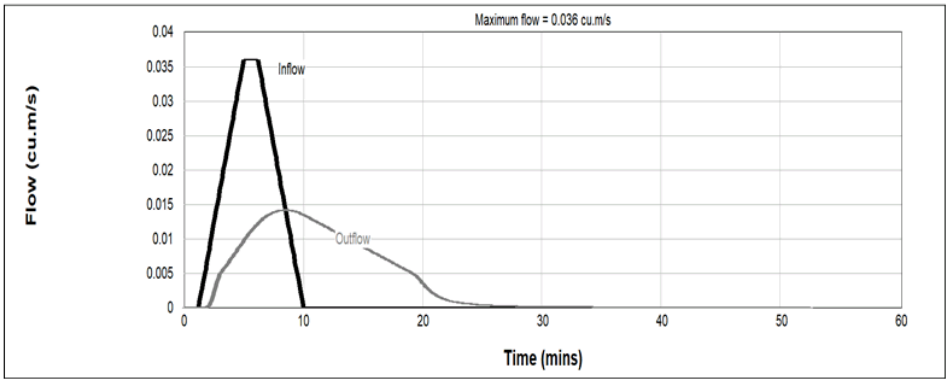
City of HOBART
Approved - Planning Only
NOT FOR CONSTRUCTION
By: ikinb Permit #: PLN-18-770
Date: 20/5/2019

Figure 3 - Section through the proposed detention basin and discharge pit.



The outflow of this arrangement is shown in the following hydrograph:

Figure 4 - Inflow-outflow hydrograph for 20 year ARI.



5.0 Summary

The detention storage and outlet arrangement will direct all of the stormwater from the site to the public drainage system in Patrick Street at a rate that does not exceed that of the site as currently developed. There is no increase in impervious areas on the site as a result of the proposed development.

Approved - Planning Only
NOT FOR CONSTRUCTION
City of HOBART
By: ikinb
Permit #: PLN-18-770
Date: 20/5/2019

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Committee
Council:	20 May 2019
Expiry Date:	20 May 2019
Application No:	PLN-18-770
Address:	209 - 213 HARRINGTON STREET , HOBART 215 - 217 HARRINGTON STREET , HOBART ADJACENT ROAD RESERVE
Applicant:	(6ty Pty Ltd) PO Box 63
Proposal:	Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire
Representations:	Nine (9)
Performance criteria:	Commercial Zone Use Standards; Potentially Contaminated Land Code; Road and Railway Assets Code; Parking and Access Code; Historic Heritage Code

1. Executive Summary

1.1 Planning approval is sought for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire, at 209-217 Harrington Street.

1.2 More specifically the application includes:

- The demolition of all existing buildings, and the construction of a new residential apartment and retail building comprising four levels, containing 39 residential apartments in the upper three levels, and two commercial tenancies, residential car parking (38 spaces), bicycle parking, lobby, pedestrian and vehicle access in the ground level. Awnings will extend over the footpath from both the Harrington Street and Patrick Street facades.
- Of the residential apartments, the proposal includes 27 two-bedroom apartments, nine one-bedroom apartments and three three-bedroom apartments. Each residential apartment level of the proposed building has the same layout and mix of apartments. All apartments include balconies of varying area and dimensions.
- Vehicles will enter and exit the site from Patrick Street.
- All titles making up the subject site will be consolidated as part of the proposal.
- The building is proposed to have a height of approximately 14.2 metres.
- The total gross floor area of the proposed building is 5,804m^2.
- The proposed building is finished externally with a combination of materials – Pre-cast concrete panels in charcoal, light grey and white; powder coated aluminium feature battens; glass balustrades; copper-coloured zincalume edging.

1.3 The proposal relies on performance criteria to satisfy the following standards and codes:

1.3.1 Commercial Zone Use Standards
1.3.2 Potentially Contaminated Land Code
1.3.3 Road and Railway Assets Code
1.3.4 Parking and Access Code
1.3.5 Historic Heritage Code

1.4 Nine (9) representations (six objecting; three in support) to the proposal were received within the statutory advertising period between 14 March and 28 March 2019.

1.5 The proposal is recommended for approval subject to conditions.

1.6 The final decision is delegated to the Council.

2. Site Detail

Image 1: Aerial view of the subject site and surrounds.

2.1 209-217 Harrington Street is made up of six titles in common ownership, having a total combined area of approximately 1700m^2. The site is located on the corner of Harrington and Patrick Streets, and currently includes several vacant buildings, at least one still tenanted low-rise conjoined commercial building and open commercial car parking areas. To the north and north-west, commercial sites continue, whilst to the north-east there is a row of smaller and older dwelling-style buildings currently occupied as a mix of both residential and office uses. Diagonally opposite the site across Harrington Street to the south is St. Mary's Cathedral and St. Mary's College. Elsewhere in the immediate area are a mix of commercial and residential properties.

2.2 Site photos follow below (Plates 1 to 4 and Image 2):

Plate 1: The site as viewed from diagonally opposite on the corner of Harrington and Patrick Streets.

Plate 2: The site as viewed from the opposite side of Patrick Street.

Plate 3: Looking back towards the site from further to the north-west along Harrington Street.

Plate 4: Looking down to the site from uphill on Patrick Street.

Image 2: Looking north-west up Harrington Street towards the site which is to the right after the intersection (Source: Google Streetview).

3. Proposal

3.1 Planning approval is sought for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire, at 209-217 Harrington Street.

3.2 More specifically, the proposal includes:

- The demolition of all existing buildings, and the construction of a new residential apartment and retail building comprising four levels, containing 39 residential apartments in the upper three levels, and two commercial tenancies, residential car parking (38 spaces), bicycle parking, lobby, pedestrian and vehicle access in the ground level. Awnings will extend over the footpath from both the Harrington Street and Patrick Street facades.
- Of the residential apartments, the proposal includes 27 two-bedroom apartments, nine one-bedroom apartments and three three-bedroom apartments. Each residential apartment level of the proposed building has the same layout and mix of apartments. All apartments include balconies of varying area and dimensions.
- Vehicles will enter and exit the site from Patrick Street.
- All titles making up the subject site will be consolidated as part of the proposal.
- The building is proposed to have a height of approximately 14.2 metres.
- The total gross floor area of the proposed building is 5,804m^2.
- The proposed building is finished externally with a combination of materials – Pre-cast concrete panels in charcoal, light grey and white; powder coated aluminium feature battens; glass balustrades; copper-coloured zincalume edging.

4. Background

4.1 A previous application for a similar but taller and differently designed building was deferred by the City Planning Committee and then withdrawn in April 2018 prior to being determined. This withdrawal occurred after it was highlighted to the applicant that the proposal was likely to be recommended for refusal by Council officers due to the proposal's inconsistency with planning scheme height provisions following decisions (at the time) of the Resource Management and Planning Appeal Tribunal that changed the required approach with regard to performance criteria assessment.

4.2 The current application has been considered by the Council's Urban Design Advisory Panel (UDAP), with the following issues raised during discussions:

- The protection of residential amenity (setback) with the balconies and windows located on the boundary of the site. The Panel raised concern that the design is unlikely to comply with the Building Code of Australia and that the applicant should seek advice from a building surveyor before proceeding further with the Application.

- The Panel suggested that a design statement that illustrated and justified the design process that had led to the development proposal would have been of benefit to the Panel and demonstrated that some rigour had been exercised in respect of that process.

- The Panel felt that the design of the lobby was awkward as it lacked a linkage to the stairs. It was also noted that the split floor levels incorporating steps leading to alternate fire exits may raise concerns around the adequacy of disability access and fire safety.

- The first floor of the proposal above the car park shows an outdoor area of vacant space. The Panel raised the opportunity for landscaping within this space and suggested this could be utilised as a common area for residents.

- The ground floor shows no internal access to garbage disposal area. The Panel felt that there should be an internal connection to the garbage disposal area for both residents and the occupiers of the retail space.

- The Panel noted that the proposal includes no external common spaces or landscaping and suggested that consideration be given to the provision of outdoor dining, landscaping and greenery that would encourage interaction from the street and where possible with neighbouring properties. The canopy/awning projection over the footpath was also noted as being very shallow.

- The Panel did consider the elevational treatment patterns to be an improvement on the previous application. However, they were of the view that the lobby/entrance section to the north-west end of the building could be improved with a glazed panel or similar for additional natural light.

- Concerns were raised regarding the colour palette and finishes. The Panel believed that the black, white and grey concrete finishes were particularly austere for a prominent residential complex in this location.

- More broadly, the Panel suggested that the application should be withdrawn or deferred in its current form so the issues with the Building Code (including disability access provisions) could be reviewed.

- The Panel also questioned the adequacy of the Planning Scheme in its ability to promote and protect residential amenity in the Commercial Zone as this current proposal basically complies with the Scheme provisions. The Panel saw very little support from within the Scheme to champion a better design outcome.

4.3 Whilst raising a number of relevant practical considerations, the majority of these matters are not considered by the *Hobart Interim Planning Scheme 2015* and its Commercial Zone which governs the site. The matter of BCA compliance was stressed upon the applicant during the UDAP meeting and they have subsequently advised that their Building Surveyor has confirmed that the proposed design can be certified. The remainder of the matters raised focus on improved amenity and functionality of the proposed building. The external colours and finishes could be revised to an extent without the need for further planning considerations, albeit that there are no controls around this applicable to the site in terms of development standards. Other minor changes to internal access arrangements could also be accommodated as being substantially in accordance with the original proposal if a permit were to be granted for the proposal as submitted.

5. Concerns raised by representors

5.1 The application was publicly notified between 14 March and 28 March 2019. Nine (9) representations (six objecting; three in support) to the proposal were received. One of the nine representations (objecting to the proposal) was received after the advertising period but has been given statutory status pursuant to s57(5) of the *Land Use Planning and Approvals Act 1993* in accordance with the decision of the Full Court of the Supreme Court relating to 10 Birngana Avenue.

5.2 The following table outlines the concerns raised in the representations received. Those concerns which relate to a discretion invoked by the proposal are addressed in Section 6 of this report.

Building too high and does not transition. Comparison to buildings further afield misleading and irrelevant.
Building and its siting up to the boundary does not positively contribute to the streetscape. Not consistent with height and bulk of surrounds.
Impacts upon the amenity of the area through high density, overdevelopment, visual impact, overlooking and overshadowing; blocking of views.
Design inferior to the last proposal. Concern about external cladding appearance and safety.
Inadequate car parking - shortfall not adequately justified. Traffic impact information inaccurate and misrepresents the current parking situation in the area.
Traffic generated by the development will have negative impacts upon local road safety and pedestrian activity.
Direct public notification should be wider.

6. Assessment

6.1 The *Hobart Interim Planning Scheme 2015* is a performance based planning scheme. To meet an applicable standard, a proposal must demonstrate compliance with either an acceptable solution or a performance criterion. Where a proposal complies with a standard by relying on one or more performance criteria, the Council may approve or refuse the proposal on that basis. The ability to approve or refuse the proposal relates only to the performance criteria relied on.

6.2 The site is located within the Commercial Zone of the *Hobart Interim Planning Scheme 2015*.

6.3 The proposal includes Residential (Multiple Dwelling), Food Services and General Retail and Hire uses. A Residential use is permitted in the zone provided it is above ground floor level. Food Services (other than a takeaway food premises or cafe) and General Retail and Hire uses are discretionary in the zone.

6.4 The proposal has been assessed against:

6.4.1 Part D - 23 Commercial Zone

6.4.2 E2.0 Potentially Contaminated Land Code

6.4.3 E5.0 Road and Railway Assets Code

6.4.4 E6.0 Parking and Access Code

6.4.5 E7.0 Stormwater Management Code

6.4.6 E13.0 Historic Heritage Code

6.5 The proposal relies on the following performance criteria to comply with the applicable standards:

6.5.1 Commercial Zone Use Standards:

Determining Applications - Part B 8.10.1 and 8.10.2
Zone Use Table - Part D 23.2
Outdoor Work Areas - Part D 23.3.5 P1

6.5.2 Potentially Contaminated Land Code:

Use - Part E 2.5 P1
Subdivision - Part E 2.6.1 P1
Excavation - Part E 2.6.2 P1

6.5.3 Road and Railway Assets Code:

Existing Road Accesses and Junctions - Part E 5.5.1 P3

6.5.4 Parking and Access Code:

Number of Car Parking Spaces - Part E 6.6.1 P1
Layout of Parking Area - Part E 6.7.5 P1
Landscaping of Parking Areas - Part E 6.7.8 P1
Facilities for Commercial Vehicles - Part E 6.7.13 P1

6.5.5 Historic Heritage Code:

Places of Archaeological Potential - Buildings, Works and Demolition - Part E 13.10.1 P1

6.6 Each performance criterion is assessed below.

6.7 Use - Part B 8.10.1 and 8.10.2 and Part D 23.2

6.7.1 As the proposal does not rule out a restaurant, the proposed potential Food Services use is classified as discretionary, as is the potential General Retail and Hire use in the Commercial Zone. It should be noted however that within the Food Services use group, takeaway food premises or cafes are classified as permitted uses in the zone.

6.7.1 There is no acceptable solution with regard to use, rather Part B, Clauses 8.10.1 and 8.10.2 ('determining applications') state that when determining an application for a discretionary use, the Council must consider the following (in-so-far as each is relevant to the particular discretion being exercised):

- *All applicable standards and codes;*
- *Any representations received;*
- *The purpose of the applicable zone;*
- *Any relevant local area objective or desired future character statement for the applicable zone;*
- *The purpose of any applicable code;*
- *The purpose of any applicable specific area plan.*

6.7.2 The Zone Purpose Statement for the Commercial Zone at Part D, Clause 23.1.1 states that the zone should provide for the following:

- *To provide for large floor area retailing and service industries.*
- *To provide for development that requires high levels of vehicle access and car parking for customers.*
- *To provide for a diversity of generally non-residential uses reflecting the transition between the Central Business Zone and inner residential areas.*
- *To allow for uses such as car yards, warehouse and showrooms in the areas of high traffic volume and high passing visibility.*
- *To allow good quality building stock to be used for less land extensive central service uses such as offices and specialist wholesaling uses.*
- *To allow for service industry uses such as motor repairs which provide a valuable service to users of the central area.*
- *To provide for residential use primarily above ground floor level.*

6.7.3 The proposal seeks approval to use the ground level commercial spaces for either food services uses or general retail and hire uses, allowing for flexibility in the occupation of the space. As proposed, the commercial spaces are reasonably generous in terms of floor area. These uses are non-residential, and between them allow for a diversity of use. Where the proposal incorporates residential use, this is all above ground floor level. With the layout proposed, the development promotes a transition between the Central Business Zone and the inner residential areas, which in this case commences directly across Harrington Street. The proposed commercial uses are of a nature less likely to adversely affect the amenity of nearby residential areas as opposed to some of the more commercially-oriented uses considered as permitted in the zone, such as service industry or bulky goods sales. Similarly, the proposed uses are not entirely reliant on high levels of vehicle access and car parking for customers, and would provide services that could be utilised by those utilising various forms of transport, including walking.

6.8 Outdoor Work Areas - Part D 23.3.5 P1

6.8.1 The acceptable solution at clause Part D 23.3.5 A1 requires outdoor work areas and noise-emitting services such as air conditioning equipment, pumps and ventilation fans to be located more than 50m from a residential zone.

6.8.2 The proposal includes plant and equipment located within 50m of the nearest residential zone, approximately 17m to the west across Harrington Street. No outdoor work areas are proposed.

6.8.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.8.4 The performance criterion at clause Part D 23.3.5 P1 provides as follows:

Outdoor work areas and noise-emitting services such as air conditioning equipment, pumps and ventilations fans located within 50 m of a residential zone must be accompanied by effective acoustic screening in the intervening space.

6.8.5 The application states that all plant and equipment including air-conditioning, ventilation and extraction will be located within the ground floor level or at the roof top. Actual and perceived noise emissions will be provided with effective acoustic screening by the building, distance and other specific acoustic treatments to reduce noise levels and protect the amenity of the residential apartments within it. The application concludes by stating that the location and position of noise-emitting plant and equipment will comply with the performance criteria. Upon consideration this conclusion is endorsed. To ensure that compliance with the performance criteria is maintained, a condition of any approval should ensure that effective acoustic screening is detailed.

6.8.6 The proposal complies with the performance criterion.

6.10 Potentially Contaminated Land Code - Use, Subdivision and Excavation - Part E 2.5 P1, Part E 2.6.1 P1 and Part E 2.6.2 P1

6.10.1 The acceptable solutions at clause Part E 2.5 A1 and Part E 2.6.1 A1 require the Director of the Environment Protection Authority, or a person approved by the Director for the purpose of this Code to:

(a) certify that the land is suitable for the intended use; or

(b) approve a plan to manage contamination and associated risk to human health or the environment that will ensure the land is suitable for the intended use.

There is no acceptable solution for Part E 2.6.2 A1.

6.10.2 The proposal includes development, excavation and subdivision (consolidation of titles) upon a place listed as being potentially contaminated. Certification of the site as being suitable for the proposed use has not been provided by the Director of the Environment Protection Authority or such person approved by the Director for the purpose of this code. An Environmental Site Assessment has been prepared to address the corresponding performance criteria.

6.10.3 The proposal does not comply with the acceptable solutions; therefore assessment against the performance criteria is relied on.

6.10.4 The performance criteria at clause Part E 2.5 P1, Part E 2.6.1 P1 and Part E 2.6.2 P1 provide as follows:

E2.5.1 P1 - Use
Land is suitable for the intended use, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or

(c) a plan to manage contamination and associated risk to human health or the environment that includes:

(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before any use commences; and
(iii) a statement that the land is suitable for the intended use.

E2.6.1 P1 - Subdivision
Subdivision does not adversely impact on health and the environment and is suitable for its intended use, having regard to:
(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or
(b) an environmental site assessment that demonstrates that the level of contamination does not present a risk to human health or the environment; or
(c) a plan to manage contamination and associated risk to human health and the environment that includes:
(i) an environmental site assessment;

(ii) any specific remediation and protection measures required to be implemented before any use or development commences; and
(iii) a statement that the land is suitable for the intended use or development.

E2.6.2 P1 - Excavation
Excavation does not adversely impact on health and the environment, having regard to:

(a) an environmental site assessment that demonstrates there is no evidence the land is contaminated; or

(b) a plan to manage contamination and associated risk to human health and the environment that includes:

(i) an environmental site assessment;
(ii) any specific remediation and protection measures required to be implemented before excavation commences; and
(iii) a statement that the excavation does not adversely impact on human health or the environment.

6.10.5 The proposal has been submitted with an Environmental Site Assessment which concludes that a risk to potential receptors has not been identified for either the construction phase or after the proposed development of the site; that all samples collected at the site are below threshold concentrations for assessment risk to human health; no particular health and safety issues are identified which may originate from on-site contamination activities; there are no specific remediation and protection measures required to be implemented before excavation commences; there is a very low human health risk to future users of the site as a result of excavation; and during site excavation works for the proposed development, there is a low risk that site contamination will present an environmental risk.

This assessment and its conclusions have been considered and accepted by the Council's Environmental Health Officer who confirms that all applicable performance criteria in the Code have been met. An associated condition of approval is recommended.

6.10.6 The proposal complies with the performance criterion.

6.11 Road and Railway Assets Code - Existing Road Accesses and Junctions - Part E 5.5.1 P3

6.11.1 The acceptable solution at clause Part E 5.5.1 A3 requires the annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less, to not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.

6.11.2 The proposed use of the accesses to the development off Patrick Street will see a greater than 20% increase in vehicle movements and greater than 40 movements per day.

6.11.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.11.4 The performance criterion at clause Part E 5.5.1 P3 provides as follows:

Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of 60km/h or less, must be safe and not unreasonably impact on the efficiency of the road, having regard to:

(a) the increase in traffic caused by the use;
(b) the nature of the traffic generated by the use;
(c) the nature and efficiency of the access or the junction;
(d) the nature and category of the road;
(e) the speed limit and traffic flow of the road;
(f) any alternative access to a road;
(g) the need for the use;
(h) any traffic impact assessment; and
(i) any written advice received from the road authority.

6.11.5 The Traffic Impact Assessment submitted with the proposal determines that the proposed increase in vehicle movements will not unreasonably impact the efficiency and safety of Harrington or Patrick Street. This Assessment has been reviewed by the Council's Senior Development Engineer and Manager Traffic Engineering, and the conclusions within have been accepted and endorsed. The following comments in response are notable:

'It is arguable that the accesses are not existing (so don't trigger this clause), but is in fact new (given the fact it is being redesigned and assessed under Clause E6.7.2 and and Clause E5.6.2/4). Despite this, the access increase in use is assessed in the TIA and supported for performance criteria approval.'

6.11.6 The proposal complies with the performance criterion.

6.12 Parking and Access Code - Number of Car Parking Spaces - Part E 6.6.1 P1

6.12.1 The acceptable solution at clause Part E 6.6.1 A1 requires on site parking to be provided at the rate specified in Table E6.1 according to the scale of the proposed uses. Residential dwellings of one bedroom generate a demand for one space per dwelling, whilst two or three bedroom dwellings demand two spaces per dwelling. Visitor parking spaces are required at a rate of one space per four dwellings. In this case 78 residential spaces are required to comply with the acceptable solution. Unspecified food services uses require 15 spaces per 100m^2 of floor area (in this case 32 to comply), while unspecified general retail and hire uses require one space per 30m^2 of floor area (in this case eight to comply). For the proposed development either 110 spaces (residential and food services) or 86 spaces (residential and general retail and hire) are required to meet the acceptable solution based on the proposed potential uses.

6.12.2 The proposal includes a total of 38 car parking spaces within the ground floor level. All 38 spaces are allocated to the proposed residential apartments, in an arrangement where, although not specified, all bar one apartment is likely to be allocated one parking space each.

6.12.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.12.4 The performance criterion at clause Part E 6.6.1 P1 provides as follows:

The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following:

(a) car parking demand;
(b) the availability of on-street and public car parking in the locality;
(c) the availability and frequency of public transport within a 400m walking distance of the site;
(d) the availability and likely use of other modes of transport;
(e) the availability and suitability of alternative arrangements for car parking provision;
(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the

consolidation of shared car parking spaces;
(g) any car parking deficiency or surplus associated with the existing use of the land;
(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;
(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;
(j) any verified prior payment of a financial contribution in lieu of parking for the land;
(k) any relevant parking plan for the area adopted by Council;
(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;
(m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Code.

6.12.5 The proposal relies on the submitted Traffic Impact Assessment to justify the shortfall in car parking. The TIA emphasises the need for one parking space per dwelling to support this justification. The assessment considers that the shortfall in car parking can be sufficiently justified and offset by the likely need for residents to own a car given the provision of bicycle parking within the development, and the location of the development within convenient walking distance of the Hobart CBD, North Hobart commercial and retail strip and other key community facilities and services. Further adding to the justification for the shortfall is the site's proximity to the high frequency public transport which operates along Elizabeth Street, located within 250m of the development site. It is also pointed out that the removal of crossovers in Harrington Street will increase the amount of kerbside parking and the reduction in crossover width on Patrick Street will provide additional parking in the vicinity of the site. Further, comments regarding the shared parking demand by way of residents who are also patrons to the proposed commercial tenancies are noted.

The TIA and its response to the parking allocation has been considered in detail by both the Council's Senior Development Engineer and Manager Traffic Engineering. The following comments are provided:

<u>Development Engineer:-</u>

Some of the apartment development examples used by the TIA to justify the deficiency in the provision on site car parking spaces, are located in the Central Business zone of the planning scheme which do not require on-site parking. This development is located within the Commercial Zone which does require on-site parking in accordance with table E6.1. The lack of alternative solutions to offset the significant deficiency of on site car parking spaces other than the use of on street parking, public transport, and walkability to the the CBD, share/trip parking demand and the possibility the residence are unlikely to have two cars, is a concern.

Manager Traffic Engineering is supportive of the deficiency of parking subject to at least one on site car parking space is provided for each of the 39 residential apartments and the maximum number of bicycle spaces are provided due to the lack of provisions to offset the parking deficiency.

The on site parking space for people with disabilities may be removed as the residential use does not require parking for people with disabilities. The removal of the parking space for people with disability will allow for two additional Class A1 residential car parking spaces to be provided, therefore achieving a total of 39 on site parking spaces. The provision of these two car parking spaces may impact on the bicycle parking spaces and alteration to the bicycle parking may be required.

<u>Manager Traffic Engineering:-</u>

I generally concur with the conclusions of the TIA, with the following comments:

- *There needs to be a minimum of one off-street parking spaces per apartment. There is no requirement to provide an accessible parking space for people with a disability and therefore the space [currently] shown on the plans could be reconfigured to provide parking for two cars. This should be a condition of the permit. It is noted that the removal of the shared space for the accessible car parking would impact on the ability to provide the adjacent bicycle parking – which should still be provided to off-set the parking shortfall (see dot points below).*

- *Advice should be placed on the permit to highlight that residents of these apartments will not be eligible to access the*

residential parking permit scheme.

- *It is pleasing to see that the applicant is proposing to provide bicycle parking within the basement car park. However, there is no "public" bicycle parking provided for the development.*

- *A minimum of 2 bicycle parking spaces are required for the retail space (one visitor space and one employee space) which increases to a minimum requirement of 4 bicycle parking spaces if the commercial space is used for food services (one visitor space and three employee spaces). This minimum requirement needs to be a condition on the permit as this bicycle parking is not shown on the plans and needs to be provided to off-set the parking discrepancy for this development.*

- *The developer should be encouraged to explore further bicycle parking within the development to support access to the site and also to off-set the parking discrepancy. Parking accessible by visitors should be included – for example there may be opportunities within the large lobby areas to provide some bicycle parking or in the entrance alcoves.*

- *The development is removing a number of driveways around the site with only one driveway proposed (off Patrick Street). With the reinstatement of the redundant driveway crossovers as barrier kerb – this will increase the available on-street parking by approximately 26m on Harrington Street which is sufficient space to park four to five vehicles (depending on vehicle size).*

- *It is noted that service vehicle access for this development will need to be provided on-street and that the kerbside traffic lane in Harrington Street is sufficient to safely allow for a loading zone to be provided. Advice should be placed on the permit to indicate that any change to on-street parking should be directed to the Manager Traffic Engineering.*

- *A Construction Traffic Impact Assessment should be provided prior to commencement of works (including demolition) to ensure that the traffic impacts in the location are appropriately managed and mitigated, particularly given the proximity to a number of schools.*

6.12.6 As a footnote to the above, and the recommendation for one additional parking space being provided, the development as proposed does not trigger the need for motorcycle parking, as this requirement is only triggered after there are at least 20 spaces after the first 19, meaning that with the 38 proposed, the provision of motorcycle parking is not required. Whilst requiring an additional one parking space brings the development up to the threshold warranting the provision of one motorcycle parking parking space, it is not considered appropriate to consider a development to be discretionary based on the result of a recommended condition requiring changes to the development.

6.12.7 The proposal complies with the performance criterion.

6.13 Parking and Access Code - Layout of Parking Area - Part E 6.7.5 P1

6.13.1 The acceptable solution at clause Part E 6.7.5 A1 requires the layout of car parking spaces, access aisles, circulation roadways and ramps to be designed and constructed to comply with section 2 “Design of Parking Modules, Circulation Roadways and Ramps” of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking and must have sufficient headroom to comply with clause 5.3 “Headroom” of the same Standard.

6.13.2 The proposal includes a parking layout that includes blind aisle lengths greater than six car parking spaces.

6.13.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.13.4 The performance criterion at clause Part E 6.7.5 P1 provides as follows:

The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site.

6.13.5 The Council's Senior Development Engineer concludes that while the car parking area has a blind aisle greater than six car parking spaces, there is room to turn around in another aisle. Given that the use of the car park will be by residents, there will be familiarity, so approval under Performance Criteria is supported.

6.13.6 The proposal complies with the performance criterion.

6.14 Parking and Access Code - Landscaping of Parking Areas - Part E 6.7.8 P1

6.14.1 The acceptable solution at clause Part E 6.7.8 A1 requires landscaping of parking and circulation areas to be provided where more than five car parking spaces are proposed. This landscaping must be no less than five percent of the area of the car park, except in the Central Business Zone where no landscaping is required.

6.14.2 The proposal does not include landscaping of its internal parking or circulation area.

6.14.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.14.4 The performance criterion at clause Part E 6.7.8 P1 provides as follows:

Landscaping of parking and circulation areas accommodating more than 5 cars must satisfy all of the following:

(a) relieve the visual impact on the streetscape of large expanses of hard surfaces;

(b) soften the boundary of car parking areas to reduce the amenity impact on neighbouring properties and the streetscape;

(c) reduce opportunities for crime or anti-social behaviour by maintaining passive surveillance opportunities from nearby public spaces and buildings.

6.14.5 As there is no parking external to the building, there is no impact upon the streetscape or the amenity of neighbouring properties generated by the provision of more than five parking spaces on-site. This Code standard is not relevant to the proposal.

6.14.6 The proposal complies with the performance criterion.

6.15 Parking and Access Code - Facilities for Commercial Vehicles - Part E 6.7.13 P1

6.15.1 The acceptable solution at clause Part E 6.7.13 A1 requires commercial vehicle facilities for loading, unloading or manoeuvring to be provided on-site in accordance with Australian Standard for Off-street Parking, Part 2 : Commercial. Vehicle Facilities AS 2890.2:2002, unless (a) the delivery of all inward bound goods is by a single person from a vehicle parked in a

dedicated loading zone within 50 m of the site; or (b) the use is not primarily dependent on outward delivery of goods from the site.

6.15.2 The proposal requests that a loading zone be provided on Harrington Street where there is currently a timed parking zone.

6.15.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.15.4 The performance criterion at clause Part E 6.7.13 P1 provides as follows:

Commercial vehicle arrangements for loading, unloading or manoeuvring must not compromise the safety and convenience of vehicular traffic, cyclists, pedestrians and other road users.

6.15.5 The Council's Senior Development Engineer states:

It is noted from Council GIS that there is a 15m long 15min parking zone AND an 8m long 1hr parking area in this location.

It is also noted that the reinstatement of kerb/redundant crossovers on Harrington/Patrick St will actually increase the area available for parking on Harrington/Patrick St, so it is considered that providing a loading zone in this location would be too onerous for Council City Infrastructure Traffic Engineers to provide given that onstreet parking can be picked up in the new kerb areas. Given that there is already landlord consent from Council for some works within the highway reservation, I believe the planning authority is able to condition for works in the highway reservation.

6.15.6 The proposal complies with the performance criterion.

6.16 Historic Heritage Code - Places of Archaeological Potential - Building, Works and Demolition - Part E 13.10.1 P1

6.16.1 The acceptable solution at clause Part E 13.10.1 A1 requires that buildings and works do not involve excavation or ground disturbance.

6.16.2 The proposal includes development upon a site included in an area mapped as having archaeological potential. Some excavation/ground disturbance is proposed, primarily for the basement carpark level. The applicant confirms the extent of excavation as 4,172m^3.

6.16.3 The proposal does not comply with the acceptable solution; therefore assessment against the performance criterion is relied on.

6.16.4 The performance criterion at clause Part E 13.10.1 P1 provides as follows:

Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:

(a) the nature of the archaeological evidence, either known or predicted;

(b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;

(c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;

(d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;

(e) measures proposed to preserve significant archaeological evidence 'in situ'.

6.16.5 The applicant has provided a preliminary statement of historic archaeological potential which allows for the proposal to be assessed against the Code. This statement makes preliminary archaeological observations, with the areas with greater archaeological potential being those fronting each street, with the larger areas at the rear probably having a lower potential. The statement considers that all early buildings on the site were probably domestic. The statement recommends a number of actions to be carried out, including that a more detailed and rigorous statement of historic archaeological potential be produced if the proposal is approved.

The Council's Cultural Heritage Officer has reviewed the proposal and the statement, and provides the following assessment:

> *The site is located within a place of archaeological potential (Figure E13.4.1). The proposal must therefore be considered*

against the objective set under Clause E13.10.1 of the scheme which deals with Building, Works and Demolition. The objective of the Clause is:

'To ensure that building, works and demolition at a place of archaeological potential is planned and implemented in a manner that seeks to understand, retain, protect, preserve and otherwise appropriately manage significant archaeological evidence.'

Given that the proposal intends to implement significant excavation and ground disturbance across the majority of the site, performance criterion P1 applies. This states that:

P1

Buildings, works and demolition must not unnecessarily impact on archaeological resources at places of archaeological potential, having regard to:

(a) the nature of the archaeological evidence, either known or predicted;

(b) measures proposed to investigate the archaeological evidence to confirm predictive statements of potential;

(c) strategies to avoid, minimise and/or control impacts arising from building, works and demolition;

(d) where it is demonstrated there is no prudent and feasible alternative to impacts arising from building, works and demolition, measures proposed to realise both the research potential in the archaeological evidence and a meaningful public benefit from any archaeological investigation;

(e) measures proposed to preserve significant archaeological evidence 'in situ'.

Notwithstanding requests from the Council that a full archaeological report of potential be submitted, the application only contains a preliminary statement of historic archaeological potential [albeit] by a suitably qualified practitioner. Although based on only a preliminary desk bound examination of the history of the site, the statement confirms that due to the regular

occupation of the site with a number of residential properties, it is considered that there is a high likelihood of archaeological evidence within the development site, particularly relating to those areas close to the street frontages of the site.

Given the above and because the proposal has been designed in the absence of any analysis of archaeological potential, it is considered essential that if the application is approved, any permit include appropriate conditions to address the scheme requirements. A number of suitably worded conditions relating to the submission of a full Statement of Archaeological Potential including acceptable methodology, suitable on-site monitoring during excavation works with provisions for stop orders and agreed procedures for protection, retaining, salvage and re-use of heritage fabric are therefore recommended.

6.16.6 The proposal complies with the performance criterion subject to conditions.

7. Discussion

7.1 Planning approval is sought for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire, 309-317 Harrington Street.

7.2 The application was advertised and received nine representations (six objecting, three supportive). The representations raised concerns including the height and form of the building being inappropriate, the building's impact upon surrounding amenity, the reduced amount of car parking not being justified, and the impacts of the additional traffic generated by the proposal upon the surrounding road and footpath network. In terms of height and form, the proposed building demonstrates compliance with relevant planning scheme development standards, so there is little by way of planning argument against the proposal from this perspective. The standards of the applicable Commercial Zone provide some greater protections where sites are within close proximity to a residential zone, however this site and this proposal are not subject to these provisions. The issues of traffic and car parking numbers have been reviewed in detail by Council engineers who have conditionally endorsed the proposal with regard to these matters.

7.3 The proposal has been assessed against the relevant provisions of the planning scheme and is considered to perform well subject to recommended conditions.

7.4 The proposal has been assessed by other Council officers, including the Council's Development Engineer, Manager Traffic Engineering, Stormwater Engineers, Environmental Health Officer, Cultural Heritage Officer, and Surveying Services Officer. The officers have raised no objection to the proposal, subject to conditions.

7.5 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire at 209-217 Harrington Street, HOBART satisfies the relevant provisions of the *Hobart Interim Planning Scheme 2015*, and as such is recommended for approval.

9. Recommendations

That: Pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for Demolition and New Building for 39 Multiple Dwellings, Food Services and General Retail and Hire at 209-217 Harrington Street, HOBART for the reasons outlined in the officer's report and a permit containing the following conditions be issued:

GEN

The use and/or development must be substantially in accordance with the documents and drawings that comprise PLN-18-770 209-217 HARRINGTON STREET HOBART TAS 7000 - Final Planning Documents except where modified below.

Reason for condition

To clarify the scope of the permit.

TW

The use and/or development must comply with the requirements of TasWater as detailed in the form Submission to Planning Authority Notice, Reference No. TWDA 2018/01768-HCC dated 14/12/2018 as attached to the permit.

Reason for condition

To clarify the scope of the permit.

ENG 12

A construction waste management plan must be implemented throughout construction.

A construction waste management plan must be submitted and approved, prior to commencement of work on the site. The construction waste management plan must include:

1. **Provisions for commercial waste services for the handling, storage, transport and disposal of post-construction solid waste and recycle bins from the development; and**
2. **Provisions for the handling, transport and disposal of demolition**

material, including any contaminated waste and recycling opportunities, to satisfy the above requirement.

All work required by this condition must be undertaken in accordance with the approved construction waste management plan.

Advice:

- *Once the construction waste management plan has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*
- *It is recommended that the developer liaise with the Council's Cleansing and Solid Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill. Further information can also be found on the Council's website.*

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG sw1

All stormwater from the proposed development (including but not limited to: roofed areas, ag drains, retaining wall ag drains and impervious surfaces such as driveways and paved areas) must be drained to the Council's stormwater infrastructure prior to first occupation or commencement of use (whichever occurs first).

Reason for condition

To ensure that stormwater from the site will be discharged to a suitable Council approved outlet.

ENG sw4

The development must be drained to Council infrastructure taking into account the limited receiving capacity of Council's infrastructure. Any new stormwater connection(s) required must be constructed, and existing

redundant connections must be sealed, by the Council at the owner's expense prior to issue of a Certificate of Completion / first occupation/ sealing of the final plan, whichever comes first.

Detailed design drawings showing both existing and proposed services and calculations must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The detailed design drawings must be checked and certified by a qualified and experienced engineer and include:

1. **The location of the proposed connections and all existing connections;**
2. **The size and design of the connection(s) such that they are appropriate to safely service the development given the limited receiving capacity of Council infrastructure (e.g backflow prevention, temporary stormwater storage, overflows);**
3. **Long-sections of the proposed connection(s) clearly showing any nearby services, cover, size, material and delineation of public and private infrastructure; and**
4. **A clear distinction between public and private infrastructure**.

All work required by this condition must be undertaken in accordance with the approved detailed design drawings.

Advice:

- *Once the detailed design drawings have been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*
- *Please note that once the condition endorsement has been issued you will need to contact Council's City Infrastructure Division to initiate an application for service connection.*

Reason for condition

To ensure the site is drained adequately

ENG sw7

Stormwater pre- treatment from the development car park must be installed prior to issue of a certificate of completion or first occupancy.

A stormwater management report and design must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The stormwater management report and design must:

1. **Be prepared by a suitably qualified engineer;**
2. **Include detailed design of the proposed treatment train, including final estimations of contaminant removal; and**
3. **Include a Stormwater Management Summary Plan that outlines the obligations for future property owners to stormwater management, including a maintenance plan which outlines the operational and maintenance measures to check and ensure the ongoing effective operation of all systems, such as: inspection frequency; cleanout procedures; descriptions and diagrams of how the installed systems operate; details of the life of assets and replacement requirements.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

- *Once the stormwater management report and design has been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*

OR

A stormwater management report and design must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The stormwater management report and design must:

1. **Be prepared by a suitably qualified engineer; and**
2. **Include detailed design of the car park area draining to sewer, including approval from Taswater.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

- *Once the stormwater management report and design has been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting*

documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Reason for condition

To avoid the possible pollution of drainage systems and natural watercourses, to comply with relevant State legislation.

ENG sw8

Stormwater detention for stormwater discharges from the development must be installed prior to issue of a certificate of completion or first occupancy, whichever comes first.

A stormwater management report and design must be submitted and approved, prior to issue of any consent under the *Building Act 2016*. The stormwater management report and design must be prepared by a suitably qualified engineer and include:

1. **Detailed design and supporting calculations of the detention tank, sized such that there is no increase in flows from the developed site up to 16 l/s for a worst case 5% AEP storm event. All assumptions must be clearly stated.**
2. **Design drawings of the detention tank showing the layout, the inlet and outlet (including long section), and the overflow mechanism.**
3. **Clarification of the emptying times and outlet size.**
4. **A supporting maintenance plan.**
5. **A Stormwater Management Summary Plan that outlines the obligation for future property owners to stormwater management.**

All work required by this condition must be undertaken and maintained in accordance with the approved stormwater management report and design.

Advice:

- *Once the stormwater management report and design has been approved the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
  Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure the development's stormwater system takes into account limited receiving capacity of Council's infrastructure.

ENG 13

An ongoing waste management plan for all commercial and domestic waste and recycling must be implemented post construction.

A waste management plan must be submitted and approved, prior to commencement of work on the site. The waste management plan must include provisions for commercial waste services for the handling, storage, transport and disposal of domestic waste and recycle bins from the development.

All work required by this condition must be undertaken in accordance with the approved waste management plan.

Advice:

- *Once the waste management plan has been approved Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure that solid waste management from the site meets the Council's requirements and standards.

ENG tr2

A construction traffic and parking management plan must be implemented prior to the commencement of work on the site (including demolition).

The construction traffic (including cars, public transport vehicles, service vehicles, pedestrians and cyclists) and parking management plan must be submitted and approved, prior to commencement work (including demolition). The construction traffic and parking management plan must:

1. **Be prepared by a suitably qualified person.**
2. **Develop a communications plan to advise the wider community of the traffic and parking impacts during construction.**
3. **Include a start date and finish dates of various stages of works.**
4. **Include times that trucks and other traffic associated with the works will be allowed to operate.**
5. **Nominate a superintendent, or the like, to advise the Council of the progress of works in relation to the traffic and parking management with regular meetings during the works.**

All work required by this condition must be undertaken in accordance with the approved construction traffic and parking management plan.

Advice:

- *Once the construction traffic and parking management plan has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*
- *A separate construction traffic and parking management plan may be submitted for each stage of the proposed development (i.e. demolition, excavation, construction).*

Reason for condition

To ensure the safety of vehicles entering and leaving the development and the safety and access around the development site for the general public and adjacent businesses.

ENG 3a

The access driveway, and parking module (parking spaces, aisles and manoeuvring area) must be designed and constructed prior to the first occupation and in accordance with Australian Standard AS/NZS2890.1:2004, unless approved otherwise by Council.

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 3b

The access driveway and parking module (parking spaces, aisles and manoeuvring area) design must be submitted and approved, prior to the issuing of any approval under the *Building Act 2016*.

The access driveway and parking module (parking spaces, aisles and manoeuvring area) design must:

1. **Be prepared and certified by a suitably qualified engineer.**
2. **Be generally in accordance with the Australian Standard AS/NZS2890.1:2004.**
3. **Demonstrate safe and efficient access, and use, where the design deviates from AS/NZS2890.1:2004.**
4. **Show all class 1A car parking spaces.**
5. **Show the locations of all structural columns and obstruction with regard to car parking spaces and provide clearance in accordance with Figure 5.2 of AS/NZS 2890.1:2004.**
6. **Show all bicycle parking spaces.**
7. **Show dimensions, levels, gradients & transitions, and other details as Council deem necessary to satisfy the above requirement.**

Advice:

- *A minimum of one (1) bicycle parking space must be provided that is accessible to the customers and a minimum of three (3) bicycle spaces must be provided that is accessible for employees of the commercial use component of the development.*
- *The maximum number of bicycle parking spaces should be provided to offset the deficiency in car parking spaces. Bicycle parking spaces accessible by visitors of the residential component of the development should be provided and may be located in areas such as lobby and/or entrance alcoves, however should not create a hazard for pedestrians or obstruct pedestrian access. Bicycle parking spaces for residents for the residential component of the development should be provided and may be located in any available spaces accessible by residents such as the on-site car park, however should not impact on any of the car parking spaces. All areas that can practically provide for bicycle parking spaces are to be utilised and clearly shown on the design.*

All bicycle parking spaces are to be fully contained within the property boundaries of the subject site and not to encroach on to the highway reservation. A statement should also be provided describing the amount and location of the bicycle parking spaces to be provided.

- *There is no requirement to provide an on-site carparking space for people with disabilities for the residential use component of the development. The on-site car park will only be able to provide car parking for the residents and there will be no on-site car parking for customers or employees of the commercial component of the development. There is no on-site car parking for customers or employees of the commercial component of the development and therefore no requirement to provide an on-site car parking space for people with disabilities for the commercial component of the development. The car parking space for people with disabilities may be removed to accommodate the minimum number of class 1A car parking spaces to be provided.*
- *Once the design has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement)*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 3c

The access driveway and parking module (parking spaces, aisles and manoeuvring area) must be constructed in accordance with the design drawings approved by Condition ENG 3b.

Prior to the first occupation, documentation by a suitably qualified engineer certifying that the access driveway and parking module has been constructed in accordance with the above drawings must be lodged with Council.

Advice:

- *Certification may be submitted to Council as part of the Building Act 2016 approval process or via condition endorsement (see general advice on how to obtain condition endorsement)*

Reason for condition

To ensure the safety of users of the access and parking module, and compliance with the relevant Australian Standard.

ENG 4

The access driveway and parking module (car parking spaces, aisles and manoeuvring area) approved by this permit must be constructed to a sealed standard (spray seal, asphalt, concrete, pavers or equivalent Council approved) and surface drained to the Council's stormwater infrastructure prior to the first occupation.

Reason for condition

To ensure the safety of users of the access driveway and parking module, and that it does not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.

ENG 5

The minimum number of class 1A car parking spaces to be provided on the site for the residential use component of the development is thirty nine (39), unless approved otherwise by Council. All car parking spaces must be in accordance with Australian Standards AS/NZS 2890.1:2004 or a Council approved alternate design.

All parking spaces must be delineated by means of white or yellow lines 80mm to 100mm wide, or white or yellow pavement markers in accordance with Australian Standards AS/NZS 2890.1:2004, prior to first occupation.

Advice:

- *There is no requirement to provide an on-site car parking space for people with disabilities for the residential use component of the development. The on-site car park will only be able to provide car parking for residents and there will be no on-site car parking for customers or employees of the commercial component of the development. There is no on-site car parking for customers or employees of the commercial component of the development and therefore no requirement to provide an on-site car parking space for people with disabilities for the commercial component of the development. The car parking space for people with disabilities may be removed to accommodate the minimum number of class 1A car parking spaces to be provided.*

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 6

The minimum number of bicycle parking spaces to be provided on the site for the commercial use (general retail and hire, and food services) component of the development is four (4), unless approved otherwise by Council. A minimum of one (1) bicycle parking space must be accessible to the customers and a minimum of three (3) bicycle spaces must be accessible for employees of the commercial use component of the development.

All bicycle parking spaces must be in accordance with Australian Standards AS 2890.3: 2015 or a Council approved alternate design and provided prior to commencement of use.

Advice:

- *The maximum number of bicycle parking spaces should be provided on site to offset the deficiency in car parking spaces. Bicycle parking spaces accessible by visitors of the residential component of the development should be provided and may be located in areas such as lobby and/or entrance alcoves, however should not create a hazard for pedestrians or obstruct pedestrian access. Bicycle parking spaces for residents of the residential component of the development should be provided and may be located in any available spaces accessible by residents such as the on-site car park, however should not impact on any of the car parking spaces. All areas that can practically provide for bicycle parking spaces are to be utilised. All bicycle parking spaces are to be fully contained within the property boundaries of the subject site and not to encroach on to the highway reservation.*

Reason for condition

To ensure the provision of parking for the use is safe and efficient.

ENG 11

Prior to the first occupation, the driveway crossovers to be abandoned must be reinstated and the proposed crossover on the Patrick Street highway reservation must be designed and constructed in general accordance with the following Tasmanian Standard Drawings:

1. **Urban - TSD-R09-v1 – Urban Roads Driveways and TSD R14-v1 Type KC vehicular crossing; and**
2. **Footpath - Urban Roads Footpaths TSD-R11-v1.**

Advice:

- *Any deviation from the Tasmanian Standard Drawings will require Council City Amenity Division approval.*
- *Redundant crossovers are required to be reinstated under the Hobart City Council's Highways By -law.*
- *You will require a Permit to Open Up and Temporarily Occupy a Highway (for works within the road reserve) in order to reinstate the existing and construct the proposed crossovers.*

Reason for condition

In the interests of vehicle user safety and the amenity of the development.

ENG 1

Any damage to council infrastructure resulting from the implementation of this permit, must, at the discretion of the Council:

1. **Be met by the owner by way of reimbursement (cost of repair and reinstatement to be paid by the owner to the Council); or**
2. **Be repaired and reinstated by the owner to the satisfaction of the Council.**

A photographic record of the Council's infrastructure adjacent to the subject site must be provided to the Council prior to any commencement of works.

A photographic record of the Council's infrastructure (e.g. existing property service connection points, roads, buildings, stormwater, footpaths, driveway crossovers and nature strips, including if any, pre-existing damage) will be relied upon to establish the extent of damage caused to the Council's infrastructure during construction. In the event that the owner/developer fails to provide to the Council a photographic record of the Council's infrastructure, then any damage to the Council's infrastructure found on completion of works will be deemed to be the responsibility of the owner.

Reason for condition

To ensure that any of the Council's infrastructure and/or site-related service connections affected by the proposal will be altered and/or reinstated at the owner's full

cost.

ENG s1

An adequate overland flow path must be maintained through the site, such that flows are excluded from the dwelling and not redirected onto third-party land, for the 1% AEP as at 2100 (including climate change loading) storm event.

Plans certified by a suitably qualified and experienced engineer as meeting the above requirement must be submitted prior to issue of any consent under the *Building Act 2016* or commencement of works (whichever occurs first).

All work required by this condition must be undertaken and maintained in accordance with the certified design drawings.

Advice:

- *Overland flow paths will need to demonstrate the excess flows caused from 1% AEP with climate change comply with the above condition, and are direct to public infrastructure.*

Reason for condition

To ensure that the risks associated with inundation are adequately managed.

ENG s2

A loading zone on Harrington Street (or equivalent Council approved location) must be installed prior to the commencement of use of the commercial use (general retail and hire, and food services) components of the development.

Advice:

- *Approval will be required from Council's City Planning Division Manager Traffic Engineering in a process separate to the planning process. All works will be at the developer's expense. Please contact Council's City Planning Division Manager Traffic Engineering with regard to the application for any proposed loading zone and/or other changes to on-street parking.*

Reason for condition

To ensure facilities for commercial vehicles are provided within 50m of the site.

ENV 2

Sediment and erosion control measures, in accordance with an approved soil and water management plan (SWMP), must be installed prior to the commencement of work and maintained until such time as all disturbed areas have been stabilised and/or restored or sealed to the Council's satisfaction.

A SWMP must be submitted prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008), available here.

All work required by this condition must be undertaken in accordance with the approved SWMP.

Advice: Once the SWMP has been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Reason for condition

To avoid the pollution and sedimentation of roads, drains and natural watercourses that could be caused by erosion and runoff from the development.

HER 6

All onsite excavation and disturbance must be monitored by a qualified archaeologist. Should any features or deposits of an archaeological nature be discovered on the site during excavation or disturbance:

1. **All excavation and/or disturbance must stop immediately; and**
2. **The qualified archaeologist must provide advice and assessment of the features and/or deposits discovered and make recommendations on further excavation and/or disturbance; and**
3. **All and any recommendations made by the archaeologist engaged in accordance with (2) above must be complied with in full; and**
4. **All features and/or deposits discovered must be reported to the Council with five days of the discovery; and**
5. **A copy of the archaeologist's advice, assessment and recommendations obtained in accordance with paragraph (2) above**

must be provided to Council within five days of receipt of the advice, assessment and recommendations.

Excavation and/or disturbance must not recommence unless and until approval is granted from the Council.

Reason for condition

To ensure that work is planned and implemented in a manner that seeks to understand, retain, protect, preserve and manage significant archaeological evidence.

HER 7

In the event of the Statement of Archaeological Potential (see HER s3 below) confirming the likelihood of nineteenth century structures remaining on the site, archival quality annotated photographs and drawings of the building and features to be demolished must be recorded prior to commencement of work.

The photographs and drawings must be submitted and approved, prior to the commencement of work. The photographs and drawings must include:

1. **Each elevation of the building;**
2. **The interior of the building;**
3. **Architectural design detailing of the building;**
4. **Both electronic and hard copy colour images;**
5. **Photographs of any detail that may be of historical or architectural interest; and**
6. **Cross referencing of all photographs to an "as existing" plan showing the location and orientation of the camera.**

Advice:

- *Once the annotated photographs and drawings have been approved, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure recognition of the historic cultural heritage significance of the place.

HER 8

Salvage must be undertaken to ensure the protection and/or reuse of heritage fabric.

Documentation must be submitted and approved, prior to the commencement of work. The documentation must outline the proposed salvage, retrieval and recycle options of the following building fabric, to satisfy the above requirement.

All work required by this condition must be undertaken in accordance with the approved documentation.

Advice:

- *Once the documentation has been approved the Council, will issue a condition endorsement (see general advice on how to obtain condition endorsement).*
- *Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.*

Reason for condition

To ensure that demolition in whole or part of a heritage place does not result in the loss of historic cultural heritage values unless there are exceptional circumstance.

HER s3

A certified Statement of Archaeological Potential, a certified Archaeological Impact Assessment, and a certified Archaeological Method Statement, all prepared by a suitably qualified archaeologist, must be provided to the Council prior to the commencement of work.

All works, required by this condition must be undertaken in accordance with the certified Archaeological Method Statement.

Reason for condition

To ensure that the works is done to the satisfaction of the Council, and to comply with Clause E13.10, requiring protection of historical archaeological values.

HER s4

Prior to the issue of any approval under the *Building Act 2016*, revised plans must be submitted and approved showing:

1. **Compliance with all recommendations of the Archaeological Method Statement.**
2. **Any design amendments required to mitigate impact upon historical archaeological values, in accordance with the Archaeological Method Statement.**

All work required by this condition must be undertaken in accordance with the approved revised plans.

Reason for condition

To comply with clause E13.10, by protecting historical archaeological values.

ENVHE 1

Recommendations in the report *Environmental Site Assessment 209 - 215 Harrington Street, Hobart September 2018 by Geo Environmental Solutions* must be implemented, for the duration of the building works.

Reason for condition

To ensure that the risk to future occupants of the building remain low and acceptable.

SURV 8

The applicant, at no cost to the Council, must have prepared, entered into, and have registered at the Land Titles Office, a deed pursuant to Section 75CA of the *Conveyancing and Law of Property Act 1884* for the awning encroachments over Harrington and Patrick Streets, prior to the issue of a completion certificate.

Advice:

- A Section 75CA Conveyancing & Law of Property Act 1884 certificate for the occupation of a Highway requires that the encroachment is a minimum 2.40 metres above the footpath or 4.25 metres above the road carriageway. A 600mm set back from the back of kerb may also be required.
- The applicant must prepare and forward the required instrument pursuant to section 75CA Conveyancing & Law of Property Act 1884, including a survey

plan of the encroachment (certified by a registered surveyor), the associated $230 Council application fee and the Land Titles Office registration fee, to the Council for execution and subsequent registration within the Land Titles Office.

Reason for Condition

To ensure that the proposed or existing building encroachments over Harrington and Patrick Streets are formalised in accordance with statutory provisions.

SUB s1

The titles comprising the development site (CT 197488/1, CT 247958/1, CT 203787/1, CT 232390/1, CT 52395/1 and CT 52394/1) must be adhered in accordance with the provisions of section 110 of the *Local Government (Building & Miscellaneous Provisions) Act 1993*, to the satisfaction of the Council prior to the issue of any occupancy permit.

Advice:

- *The application for an adhesion order to the Council has a fee of $230. Evidence will be required that the owners and mortgagees do not object to the adhesion and the condition is considered completed when a copy of the engrossed receipt of the Land Titles Office lodgement slip for the adhesion order has been received by the Council.*

Reason for condition

To ensure compliance with statutory provisions.

ADVICE

The following advice is provided to you to assist in the implementation of the planning permit that has been issued subject to the conditions above. The advice is not exhaustive and you must inform yourself of any other legislation, by-laws, regulations, codes or standards that will apply to your development under which you may need to obtain an approval. Visit the Council's website for further information.

Prior to any commencement of work on the site or commencement of use the following additional permits/approval may be required from the Hobart City Council.

CONDITION ENDORSEMENT PLANNING

If a condition endorsement is required by a planning condition above, you will need to submit the relevant documentation to satisfy the condition via the Condition

Endorsement Submission on Council's online services e-planning portal.

Where building approval is also required, it is recommended that documentation for condition endorsement be submitted well before submitting documentation for building approval. Failure to address condition endorsement requirements prior to submitting for building approval may result in unexpected delays.

Once approved, the Council will respond to you via email that the condition has been endorsed (satisfied). Detailed instructions can be found here.

CONDITION ENDORSEMENT ENGINEERING

All engineering drawings required to be submitted and approved by this planning permit must be submitted to the City of Hobart as a CEP (Condition Endorsement) via the City's Online Service Development Portal. When lodging a CEP, please reference the PLN number of the associated Planning Application. Each CEP must also include an estimation of the cost of works shown on the submitted engineering drawings. Once that estimation has been confirmed by the City's Engineer, the following fees are payable for each CEP submitted and must be paid prior to the City of Hobart commencing assessment of the engineering drawings in each CEP:

Value of Building Works Approved by Planning Permit Fee:

- Up to $20,000: $150 per application.
- Over $20,000: 2% of the value of the works as assessed by the City's Engineer per assessment.

These fees are additional to building and plumbing fees charged under the Building and Plumbing Regulations.

Once the CEP is lodged via the Online Service Development Portal, if the value of building works approved by your planning permit is over $20,000, please contact the City's Development Engineer on 6238 2715 to confirm the estimation of the cost of works shown on the submitted engineering drawings has been accepted.

Once confirmed, pleased call one of the City's Customer Service Officers on 6238 2190 to make payment, quoting the reference number (ie. CEP number) of the Condition Endorsement you have lodged. Once payment is made, your engineering drawings will be assessed.

BUILDING PERMIT

You may need building approval in accordance with the *Building Act 2016*. Click here for more information.

This is a Discretionary Planning Permit issued in accordance with section 57 of the *Land Use Planning and Approvals Act 1993*.

PLUMBING PERMIT

You may need plumbing approval in accordance with the *Building Act 2016*, *Building Regulations 2016* and the National Construction Code. Click here for more information.

OCCUPATION OF THE PUBLIC HIGHWAY

You may require a permit for the occupation of the public highway for construction or special event (e.g. placement of skip bin, crane, scissor lift etc). Click here for more information.

You may require a road closure permit for construction or special event. Click here for more information.

You may require a Permit to Open Up and Temporarily Occupy a Highway (for work in the road reserve). Click here for more information.

GENERAL EXEMPTION (TEMPORARY) PARKING PERMITS

You may qualify for a General Exemption permit for construction vehicles i.e. residential or meter parking/loading zones. Click here for more information.

BUILDING OVER AN EASEMENT

In order to build over the service easement, you will require the written consent of the person on whose behalf the easement was created, in accordance with section 74 of the *Building Act 2016.*

PERMIT TO CONSTRUCT PUBLIC INFRASTRUCTURE

You may require a permit to construct public infrastructure, with a 12 month maintenance period and bond (please contact the Hobart City Council's City Infrastructure Division to initiate the permit process).

NEW SERVICE CONNECTION

Please contact the Hobart City Council's City Infrastructure Division to initiate the application process for your new stormwater connection.

STORM WATER

Please note that in addition to a building and/or plumbing permit, development must be in accordance with the Hobart City Council's Hydraulic Services By law. Click here for more information.

STRUCTURES CLOSE TO COUNCILS' STORMWATER MAIN

The design of structures (including footings) must provide protection for the Council's infrastructure. For information regarding appropriate designs please contact the Council's City Infrastructure Division.

WORK WITHIN THE HIGHWAY RESERVATION

Please note development must be in accordance with the Hobart City Council's Highways By law. Click here for more information.

CBD AND HIGH VOLUME FOOTPATH CLOSURES

Please note that the City of Hobart does not support the extended closure of public footpaths or roads to facilitate construction on adjacent land.

It is the developer's responsibility to ensure that the proposal as designed can be constructed without reliance on such extended closures.

In special cases, where it can be demonstrated that closure of footpaths in the CBD and/or other high volume footpaths can occur for extended periods without unreasonable impact on other businesses or the general public, such closures may only be approved by the full Council.

For more information about this requirement please contact the Council's Traffic Engineering Unit on 6238 2804.

DRIVEWAY SURFACING OVER HIGHWAY RESERVATION

If a coloured or textured surface is used for the driveway access within the Highway Reservation, the Council or other service provider will not match this on any reinstatement of the driveway access within the Highway Reservation required in the future.

REDUNDANT CROSSOVERS

Redundant crossovers are required to be reinstated under the Hobart City Council's

Highways By law. Click here for more information.

ACCESS

Designed in accordance with LGAT- IPWEA – Tasmanian standard drawings. Click here for more information.

CROSS OVER CONSTRUCTION

The construction of the crossover can be undertaken by the Council or by a private contractor, subject to Council approval of the design. Click here for more information.

STORM WATER / ROADS / ACCESS

Services to be designed and constructed in accordance with the (IPWEA) LGAT – standard drawings. Click here for more information.

TITLE ADHESION

An adhesion of your titles is required because a portion of your development is across one or more title boundaries. Contact your solicitor or a registered land surveyor to initiate the process.

WORK PLACE HEALTH AND SAFETY

Appropriate occupational health and safety measures must be employed during the works to minimise direct human exposure to potentially-contaminated soil, water, dust and vapours. Click here for more information.

PROTECTING THE ENVIRONMENT

In accordance with the *Environmental Management and Pollution Control Act 1994*, local government has an obligation to "use its best endeavours to prevent or control acts or omissions which cause or are capable of causing pollution." Click here for more information.

NOISE REGULATIONS

Click here for information with respect to noise nuisances in residential areas.

WASTE DISPOSAL

It is recommended that the developer liaise with the Council's Cleansing and Solid

Waste Unit regarding reducing, reusing and recycling materials associated with demolition on the site to minimise solid waste being directed to landfill.

Further information regarding waste disposal can also be found on the Council's website.

FEES AND CHARGES

Click here for information on the Council's fees and charges.

DIAL BEFORE YOU DIG

Click here for dial before you dig information.

RESIDENTIAL PARKING PERMITS ELIGIBILITY

It is advised that this development will not be eligible for residential parking permits for on-street parking.

URBAN DESIGN ADVISORY PANEL

The Council's Urban Design Advisory Panel considered this application at its meeting of 22 March 2019 and made the following recommendations which are provided for the applicant's consideration:

- The protection of residential amenity (setback) with the balconies and windows located on the boundary of the site. The Panel raised concern that the design is unlikely to comply with the Building Code of Australia and that the applicant should seek advice from a building surveyor before proceeding further with the Application.

- The Panel felt that the design of the lobby was awkward as it lacked a linkage to the stairs. It was also noted that the split floor levels incorporating steps leading to alternate fire exits may raise concerns around the adequacy of disability access and fire safety.

- The first floor of the proposal above the car park shows an outdoor area of vacant space. The Panel raised the opportunity for landscaping within this space and suggested this could be utilised as a common area for residents.

- The ground floor shows no internal access to garbage disposal area. The Panel felt that there should be an internal connection to the garbage disposal area for both residents and the occupiers of the retail space.

- The Panel notes that the proposal includes no external common spaces or landscaping and suggests that consideration be given to the provision of outdoor dining, landscaping and greenery that would encourage interaction from the street and where possible with neighbouring properties. The canopy/awning projection over the footpath was also noted as being very shallow.

- The Panel did consider the elevational treatment patterns to be an improvement on the previous application however believes that the lobby / entrance section to the north-west end of the building could be improved with a glazed panel or similar for additional natural light.

- Concerns were raised regarding the colour palette and finishes. The Panel believed that the black, white and grey concrete finishes were particularly austere for a prominent residential complex in this location.

(Cameron Sherriff)
Development Appraisal Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

(Ben Ikin)
Senior Statutory Planner

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Date of Report: 6 May 2019

Attachment(s):

Attachment B - CPC Agenda Documents - Plans

Attachment C - CPC Supporting Documents

Attachment D - Urban Design Advisory Panel Minutes

Attachment E - Planning Referral Officer Cultural Heritage Report

City of HOBART

PLN-17-967

24 April, 2018

MEMORANDUM: LORD MAYOR, DEPUTY LORD MAYOR, ALDERMEN

PLN-17-967 - 209-213 HARRINGTON STREET, HOBART WITHDRAWAL OF APPLICATION

The purpose of this memorandum is to advise Aldermen of the withdrawal of planning application PLN-17-967 proposing demolition and new building for (36) multiple dwellings, general retail and hire and food services, and minor associated road works at 209-217 Harrington Street, and to provide background to that withdrawal.

At its meeting of 26 March 2018, the Council's City Planning Committee resolved to defer item 8.1.1 in relation to the abovementioned planning application as follows:

> *That the matter be deferred to a Special City Planning meeting, prior to the Council meeting scheduled for 9 April 2018, to allow for further discussions between Council Officers and the Applicant in relation to a possible ceiling height reduction and further scope for a greater transition in height with the adjacent residential properties.*

Following that deferral, and at the same time that discussions were occurring with the applicant and neighbours that made deputations, the Resource Management and Planning Appeal Tribunal handed down a decision in relation to the planning appeal for 3-4 Montgomery Court, Sandy Bay. A separate memorandum detailing the outcome of that decision will be circulated to Aldermen in due course.

In broad terms, the Tribunal decision in relation to the 3-4 Montgomery Court appeal has had an effect on the officer recommendation for the Harrington Street proposal. That officer recommendation was for conditional approval.

By way of explanation, the Harrington Street application sought discretion from Council in relation to, amongst other things, height. The proposed height, and Council's assessment of it against the relevant performance criteria (clause 23.4.1 P1 of the *Hobart Interim Planning Scheme 2015*), relied heavily upon the principle that its acceptability was determined by comparing the proposed height to the height permitted under the corresponding acceptable solution. In broad terms, the Montgomery Court Tribunal decision has ruled that such a comparison is not appropriate.

Without being able to rely on that principle, Council officers are now of the view that support for the exercising of discretion in relation to clause 23.4.1 P1, particularly in relation to subclause (d) that requires '…*a transition in height between adjoining buildings, where appropriate'* is no longer possible, and that accordingly, the officer recommendation ought to be changed to refusal.

The applicant for the Harrington Street proposal has been given this advice and of the implications of the Montgomery Court Tribunal decision. As a result, the applicant has withdrawn the application, and the proponents are meeting with Council officers to gain a further understanding of their options. It is anticipated that a new application proposing a revised design will be submitted in due course.

The eight representors to the application are also being advised of the withdrawal and the background to that occurring.

(Rohan Probert)
MANAGER DEVELOPMENT APPRAISAL

23.4.8 Residential and Visitor Accommodation Amenity

Objective:

To ensure that buildings for residential or visitor accommodation uses provide reasonable levels of amenity and safety in terms of noise, access to daylight and natural ventilation, open space, storage.

Acceptable Solutions	Performance Criteria
A1 Residential or visitor accommodation development must demonstrate that design elements are able to achieve internal noise levels in accordance with relevant Australian Standards for acoustics control (AS3671:1989 – *Road Traffic Noise Intrusion (Building Siting and Construction)* and AS2107:2016 – *Acoustics (Recommended Design Sound Levels and Reverberation Times for Building Interiors)*).	**P1** Residential or visitor accommodation development must demonstrate that design elements are able to achieve internal noise levels in accordance with relevant Australian Standards for acoustics control (including AS3671:1989 – *Road Traffic Noise Intrusion (Building Siting and Construction)* and AS2107:2016 – *Acoustics (Recommended Design Sound Levels and Reverberation Times for Building Interiors)*), unless: (a) alterations required to meet these standards would negatively impact on historic cultural heritage values of an existing building listed as a place, or within a precinct, in the Historic Heritage Code; or (b) external alterations of an existing building that are required to meet these standards would negatively impact on the streetscape.
A2 Residential or serviced apartment components of a new building (including external elements such as a balcony, roof garden, terrace or deck) must: (a) if the building includes any single aspect dwellings or single aspect serviced apartments, be set back at least 5m from all side or rear boundaries and other buildings on the same site (refer Figure 23.4 i); or (b) if the building includes no single aspect dwellings and no single aspect serviced apartments, have at least two elevations of the building, and all habitable room windows, that are either: (i) set back at least 5m from a side or rear boundary or other building on the same site; or (ii) facing a frontage (refer Figure 23.4 ii).	**P2** Residential or serviced apartment components of a new building must be designed to allow for reasonable access to daylight into habitable rooms and private open space, and reasonable opportunity for air circulation and natural ventilation, having regard to: (a) proximity to side and rear boundaries; (b) proximity to other buildings on the same site; (c) the height and bulk of other buildings on the same site; (d) the size of any internal courtyard or void; (e) the use of light wells or air shafts; (f) development potential on adjacent sites, considering the zones and codes that apply to those sites; and (g) any assessment by a suitably qualified person.
A3 Every habitable room in a dwelling: (a) must have at least one external window; (b) must have at least one external window visible from all points of the room if a living room; and (c) where the only external window in the room is located within a recess, that recess must be: (i) a minimum width of 1.2m, and (ii) a maximum depth of 1.5 times the width, measured from the external surface of the external window; and	**P3** Every habitable room in a dwelling must have reasonable access to natural daylight and ventilation from an external window, having regard to: (a) the orientation of the room; (b) the size and location of windows; (c) the size of the room; (d) the ceiling height; (e) the opportunity for cross-ventilation;

must have a room depth from an external window of:

(d) (i) not more than 2.5 times the ceiling height; or

(d) (ii) If an open plan layout (where the living, dining and kitchen are combined), not more than 8m.

A4

Private open space must be provided for each dwelling or serviced apartment on a site.

A5

Each dwelling or serviced apartment on a site must have private open space that:

(a) has an area not less than:

(a) (i) $8m^2$ for 1 bedroom dwellings or serviced apartments;

(a) (ii) $10m^2$ for 2 bedroom dwellings or serviced apartments;

(a) (iii) $12m^2$ for 3 or more bedroom dwellings or serviced apartments;

(b) does not include plant and equipment such as outdoor components of an air conditioning unit;

(c) unless drying facilities are provided elsewhere on the site, include a clothes drying area of at least $2m^2$ in addition to the minimum area in (a) above, that may be in a separate location, and is screened from public view;

(d) has a minimum horizontal dimension of 2m, or 1.5m for a 1 bedroom dwelling or serviced apartment;

(e) where above ground floor level, not be located within 5m of private open space of any other dwelling or serviced apartment in another building (excluding between conjoined terrace-

(f) the proposed use of the room;

(g) overshadowing of the site from existing development;

(h) existing site constraints; and

(i) any assessment by a suitably qualified person.

P4

Fewer than all of the dwellings or serviced apartments on a site may be provided with private open space if:

(a) communal open space is provided on site that: exceeds size requirements under 23.4.8 A6 by $10m^2$ for each dwelling unit or serviced apartment without private open space, and is of high quality in terms of location, access to sunlight, outlook, facilities, landscaping and accessibility;

(b) environmental conditions such as high winds or high levels of noise would significantly diminish the amenity of the private open space and this is unable to be mitigated by screening that does not unreasonably reduce access to daylight, as demonstrated by a suitably qualified person; or

(c) the dwelling or serviced apartment is in an existing building that cannot reasonably accommodate private open space due to site constraints, or impacts on historic cultural heritage values of a place or precinct listed in the Historic Heritage Code.

P5

Private open space for dwellings or serviced apartments must provide reasonable amenity and be capable of meeting the projected outdoor recreation requirements of occupants, having regard to:

(a) the size and minimum dimensions of the space, excluding space occupied by plant and equipment such as outdoor components of an air conditioning unit;

(b) the amount of space available for furniture or plantings;

(c) the potential for significant noise intrusion;

(d) proximity and overlooking to the private open space of existing adjacent residential and serviced apartment developments;

(e) screening where necessary for privacy that does not unreasonably restrict access to daylight;

(f) screening where necessary for noise and wind protection that does not unreasonably restrict access to daylight;

(g) screening from public view for clothes drying areas; and

style dwellings or serviced apartments); and

(f) is screened visually and acoustically from mechanical plant and equipment, service structures and lift motor rooms.

A6

Sites with 10 or more dwellings or serviced apartments must provide communal open space on the site that:

(a) is at least $70m^2$, with an additional $2m^2$ for every dwelling or serviced apartment over 10;

(b) if provided in multiple locations, at least one single area must be a minimum of $40m^2$;

(c) has a minimum horizontal dimension of 3m;

(d) includes at least 20% of the total area for plantings (including food growing), being deep soil planting if at ground level;

(e) is directly accessible from common entries and pathways;

(f) screens any communal clothes drying facilities from public view;

(g) may be above ground floor level, including rooftops;

(h) is screened visually and acoustically from mechanical plant and equipment, service structures and lift motor rooms;

(i) does not include vehicle driveways, manoeuvring or hardstand areas; and

(j) includes no more than 20% of the total area located between 30 degrees East of South and 30 degrees West of South of:

(i) a building on the site with a height more than 3m; or

(ii) a side or rear boundary within 5m.

A7

(h) any advice from a suitably qualified person.

P6

Sites with 10 or more dwellings or serviced apartments must provide communal open space on the site that provides reasonable amenity and outdoor recreation opportunities for occupants, having regard to:

(a) the area and dimensions of the space;

(b) the total number of dwellings or serviced apartments on the site;

(c) the accessibility of the space;

(d) the flexibility of the space and opportunities for various forms of recreation;

(e) the availability and location of common facilities within the space;

(f) landscaping;

(g) the provision of gardens, trees and plantings (including food gardens) appropriate in area to the size of the communal open space;

(h) accessibility to daylight, taking into account the development potential of adjacent sites;

(i) the outlook from the space;

(j) the level of noise intrusion from external noise sources; and

(k) any advice from a suitably qualified person;

unless:

(i) the dwellings or serviced apartments are located in an existing building where communal open space cannot be reasonably achieved due to site constraints, or impacts on historic cultural heritage values of a place or precinct listed in the Historic Heritage Code;

(ii) open space, accessible by the public, that is of high quality in terms of location access to sunlight, outlook, facilities, landscaping and accessibility and that can adequately accommodate the needs of occupants is provided on the site; or

(iii) private open space is provided for all dwellings or serviced apartments on the site, provides a reasonable level of amenity in terms of access to sunlight and outlook, and sufficiently caters for flexible outdoor recreation needs including relaxation, entertainment, planting, outdoor dining and children's play.

P7

	Each multiple dwelling must be provided with a dedicated and secure storage space of no less than $6m^3$, located externally to the dwelling.	Each multiple dwelling must be provided with adequate storage space.

23.4.9 Waste Storage and Collection

Objective:

To ensure the storage and collection of waste provides for a reasonable level of amenity and safety for surrounding occupants and for traffic, cyclists, pedestrians and other road and footpath users.

Acceptable Solutions

A1

Bulk waste bins that are commercially serviced must be provided for sites:

(a) with more than one commercial tenancy;

(b) with one commercial tenancy that is greater than $100m^2$; and

(c) with more than 4 dwellings or visitor accommodation units (or 3 if a mixed use site);

unless:

(i) there are no more than 4 individual bins for kerbside collection at anyone time per commercial site;

(ii) there are no more than 8 individual bins for kerbside collection at any one time per residential or mixed use site; or

(iii) individual bins are commercially serviced without being placed on the kerbside for collection.

A2

An on-site storage area, with an impervious surface (unless for compostables), must be provided for bins that:

(a) if for separate bins per dwelling, visitor accommodation or commercial tenancy:

(i) provides an area for the exclusive use of each dwelling, accommodation unit or tenancy, and is not located between the building and a frontage;

(ii) is set back not less than 4.5m from a frontage unless within a fully enclosed building;

(iii) is not less than 5.5m horizontally from any dwelling or accommodation unit unless for bins associated with that dwelling, or within a fully enclosed building; and

(iv) is screened from the frontage and any dwelling or accommodation unit by a wall to a height not less than 1.2m above the finished surface level of the storage area.

If for bulk waste bins:

(i) is located on common property;

(ii) includes dedicated areas for storage and management of recycling and compostables;

Performance Criteria

P1

Bulk waste bins that are commercially serviced must be provided unless kerbside collection would not unreasonably compromise the amenity of the surrounding area or the flow and safety of vehicles, cyclists and pedestrians, and:

(a) the frontage of the site has a width equivalent to 5m for each dwelling, accommodation unit or tenancy with individual bins; or

(b) bulk waste bin storage and collection cannot reasonably be provided on site due to:

(i) impacts on historic cultural heritage values of a place or precinct listed in the Historic Heritage Code; or

(ii) site constraints, if for an existing building.

P2

A storage area for waste and recycling bins must be provided that is:

(a) capable of storing the number of bins required for the site;

(b) of sufficient size to enable convenient and safe access and manoeuvrability for occupants, and waste collection vehicles where relevant;

(c) in a location on-site that is conveniently and safely accessible to occupants, without compromising the amenity and flow of public spaces;

(d) screened from view from public spaces and dwellings or accommodation units; and

if the storage area is for common use,

(iii) is not less than 5.5m from any dwelling or accommodation unit unless within a fully enclosed building;

(b)

(iv) is screened from any public road, dwelling or accommodation unit by a wall to a height not less than 1.8m above the finished surface level of the storage area;

(v) is accessible to each dwelling, accommodation unit or tenancy without the requirement to travel off-site; and

(vi) where the development is mixed use, have separate storage spaces for commercial and residential bins with separate access to each.

A3

Bulk waste bins must be collected on site by private commercial vehicles, and access to storage areas must:

(a) in terms of the location, sight distance, geometry and gradient of an access, as well as off-street parking, manoeuvring and service area, be designed and constructed to comply with AS2890.2:2018: *Parking Facilities - Off-Street Commercial Vehicle Facilities*;

(b) ensure the vehicle is located entirely within the site when collecting bins; and

(c) include a dedicated pedestrian walkway, alongside or independent of vehicle access ways.

(e) separated from dwellings or units on the site to minimise impacts caused by odours and noise.

P3

A waste collection plan demonstrates the arrangements for collecting waste do not compromise the safety, amenity and convenience of surrounding occupants, vehicular traffic, cyclists, pedestrians and other road and footpath users, having regard to:

(a) the number of bins;

(b) the method of collection;

(c) the time of day of collection;

(d) the frequency of collection;

(e) access for vehicles to bin storage areas, including consideration of gradient, site lines, manoeuvring, direction of vehicle movement and pedestrian access;

(f) distance from vehicle stopping point to bins if not collected on site;

(g) the traffic volume, geometry and gradient of the street; and

(h) the volume of pedestrians using the street.

Our Ref: 17.275

Measured form and function 6ty°

6ty Pty Ltd
ABN 27 014 609 900

Postal Address
PO Box 63
Riverside
Tasmania 7250
W 6ty.com.au
E admin@6ty.com.au

Tamar Suite 103
The Charles
287 Charles Street
Launceston 7250
P (03) 6332 3300

57 Best Street
PO Box 1202
Devonport 7310
P (03) 6424 7161

18 May 2021

Cameron Sherriff
Development Appraisal Planner
City Planning
City of Hobart
By Email: sherriffc@hobartcity.com.au

Dear Cameron,

EXTENSION OF TIME REQUEST - PLANNING PERMIT PLN-18-770 - 209-213 HARRINGTON STREET, HOBART - RESPONSE TO CLAUSE 23.4.8

This letter is in response to your email requesting that a response be provided to Standard 23.4.8 of the *Hobart Interim Planning Scheme 2015*. To this effect, Table 1 provides an assessment of each Acceptable Solution of the standard. Assessment against identified Performance Criteria is provided in the section following Table 1.

Table 1 - Assessment against Acceptable Solutions of Standard 23.4.8 of the Hobart Interim Planning Scheme 2015

23.4 Development Standards for Buildings and Works			
Standard/Requirements		**Assessment**	**Compliance**
23.4.8 Residential and Visitor Accommodation Amenity			
A1	Residential or visitor accommodation development must demonstrate that design elements are able to achieve internal noise levels in accordance with relevant Australian Standards for acoustics control (AS3671:1989 – Road Traffic Noise Intrusion (Building Siting and Construction) and AS2107:2016 – Acoustics (Recommended Design Sound Levels and Reverberation Times for Building Interiors)).	Advice from our architectural team confirms that all residential apartments are capable of being designed to accord with the requirements of Australian Standard AS3671:1989 and AS 2107:2016. Their advice is that compliance can be achieved the following ways: • use of double glazing; • application of seals to all sashes and doors; • internal wall insulation to comply with thermal and acoustic ratings required by the relevant Australian Standards.	Complies with the acceptable solution.

		In order to comply with the National Construction Code, the building will need to be documented to accord as far as practicable with all applicable Australian Standards. On this basis, documented drawings would include notes and specifications that are the same or similar to the above points.	
A2	Residential or serviced apartment components of a new building (including external elements such as a balcony, roof garden, terrace or deck) must: (a) if the building includes any single aspect dwellings or single aspect serviced apartments, be set back at least 5m from all side or rear boundaries and other buildings on the same site (refer Figure 23.4 i); or (b) if the building includes no single aspect dwellings and no single aspect serviced apartments, have at least two elevations of the building, and all habitable room windows, that are either: (i) set back at least 5m from a side or rear boundary or other building on the same site; or (ii) facing a frontage (refer Figure 23.4 ii).	The three upper floor levels of the building include single aspect apartments that will be built to the site boundaries.	Relies on performance criteria.

A3	Every habitable room in a dwelling:		Complies with acceptable solution.
	(a) must have at least one external window;	Each habitable room in a dwelling will comprise external windows and/or doors;	
	(b) must have at least one external window visible from all points of the room if a living room; and	Each living room will comprise one external window/door to the balcony which will be visible from all points of the living room;	
	(c) where the only external window in the room is located within a recess, that recess must be:	Each apartment comprises an open plan living/dining/kitchen area to which the external window/door is located within a recess. Each recess will:	
	(i) a minimum width of 1.2m, and	have a minimum width exceeding 1.2m, and	
	(ii) a maximum depth of 1.5 times the width, measured from the external surface of the external window; and	a maximum not exceeding 1.5 times the width;	
	(d) must have a room depth from an external window of:		
	(i) not more than 2.5 times the ceiling height; or	Each bedroom will have a maximum room depth from a window of 5.5m, which is less than the allowable depth of 7.25m based on a finished ceiling height of 2.9m.	
	(ii) If an open plan layout (where the living, dining and kitchen are combined), not more than 8m.	6 apartments at the centre at the south-west elevation (fronting Harrington Street) will have an open plan living/dining/ kitchen area with a maximum depth of 7.6m from the edge of the kitchen to the external window/door.	

A4	Private open space must be provided for each dwelling or serviced apartment on a site.	Each apartment will be provided with a private balcony which will serve as their private open space.	Complies with acceptable solution.
A5	Each dwelling or serviced apartment on a site must have private open space that: (a) has an area not less than: (i) $8m^2$ for 1 bedroom dwellings or serviced apartments;	The western most 1 Bedroom apartment on the second and third floors will have an area of private open space of $7m^2$. All other 1 bedroom apartments will have an area of private open space above $8m^2$.	Relies on performance criteria.
	(ii) $10m^2$ for 2 bedroom dwellings or serviced apartments;	Each 2 bedroom apartment will have a private balcony ranging in size from $11m^2$ to $25m^2$,	
	(iii) $12m^2$ for 3 or more bedroom dwellings or serviced apartments;	Each 3 bedroom apartment will have a private balcony ranging in size from $17m^2$ to $23m^2$;	
	(b) does not include plant and equipment such as outdoor components of an air conditioning unit;	Each apartment's POS will not include plant and equipment;	
	(c) unless drying facilities are provided elsewhere on the site, include a clothes drying area of at least $2m^2$ in addition to the minimum area in (a) above, that may be in a separate location, and is screened from public view;	Mechanical drying facilities are capable of being provided within the laundry of each apartment.	
	(d) has a minimum horizontal dimension of 2m, or 1.5m for a 1 bedroom dwelling or serviced apartment;	Each POS will have at least one minimum horizontal dimension exceeding 2m;	

	(e) where above ground floor level, not be located within 5m of private open space of any other dwelling or serviced apartment in another building (excluding between conjoined terrace-style dwellings or serviced apartments); and	The building involves conjoined apartments and the sub-standard is therefore not applicable.	
	(f) is screened visually and acoustically from mechanical plant and equipment, service structures and lift motor rooms.	Each area of POS will be located on the outer elevations of the apartment building. It will therefore be screened visually and acoustically from service structures and lift motor rooms by the apartment itself. Mechanical plant and equipment are not proposed to be located in proximity to an area of POS, though balconies will be screened with glass and balustrade from any mechanical plant and equipment external to the site.	
A6	Sites with 10 or more dwellings or serviced apartments must provide communal open space on the site that: (a) is at least 70m^2, with an additional 2m^2 for every dwelling or serviced apartment over 10; (b) if provided in multiple locations, at least one single area must be a minimum of 40m^2; (c) has a minimum horizontal dimension of 3m; (d) includes at least 20% of the total area for plantings (including food growing), being	The site will provide 39 apartments in total. The residential apartment does not provide communal open space on the site.	Relies on performance criteria.

	deep soil planting if at ground level; (e) is directly accessible from common entries and pathways; (f) screens any communal clothes drying facilities from public view; (g) may be above ground floor level, including rooftops; (h) is screened visually and acoustically from mechanical plant and equipment, service structures and lift motor rooms; (i) does not include vehicle driveways, manoeuvring or hardstand areas; and (j) includes no more than 20% of the total area located between 30 degrees East of South and 30 degrees West of South of: (i) a building on the site with a height more than 3m; or (ii) a side or rear boundary within 5m.		
A7	Each multiple dwelling must be provided with a dedicated and secure storage space of no less than 6m^3, located externally to the dwelling.	Each apartment is capable of being provided with a storage space within the laundry which has a volume of 12.1m^3.	Complies with acceptable solution.

Performance Criteria Assessment

Clause 23.4.8 Residential and Visitor Accommodation Amenity Performance Criteria P2, P5, P6

The objective of this standard is:

To ensure that buildings for residential or visitor accommodation uses provide reasonable levels of amenity and safety in terms of noise, access and natural ventilation, open space, storage.

Performance criteria P2 requires:

Residential or serviced apartment components of a new building must be designed to allow for reasonable access to daylight into habitable rooms and private open space, and reasonable opportunity for air circulation and natural ventilation, having regard to:

(a) proximity to side and rear boundaries;

(b) proximity to other buildings on the same site;

(c) the height and bulk of other buildings on the same site;

(d) the size of any internal courtyard or void;

(e) the use of light wells or air shafts;

(f) development potential on adjacent sites, considering the zones and codes that apply to those sites; and

(g) any assessment by a suitably qualified person.

Planning Assessment

Each residential apartment allows for reasonable access to daylight into all habitable rooms and private open space and will allow for opportunity for air circulation and natural ventilation. All habitable rooms will be provided with a glazed window and/or door which will allow daylight to enter into each room. Likewise, each apartment will be provided with multiple external openings which will allow the creation of natural air circulation and ventilation throughout each apartment. All areas of private open space will have an opening that faces a boundary which will allow access to daylight.

The apartment building (including balconies) will be built to the boundaries of the site and will be the sole building on the site. As it is proposed to be located at the corner of Harrington Street and Patrick Street, it will not obstruct, or be obstructed by buildings to the south-west or south-east. Adjoining lots to the north-west and north-east which comprise a carpark, a single level industrial building and a double level residential building. The finished floor level of each apartment will be located predominantly above adjoining buildings. This is further supported by the falling topography in the surrounding area in a north-easterly direction whereby the roofline of the adjacent two-storey building is level with that of the first floor level of the apartment building.

Each apartment is provided with external windows and private balcony located at the outer elevations of the building. Consistent with the matters outlined above, it is expected that each apartment will allow for reasonable access to daylight into habitable rooms and private open space with reasonable opportunity for air circulation and natural ventilation.

Given that the intent of the Commercial zone is to facilitate a variety of uses ranging in size and scale, the development potential of adjacent sites in relation to the proposed development is not considered to be compromised.

Performance criteria P5 requires:

Private open space for dwellings or serviced apartments must provide reasonable amenity and be capable of meeting the projected outdoor recreation requirements of occupants, having regard to:

(a) the size and minimum dimensions of the space, excluding space occupied by plant and equipment such as outdoor components of an air conditioning unit;

(b) the amount of space available for furniture or plantings;

(c) the potential for significant noise intrusion;

(d) proximity and overlooking to the private open space of existing adjacent residential and serviced apartment developments;

(e) screening where necessary for privacy that does not unreasonably restrict access to daylight;

(f) screening where necessary for noise and wind protection that does not unreasonably restrict access to daylight;

(g) screening from public view for clothes drying areas; and

(h) any advice from a suitably qualified person.

Planning Assessment

Excepting two balconies to the 1-bedroom apartments on the second and third floor levels, all other private balconies meet the minimum balcony size requirements required by Clause 23.4.8 A5.

The two 1-bedroom apartments, located at the centre of the north-west elevation, comprise a balcony area of $7m^2$ which is $1m^2$ less than the required area of $8m^2$. Given that no space is lost to equipment such as air conditioning units, the proposed size is considered to be adequate for private individual use including space for furniture, plantings and clothes drying.

The 1-bedroom apartments that are subject to a reduction of private open space area prescribed by the acceptable solution are located on higher floor levels (second and third) and adjoin land currently utilised as a carpark. As such, noise intrusion is minimised by its height and no overlooking of private open space in the adjacent lot will occur. Screening of balconies will involve frameless glass and will therefore not restrict access to daylight. Screening from public view for clothes drying is expected to be achieved by the height of these balconies.

In this manner, private open space for the two 1-bedroom apartments will provide reasonable amenity and be capable of meeting projected outdoor recreation requirements of occupants.

Performance criteria P6 requires:

Sites with 10 or more dwellings or serviced apartments must provide communal open space on the site that provides reasonable amenity and outdoor recreation opportunities for occupants, having regard to:

(a) the area and dimensions of the space;

(b) the total number of dwellings or serviced apartments on the site;

(c) the accessibility of the space;

(d) the flexibility of the space and opportunities for various forms of recreation;

(e) the availability and location of common facilities within the space;

(f) landscaping;

(g) the provision of gardens, trees and plantings (including food gardens) appropriate in area to the size of the communal open space;

(h) accessibility to daylight, taking into account the development potential of adjacent sites;

(i) the outlook from the space;

(j) the level of noise intrusion from external noise sources; and

(k) any advice from a suitably qualified person;

unless:

(i) the dwellings or serviced apartments are located in an existing building where communal open space cannot be reasonably achieved due to site constraints, or impacts on historic cultural heritage values of a place or precinct listed in the Historic Heritage Code;

(ii) open space, accessible by the public, that is of high quality in terms of location access to sunlight, outlook, facilities, landscaping and accessibility and that can adequately accommodate the needs of occupants is provided on the site; or

(iii) private open space is provided for all dwellings or serviced apartments on the site, provides a reasonable level of amenity in terms of access to sunlight and outlook, and sufficiently caters for flexible outdoor recreation needs including relaxation, entertainment, planting, outdoor dining and children's play.

Planning Assessment

The proposed residential apartment will provide a total of 39 apartments. This performance criteria assessment relates to P6(iii) as each apartment is provided with

private open space allowing access to sunlight and outlook, while sufficiently catering for flexible outdoor recreation needs including relaxation, entertainment, planting, outdoor dining and children's play.

With the exception of two 1-bedroom apartments which will have an area of private open space 1m^2 less than the area required by the acceptable solution, all apartments will have an area of private open space that is equal to or greater than the minimum area prescribed by acceptable solution A5 of this standard. It is therefore contended that the area of private open space for each apartment will be sufficient to provide for a reasonable level of amenity for occupants.

Please contact me should additional information be required.

Kind regards
6ty° Pty Ltd

George Walker
Director/Planning Consultant

8. REPORTS

8.1 Amendment PSA-21-4 - Enterprise Road Rezoning - Report on Representations
File Ref: F22/42681

Report of the Development Planner and the Director City Life of 24 May 2022 and attachments.

Delegation: Council

REPORT TITLE: **AMENDMENT PSA-21-4 - ENTERPRISE ROAD REZONING - REPORT ON REPRESENTATIONS**

REPORT PROVIDED BY: Development Planner
Director City Life

1. Report Purpose and Community Benefit

1.1. The purpose of this report is to consider the merits of the representations received in relation to the draft PSA-19-3 Amendment to the *Hobart Interim Planning Scheme 2015* (HIPS 2015). It also considers recommendations to the Tasmanian Planning Commission (TPC) regarding the need for any modifications to the amendment as a result of the representations received.

1.2. The proposal benefits the community by ensuring land is appropriately zoned based on its constraints and capacity for development.

2. Report Summary

2.1. The proposal is to consider 57 statutory, and one non-statutory, representations made in relation to planning scheme amendment PSA-21-4 – Enterprise Road rezoning.

2.2. A table of the representations is provided in **Attachment A**.

2.3. At its meeting of 28 March 2022, Council resolved to initiate the PSA-21-4 amendment to the HIPS 2015 to rezone 21, 21B and part of 21A Enterprise Road from General Residential to Low Density Residential and to extend the Biodiversity Protection Area Overlay across the rezoned area. The certified draft amendment is provided as **Attachment B**.

2.4. The certified amendment was placed on exhibition from 4 April 2022 to 6 May 2022 and 57 statutory, and one non-statutory (late), representations were received.

2.5. 55 of the 57 statutory representations, and the non-statutory representation, were in clear support of the proposed amendment. One representation did not state a clear position, and one representation from TasWater stated that it has no objection to or formal comments about the draft amendment, and does not require attendance at any subsequent hearings.

2.6. No representations objected to the rezoning, and no representations were received from the landowners of the affected land following the public exhibition process.

2.7. The most commonly raised issues in the representations were that rezoning the subject site to Low Density Residential would:

2.7.1. Lessen the impact on traffic, including volume and safety, on the narrow, steep roads;

2.7.2. Lessen the impact on natural values, including wildlife and vegetation;

2.7.3. Lessen the impact of stormwater run-off, drainage and erosion/landslip issues;

2.7.4. Lessen visual impacts, particularly given this is a visible area on the interface between urban development and the vegetated ridgeline;

2.7.5. Lessen the damage to existing roads due to additional traffic and heavy vehicles/machinery;

2.7.6. Be more in character with the surrounding area;

2.7.7. Be more appropriate due to bushfire risk, including difficulties with safe evacuation and emergency vehicle access;

2.7.8. Be more appropriate to the steepness of the site.

2.8. It is not recommend to change the initiated amendment as a result of the representations received.

3. Recommendation

That:

1. Pursuant to Section 39(2) of the former provisions of the Land Use Planning and Approvals Act 1993, the Council endorse this report as the formal statement of its opinion as to the merit of the representations received during the exhibition of the draft PSA-21-4 amendment.

2. Pursuant to Section 39(2) of the former provisions of the Land Use Planning and Approvals Act 1993, the Council recommend to the Tasmanian Planning Commission that the PSA-21-4 amendment to the Hobart Interim Planning Scheme 2015 be approved as certified.

4. Background

4.1. At its meeting of 28 March 2022, Council resolved to initiate the PSA-21-4 amendment to the HIPS 2015 to rezone 21, 21B and part of 21A Enterprise Road from General Residential to Low Density Residential and to extend the Biodiversity Protection Area Overlay across the rezoned area.

4.2. A previous development application for 20 multiple dwellings and associated works on 21B Enterprise Road (PLN-20-740) was refused by Council on its meeting of 10 May 2021.

4.2.1. The reasons for refusal of this application were that the increase in traffic would have an unreasonable impact on the safety and efficiency of the road, that the plans provided included discrepancies, and that elements of the proposal would cause an unreasonable loss of amenity by visual impacts and incompatibility with the surrounding area.

4.3. Council decided on 25 October 202 that it would review the zoning of 21, 21A and 21B Enterprise Road, in response to a petition submitted by residents of the area.

4.4. The certified amendment was placed on exhibition from 4 April 2022 to 6 May 2022 and 57 representations were received during the statutory advertising period. One non-statutory representation was submitted one day after the closing date.

5. Proposal and Implementation

5.1. The proposal is to consider 57 statutory representations and one non-statutory representation made in relation to planning scheme amendment PSA-21-4 for rezoning at 21, 21B and part of 21A Enterprise Road.

5.2. A table of the representations is provided in **Attachment A**.

5.3. 55 of the 57 statutory representations were in clear support of the proposed amendment. The non-statutory representation also supported the proposal.

5.4. One representation did not express a clear opinion on the proposal, simply stating ‘I’m registering my representation’.

5.5. One representation from TasWater stated it had no formal comments and no objection to the amendment, and did not require any further notification or involvement.

5.6. An overview of the issues or queries raised in the representations (including the number of representations that address that issue) is presented as follows:

Issue	No. of reps	Response
Rezoning to Low Density Residential will lessen the impact of development on traffic, including volume and safety, on the narrow, steep roads.	51	The potential impacts on traffic in the area are acknowledged, and are referenced in the report that recommended initiation of the rezoning.
Rezoning to Low Density Residential will lessen the impact on natural values, including wildlife and vegetation.	40	There are no identified significant biodiversity values on the site (such as threatened vegetation), although it is noted all areas of natural bushland provide potential habitat for threatened species and support natural values. Some degree of vegetation coverage may be able to be retained on-site under the Low Density Residential Zone, although it is noted there would likely still be a significant degree of vegetation removal. It is noted that development to a General Residential Zone density would likely require vegetation removal in adjacent areas in the Environmental Living or Environmental Management zones, which are currently covered by the Biodiversity Protection Area Overlay. Development at a Low Density Residential Zone density is likely to be able to contain hazard management areas within the site without encroaching on adjacent bushland.
Rezoning to Low Density Residential will lessen the impact on stormwater runoff, drainage and erosion/landslip issues.	36	Decreasing the permitted density of the site may reduce some stormwater impacts associated with future development.
Rezoning to Low Density Residential will lessen visual impacts, particularly given this is a visible area on the interface	24	As fewer dwellings would be permitted under the Low Density Residential Zone, and retention of some vegetation is more likely, it is agreed that the rezoning may

between urban development and the vegetated ridgeline.		lessen the visual impact of future development.
Rezoning to Low Density Residential will lessen damage the existing roads due to traffic and heavy vehicles/machinery.	23	Council's Development Engineers note that heavy vehicle movements may cause significant damage to the existing road network in the area.
Rezoning to Low Density Residential will be more in character with the surrounding area.	18	The lots immediately surrounding the subject site, while zoned General Residential, are generally between 700-1300, with many exceeding 1000m^2. Most lots in the immediate area contain single dwellings with gardens. A Low Density Residential Zoning is therefore likely to be in keeping with the character of the area, and provide a transition to the vegetated ridgeline.
The site is inappropriate for General Residential density development due to bushfire risk, including difficulties with safe evacuation and emergency vehicle access.	15	The site is subject to the Bushfire-Prone Areas Code. It is more likely development at a lower density would be able to meet bushfire hazard management requirements without impacting on surrounding vegetation.
The site is too steep for General Residential density development.	11	The site is steep, making construction more difficult. However, it is noted it is not the only area of land of this gradient to be zoned General Residential.
The access to the site is unsuitable to support General Residential density development	6	It is noted that the site has some access constraints.
Rezoning to Low Density Residential would correct a historical 'error' with the zone standards changing between schemes, and better reflect the previous Mount Nelson Planning Review.	4	It is noted that the translation between planning schemes has resulted in this area of land having a higher permitted dwelling density than originally intended. As this area of land was subject to specific consideration under the Mount Nelson Planning Review, it is considered that reversion to a lower permitted density is appropriate.

There is a risk to adjacent properties from large development excavation into the dolerite geology.	3	This is noted by Council's Development Engineers.
The capacity of the site is better aligned to the Low Density Residential Zone purpose statements and Zone Application Guidelines than to the General Residential Zone.	3	It is agreed that the capacity of the subject site is better aligned with the density of development supported by the Low Density Residential Zone.
It is preferred to have no further development on the site.	2	It is noted that some representors preferred no further development occur on the subject site. This land is, however, within the Urban Growth Boundary of the Southern Tasmania Regional Land Use Strategy 2010-2035 (STRLUS) and is well located for residential use in terms of access to services and proximity to the city. While a lower density of development is considered more appropriate for this site, it is not considered that the site is constrained to such a degree that it cannot support some residential development.
General Residential density development would increase the noise associated with excavation and construction.	1	It is noted that higher development density would likely be associated with an increase in noise during the construction phase, however this is not a planning consideration.
The rezoning meets the Schedule 1 Objectives of *Land Use Planning and Approvals Act 1993* (the LUPA Act).	1	As addressed in the report recommending the initiation of this amendment, it is considered the proposal meets the Schedule 1 Objectives of the LUPA Act.
The rezoning is consistent with the STRLUS.	1	As addressed in the report recommending the initiation of this amendment, it is considered the proposal is consistent with the STRLUS.
Do not agree with the Council's assessment that the site is not	1	Council's assessment on this issue considers that similarly steep and bushfire

significantly constrained due to its slope, vegetation and bushfire attack level rating in itself.		prone land in other areas is within in the General Residential Zone and has been able to be developed. These issues do contribute to the range of other factors considered to constrain the subject site, however.
There is a heritage bluestone wall constructed between 19 and 21 Enterprise Road that must be conserved.	1	There is no heritage listing for a wall in this location.
Suggest the land be zoned Landscape Conservation under the Hobart Local Provisions Schedule (Hobart LPS).	1	It is not considered necessary to zone this site Landscape Conservation under the Hobart LPS. It is within the Urban Growth Boundary and does not contain high biodiversity value vegetation. It is considered that Low Density Residential is an appropriate zone under both the HIPS 2015 and the Hobart LPS, and provides for a transition in dwelling density at the interface between the vegetated ridgeline and established residential areas.
If the land were to be compulsorily acquired by Council to could be added to Bicentennial Park, adding to amenity, useability and access.	1	There is no proposal to compulsorily acquire this land.
Suggestion that Council also give urgent consideration to reviewing the land use zoning for the area of proposed residential development at 26 Edith Avenue, where a 7 townhouse/2 apartment development is soon to be developed. This seems to be another case of misapplication of zoning intentions.	1	26 Edith Avenue was not subject to analysis through this process. Further comments on zoning can be submitted through the Hobart LPS exhibition process.
Suggestion that this initiative should apply to all regions in the municipal area where development is on the critical	1	This amendment was specific to a particular site. Further comments on zoning can be submitted through the Hobart LPS

interface between bushland and urban areas where development may be proposed.		exhibition process.

5.7. As none of the submissions were opposed to the proposal, it is not considered necessary to make any changes to the certified amendment in response to the representations.

5.8. None of the landowners affected by the rezoning submitted a statutory representation.

5.8.1. One informal submission was made by Ireneinc Planning and Urban Design on behalf of the landowners of 21A and 21B Enterprise Road as input to the initiation report (**Attachment C**), however nothing further was submitted from any of the landowners during the statutory exhibition period.

5.8.2. The informal submission was considered in the initial amendment report.

6. Strategic Planning and Policy Considerations

6.1. The proposed amendment is consistent with the objectives of the Capital City Strategic Pan 2019-29, in particular with the following outcomes:

6.1.1. Hobart keeps a strong sense of place and identity, even as the city changes;

6.1.2. Hobart's cityscape reflects the heritage, culture and natural environment that make it special;

6.1.3. In City decision-making, we consider how different aspects of Hobart life connect and contribute to sense of place;

6.1.4. The natural environment is part of the city and biodiversity is preserved, secure and flourishing;

6.1.5. Development enhances Hobart's unique identity, human scale and built heritage;

6.1.6. Community involvement and an understanding of future needs help guide changes to Hobart's built environment.

7. Financial Implications

7.1. Funding Source and Impact on Current Year Operating Result

7.1.1. None.

7.2. Impact on Future Years' Financial Result

7.2.1. None.

7.3. Asset Related Implications

7.3.1. None.

8. Legal, Risk and Legislative Considerations

8.1. The LUPA Act requires that planning scheme amendments must seek to further the Objectives of Schedule 1 of the LUPA Act and be prepared in accordance with the State Policies.

8.2. The Objectives of the LUPA Act require use and development to occur in a fair, orderly and sustainable manner and for the planning process to facilitate economic development in accordance with the other Schedule 1 Objectives.

8.3. It is considered that the proposed amendment meets the Objectives of the LUPA Act, in particular it:

8.3.1. Does not unreasonably compromise natural resources or ecological processes and allows for serviced land with easy access to public infrastructure to be effectively utilised within the limits of its capacity;

8.3.2. Is a fair, orderly and sustainable use of the site as it considers environmental values and land constraints, while still allowing provision for housing within close proximity to the city;

8.3.3. Assists sound strategic planning by not prejudicing the achievement of the relevant zone objectives or the STRLUS objectives;

8.3.4. Is consistent with the objective to establish a system of planning instruments to be the principal way of setting objectives, policies and controls for the use, development and protection of land;

8.3.5. Provides greater flexibility to address changes in local, environmental, social and economic circumstances;

8.3.6. Allows for appropriate use of existing infrastructure and facilities;

8.3.7. Considers the provision of a pleasant, efficient and safe environment for residents and visitors to Hobart;

8.3.8. Considers the capability of the zone and allowable uses that are likely to have minimal land use conflict with surrounding uses.

8.4. The only State Policy relevant to the proposed rezoning is the State Policy on Water Quality Management 1997.

8.4.1. The HIPS 2015 includes provisions that ensure use and development is undertaken in accordance with this policy (E7.0 Stormwater Management Code).

8.4.2. Council's City Life Division support the rezoning of the site to Low Density Residential as a way to better manage stormwater impacts on the downstream catchment associated with runoff and sediment flows from the site.

8.4.3. The rezoning proposal is considered to be in accordance with the State Policy on Water Quality Management 1997.

8.5. S32(e) of the former provisions of the LUPA Act requires that planning scheme amendments must, as far as practicable, avoid the potential for land use conflicts with use and development under the planning scheme applying to the adjacent area.

8.5.1. This amendment is considered to be appropriate in the context of adjoining land use and zoning. It provides for a transition in residential density between the General Residential Zone and the Environmental Living and Environmental Management zones further up the hillside.

8.5.2. The site is not adjacent to any areas controlled by a different planning scheme.

8.6. S32(f) of the former provisions of the LUPA Act requires that planning scheme amendments must have regard to the impact that use and development permissible under the amendment will have on the use and development of the region as an entity in environmental, economic and social terms.

8.6.1. The proposed amendment is relatively minor in nature and will not have any significant impact on use or development at a regional level.

8.6.2. The proposal is considered to allow for development that is more reflective of the site and its constraints, taking into consideration the impacts on surrounding residents.

8.7. S30O of the LUPA Act requires that an amendment to an interim planning scheme is as far as practicable consistent with the regional land use strategy. It is considered that this amendment is consistent with the STRLUS, in particular that it:

8.7.1. Minimises the risk of loss of life and property from bushfire, in line with policy MRH 1 of the STRLUS;

8.7.2. Minimises the risk of loss of life and property from flooding, in line with policy MRH 2 of the STRLUS;

8.7.3. Is consistent with policy SRD 1.6 that requires the use of the Low Density Residential Zone only where it is 'necessary to manage land constraints in settlements or to acknowledge existing areas'.

8.7.3.1. The land is not considered to be significantly constrained due to its slope, vegetation and bushfire attack level rating in itself. However, access to the site, excavation requirements and impacts on downstream drainage are considered to be significant land constraints for this site and have implications for the capacity to support future development of a higher density.

9. Environmental Considerations

9.1. The proposed amendment has been considered in terms of its impact on the environmental values on the site. No highly significant biodiversity values, such as threatened vegetation communities, have been identified on the site, however all areas of bushland provide potential habitat for threatened species and support natural values. The Biodiversity Protection Area Overlay is proposed to be applied to the site for consistency with other land in the Low Density Residential Zone.

10. Social and Customer Considerations

10.1. The proposal is not considered to have any negative impact on social inclusion.

11. Marketing and Media

11.1. There are no marketing or branding implications of this draft amendment.

12. Community and Stakeholder Engagement

12.1. The proposal is in response to a petition of 208 signatures from nearby residents of the site.

12.2. The landowners of the affected land were contacted during the preparation of the initial report and invited to make comment. A submission was received from the landowners of 21A and 21B Enterprise Road.

12.3. The draft amendment was publicly exhibited for a period of 28 days. The representations received during this period are the subject of this report.

12.4. The Tasmanian Planning Commission may hold hearings do discuss the representations and the planning merit of the rezoning proposal.

13. Delegation

13.1. Delegation rests with the Council.

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Sarah Crawford
DEVELOPMENT PLANNER

Neil Noye
DIRECTOR CITY LIFE

Date: 24 May 2022
File Reference: F22/42681

Attachment A: Representation Table ⇩
Attachment B: Certified Draft Amendment ⇩
Attachment C: Landowner Submission ⇩

Amendment PSA-21-4 Representation Table

Ref no.	Representation	Support or Oppose	Appendix Reference
1	As a citizen living in close proximity to Enterprise Road I support the proposed PSA-21-4 Amendment – Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay. Reasons Limit traffic on the smallish roads leading up to the site Bushfire risk - many more residents would need to be evacuated less impact on wildlife less visual impact on the skyline	Support	
2	Please may I express my support for the rezoning proposal for this area, on the grounds that retaining low density use of this land is significant in general environmental terms and also to avoid traffic chaos and to retain the aesthetic value and amenity of this property in line with the surrounding locale.	Support	
3	We wish to support the rezoning of land above Enterprise Road, Sandy Bay from General Residential to Low Density Residential. It is important that any proposed development is in keeping with the location and neighbourhood. Rezoning to a Low Density Zone would ensure a manageable outcome. This is essential to the present community and for responsible planning in the future. I have studied this land over the last year in all weathers, noting its steepness and potential for storm water damage, including drainage blocked by debris and fallen stones. I have noted water run off even in dry weather and as a pedestrian have slipped on loose gravel when walking to the higher areas. Railings and steps would need to be provided for pedestrians on the steeper junctions and safety measures for vehicles on already narrow roads The established roads leading to the area are already extensively patched. When I asked the road maintenance team about their work on Beddome Street, they informed me that the steep roads, with underlying water drainage issues were liable to recurring damage from heavy vehicles. They mentioned that repair work was initiated because 'a major building development' was planned behind Enterprise Road. This seemed strange because at that time no building development had been approved by Council. These mixed messages to residents and developers waste time and	Support	

	effort. Rezoning to Low Density Residential housing provides a definite outcome for everyone.		
4	I wish to support the proposed rezoning of 21, 21B and part 21A Enterprise Road, Sandy Bay. This is based on the following reasons: • increased traffic on already inadequate surrounding roads • damage to existing roads • stormwater runoff hazards • adverse impacts on adjacent bushland & wildlife.	Support	
5	I wish to support the proposed rezoning of 21, 21B and part 21A Enterprise Road, Sandy Bay. This is based on the following reasons: • increased traffic on already inadequate surrounding roads • damage to existing roads • stormwater runoff hazards • adverse impacts on adjacent bushland & wildlife.	Support	
6	I totally support the re- zoning. The traffic on the road to Enterprise Road and the feeder roads and road network is already overloaded and is currently dangerous. There are already many near accidents due to the blind corners - on the feeder road network from Churchill Ave to Enterprise Road. To add further dwellings will increase the traffic flow to unacceptable levels. There is only one way in and one way out. If there is a fire from the bushland reserve this is potentially very dangerous and life threatening. Already there is plenty of renovation on existing properties around Enterprise Road and the potential damage to the roads is already evident. Stormwater run - off hazard is a real potential issue unless there is re- zoning. This needs to be avoided. Finally, need to avoid the vegetation loss on the steep elevated slopes next to the bushland reserve. In summary, totally support the re- zoning.	Support	
7	I am a resident at nearby 18 Edith Avenue Sandy Bay, and write regarding a current proposal to re-zone land at 21, 21 A and 21B Enterprise Road. I support the HCC planning officers assessment and proposal that this area should be re-zoned from general residential to low-density	Support	

	residential land. There are many reasons why low-density residential is a much more appropriate land use for the area, but among them are: • **Drainage**: the more houses, the more likely there will be problems with stormwater runoff and drainage issues. (If these are poorly managed they may well impact our own area, downhill of the site, in major events. There is a history of flood washouts affecting Edith Avenue including beside our property in the 1990's, which I understand Council had to deal with at great expense.) We are seeing unprecedented weather events across Australia more frequently due to climate change, so reliance on data from predicted 1 in 100 year events is less certain than ever) • **Traffic:** the more that traffic can be controlled in our local network of streets, the better - Edith Avenue is already congested (narrowed with cars lining the street), and additional inputs from Beddome Street (which part-drains the Enterprise Road area) into the intersection with Churchill Avenue create the situation of an accident waiting to happen. We have witnessed major traffic increases already over the past 20 years that we have lived here, with more multicar households, and flourishing AirBnB accommodation (with negative impacts on our community neighbourhood and lives). • **Road damage** and maintenance costs associated with building and subsequent ongoing traffic will be partially mitigated. • **Vegetation:** Larger allotments (1500m2) under the low-density zone will assist in a number of ways: as per the planners report, some reduction in the overall fire hazard management vegetation clearance footprint in the areas above the proposed development, compared with higher-density 400m2 lots. Coupled with this will be better rainfall absorption and reduced stormwater runoff. • **Amenity:** The visual impact of lower-density residences on 1500m2 blocks will be much less than that likely to occur with multiple dwellings on 400m2 properties. This is much more important than it seems from a whole-of-Hobart perspective (it is not mentioned in the planner's report, perhaps due to the planning scheme constraints that I not familiar with). One of our city's great assets - and attractions for visitors - is the sense of proximity to nature, with the view of bush-clad areas preserved along the ridgelines especially in the Mt Nelson area. There has already been significant attrition of that in the twenty years I have lived here. I realise there is a fire-management challenge, and congratulate Council on highlighting this in recent times - but over-development is not the answer to		

	solve that. Further to the above, and for much the same reasons, I would ask that Council also give urgent consideration to reviewing the land use zoning for the area of proposed residential development at 26 Edith Avenue. We've only just become aware that a contractor is soon to start work on a 7 townhouse/2 apartment development at the top of Edith Avenue. This seems to be another case of misapplication of zoning intentions as occurred in the history of 21, 21A and 21B Enterprise Avenue. Thank you very much for the opportunity to provide our input. My wife shares our concern about these matters.		
8	Rezoning of land above Enterprise Road Sandy Bay I fully support the Council's initiative to rezone to 'Low Density Residential' the land in question which includes 21, 21B and part of 21A Enterprise Road. In previous correspondence I have expressed my concern of increased traffic flow on narrow and bendy roads and the damage likely to be incurred.	Support	
9	Please consider my representation to the Re-zoning of land above Enterprise Road Sandy Bay. The land in question includes 21, 21B and part of 21A Enterprise Road I have been a resident in this area since 1994 and I am concerned about the density that could be allowed in this area. A recent Development Application for 20 two and three storey dwellings were proposed on 21b Enterprise Road. Dwellings of this density could have serious negative impacts on the community relating to poorly controlled stormwater, increased traffic, damage to the road network and loss of natural values associated with bushland areas. We should avoid the following at all costs: a. Stormwater run-off hazards b. Increases in traffic on Enterprise Road and the feeder road network c. Potential damage to the roads d. Potential vegetation loss on steep elevated slopes next to a bushland reserve e. Destruction and loss of bushland and the of habitat native flora and fauna f. Increased FIRE HAZARD g. Change to the bushland skyline	Support	
10	I am writing to support the Planner's report dated 17th March 2022 recommending that these plots be re-zoned from General	Support	

	Residential to Low Density zoning. As a long term resident of Edith Avenue, I believe this area of land is inappropriate for high density development for the following reasons. *Loss of a green corridor to Bicentennial reserve and habitat loss for local birds and mammals. There are already a number of developments occurring in the local area including Edith Avenue, Aotea Avenue and Marlborough Road with loss of bushland. It is very concerning to see trees and bush being cleared for these developments. As well as impacts on flora and fauna, this will also result in soil erosion and issues with stormwater drainage during heavy rains. *The roads which feed into Enterprise Road are not suitable to deal with heavier traffic flow, both during construction but also with increased population density once completed. We already see a large number of short term rental accommodation in the area which results in increased traffic flow. I would urge you to proceed with the recommendation to re-zone this area as Low Density Residential.		
11	Please find attached a representation in respect of the above mentioned Planning Scheme amendment affecting 21, 21A & 21B Enterprise Road, Sandy Bay.	Support	Appendix A
12	Re the Re-zoning of land above Enterprise Road, Sandy Bay to Low Density Residential. I have lived on the hill below this area for 45 years, and love this special neighbourhood. (I know over 200 people on the hill.) We all fear the **major changes** which could result if 21, 21B, and 21A Enterprise Road remain as General Residential. These would be : * Increased traffic down and up the hill, on the narrower road access, and on bends. * Creating a huge scar across the pristine 'bush' of the steep hill of 21A. * Some years of noisy excavation work, and building supplies, and tradies travelling up and down the hill. * Many people walk up and down the Signal Station Track every day, as I do, and the noise would destroy the serenity of the walk. * Stormwater ??? Please carefully consider the ramifications of this re-zoning proposal change, which would help to give many, many people a little bit more peace of mind. Thank you.	Support	
13	We are residents of 20 Aotea Rd. Sandy Bay and we are writing to support Council's recent decision to rezone 21, 21A, and 21B Enterprise Rd. from General Residential to Low Density Residential	Support	

	zoning. We made a previous representation on the proposed development of this land as we considered that we would be adversely impacted by the development that was proposed at that time. We fully support the recent decision by Council Planners to rezone this land to lower density.		
14	We would like to amend the previous letter sent (located below).. regards re zoning of residential land.. We strongly support the petition presented to the council calling for the re-zoning of land above Enterprise Road to Low Density Residential. *Initial representation:* We would like to oppose the re zoning proposal of high density housing development in our neighbourhood. We strongly believe this development will negatively impact many things in this area, namely not fitting into the visual and physical character of residential living so close to a beautiful reserve. It will encroach into the bushland causing damage and loss of habitat of the wildlife. Also increased traffic will be problematic especially if there is a fire and only one way in and out. Storm water run off hazard will increase. We strongly oppose high density development in this area. Please note our objections.	Support	
15	I wish to state my full agreement to re-zone the above land to low density residential, particularly the land at 21, 21A and 21B Enterprise Rd. None of this land is appropriate for high density development on many grounds. Particularly: this land is accessed by a single, narrow, steep road, with tight bends and considerable numbers of parked vehicles. Construction of only a few new dwellings on the land would cause considerable inconvenience and unpleasantness for existing residents along that road, whilst construction of a large number would make life intolerable. Not to mention the considerable damage that is likely to occur to that road from its use by high numbers of very heavy vehicles manoeuvring over kerbs and pavements to get around its bends and parked vehicles. In emergency situations (eg bushfires), if many new dwellings were to be constructed, the difficulty of emergency vehicle access at the same time as much increased resident vehicular evacuations could create a very hazardous situation. It is not in character for the neighbourhood for the land in question to have any high density development, nor is such steep land	Support	

	suitable from an environmental standpoint. I fully support the Council in accepting the planning recommendations and in their proposal to re-zone the above land.		
16	As a citizen living in close proximity to Enterprise Road I **support** the proposed PSA-21-4 Amendment – Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay Reasons limit traffic on the smallish roads leading up to the site Bushfire risk - many more residents would need to be evacuated less impact on wildlife less visual impact on the skyline	Support	
17	I am writing to support the rezoning of the land above Enterprise Rd, Sandy Bay to low density residential. Low density residential housing in this area would be in keeping with the land use of the neighbouring properties, and would provide the best visual amenity to Hobart's treeline. In addition, the steepness of access to this land means that new residents there (particularly families) cannot easily access public transport on Churchill Ave, which is desirable for high density housing.	Support	
18	I'm registering my representation.	Unclear	
19	My representation is very much in support of the Council to re-zone the land 21, 21B and part of 21A Enterprise Road from General Residential to Low Density Residential zoning. The reasons to support this change is that – 1. Having less homes on these blocks means less traffic down the already busy narrow road. 2. Less roof areas and driveway hard surfaces will make quite an impact on the stormwater. The land is very steep and I have observed the large quantity of water down the slope. The Manning tributary runs strongly into the rivulet. The basin and slopes really should be left bushland and not developed. 3. The low density area proposed is a good idea as the bi-centenary park is next door – and so the gradual easing of development to the bushland will be softer to the ey. This is the backdrop to Hobart and Bi-centennial Park enhances Hobart.	Support	

	Please consider the above.		
20	I write on behalf of my parents who are residents of Birngana Avenue, Sandy Bay. They have asked me to write in support of the re-zoning of land above Enterprise Road to Low-Density Residential, which they believe is compatible with the neighbourhood and location. The area is steep and the stormwater run-off is of very real concern. The traffic on the feeder roads is already busy, particularly with cars parked on both sides allowing very narrow passage through for cars let along trucks and machinery. Driveways are continually blocked by cars in the surrounding streets, a matter which would only be compounded should the area be re-zoned to anything other than Low-Density Residential. The feeder roads are narrow and there are many blind corners, with several schools in the area and young children, it would make it very dangerous to have significantly more traffic using these roads. Increasing development over the last few years has also resulted in an increase in native fauna venturing into the residential areas from the reserve as their habitat decreases in size, particularly after dark. Anything other than Low-Density Residential zoning would see further increases removing habitat and pushing more fauna further into the residential areas, in danger of being hit by cars and traffic on the narrow steep roads. This would be further aggravated by the loss of vegetation on the steep elevated slopes directly adjacent to the bushland reserve and ultimately the habitat of these native species. Thank you for taking the time to read the comments and perspective of residents like my mum and dad, who have lived in the area of concern for in excess of 45 years and seen the impact on increased levels of traffic, vegetation loss and deterioration of the road surfaces.	Support	
21	This is a representation in relation to PSA-21-4 Amendment – Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay I strongly support this rezoning proposal because it corrects an historical error in changing the zone to a higher density than is appropriate for this transition zone, which happened through no fault, simply a complex process that allowed this change to slip through the net and avoid proper scrutiny. The current higher density General Residential zoning will create serious issues in relation to increasing traffic on the feeder road network, which is a one way in, one way out, highly constrained road network of narrow roads with a series of difficult intersections.	Support	

	At this time in human history it is untenable to continue clearing large areas of bushland and native vegetation particularly on such an important visual site visible from all areas of Hobart on elevated steep land which will lead to further erosion and pollution of waterways, catchment areas and reduction of native habitat, not to mention associated stormwarter runoff hazards to neighbouring properties and infrastructure, particularly during these times of fierce and more frequent weather events. Low density residential or even environmental living would be a more appropriate zoning in my opinion.		
22	I refer to Council's Study recommending re-zoning of certain lands located above Enterprise Road, Sandy Bay. I support the recommendation and urge Councillors to adopt the proposed change. In particular, I am opposed to development on these lands which will result in substantially increased traffic volumes on the feeder roads.	Support	
23	I support the Council study recommending re-zoning for these properties and that I support Council decision to advertise the properties for re-zoning. My concerns relate to the impact on bushland reserve, the stormwater run off dangers and increased daily traffic on narrow and winding roads.	Support	
24	As a ratepayer and resident of Beddome Street in Sandy Bay I would like to **support** the councils plan to rezone the area above Enterprise road to Low - Density Residential. I think it will be beneficial in stopping further increase in traffic on the feeder road network, which is already problematic, and issues with vegetation loss on the steep elevated slopes next to the bushland reserve.	Support	
25	I am writing to voice my support of the rezoning of the land in Enterprise Rd as per the following . https://www.hobartcity.com.au/files/assets/public/development/planning-schemes/planning-scheme-amendments/psa-21-4-planners-report.pdf I agree with the opinions voiced this report from city planning officers and would like to see the area of 1500 sq m per building be made as the base for this area.	Support	
26	I object to the high density development of 21B, 21A behind Enterprise Road. Reasons behind – Road will not take it.	Support	

	Traffic (increased) Damage to bush area It is the only exit of the hill I am an elderly lady and have lived here for 50 years and continue to want to do so.		
27	I wish to register my support for the rezoning of properties at 21,21A,21B Enterprise Road Sandy Bay to Low-Density Residential. This re-zoning will allow any future development to be compatible with the neighbourhood and established community and respects traffic safety and the environment. Under the current General Residential zoning, the properties have been the subject of multiple-dwelling high-density development proposals which are not aligned with the established and valued lifestyle and environment of this quiet residential area (please refer emails June 2020 and April 2021). Such high-density developments will inevitably increase pressure on the Skyline reserve and the bushland's biodiversity and environment, increase local traffic leading to greater congestion and frequency of accidents, and increase the local risk of flooding and landslip.	Support	
28	We would like to express our support for the rezoning of 21, 21B and part of 21A Enterprise Road , Sandy Bay from General Residential to Low Density Residential. We consider Low Density zoning far more appropriate for this area of land as it will help reduce or avoid: a) the risk of stormwater run-off hazards b) the loss of vegetation on this steep area of land which is adjacent to a bush land reserve c) the significant danger posed to the local road network and its users by the earthmoving equipment etc required for development of the area d) heavy increases in traffic on the feeder road network.	Support	
29	I write in support of Council's initiative to rezone the land above Enterprise Road in Sandy Bay from General Residential to Low Density Residential zoning. My main reason for supporting this proposal is that I know of no city in the world, gifted with the same fringing natural habitat as occurs on the hills around Hobart, that would seek to ruin the critical interface between the city and natural bush by allowing high density building development. What is being proposed by Council would help contain a number of environmental negatives associated with high-density development, including enhanced storm-water run-off, and habitat loss on steep elevated slopes next to bushfire prone land. I hope Council's initiative may equally apply to all regions under the Council's control where development on the critical interface may	Support	

	be proposed.		
30	I wish to register my support for the rezoning of properties at 21,21A,21B Enterprise Road Sandy Bay to Low-Density Residential. This re-zoning will allow any future development to be compatible with the neighbourhood and established community and respects traffic safety and the environment. Under the current General Residential zoning, the properties have been the subject of multiple-dwelling high-density development proposals which are not aligned with the established and valued lifestyle and environment of this quiet residential area (please refer emails June 2020 and April 2021). Such high-density developments will inevitably increase pressure on the Skyline reserve and the bushland's biodiversity and environment, increase local traffic leading to greater congestion and frequency of accidents, and increase the local risk of flooding and landslip.	Support	
31	I am in absolute support of Council's initiative to re-zone the land above Enterprise Road, from General Residential to Low Density Residential. It is preposterous that at the current Residential zoning, 60 dwellings can be proposed on 21, 21a and 21b combined. It is essential we foster a greater sensitivity to the times we are living in and for the community to make super human efforts to ensure the protection of the flora and fauna we are reliant on to live. The revolting current dwelling density threatens devastating damage to roads, the surrounding environment, hazardous stormwater run-off and an untenable increase in traffic on the feeder road network. This is not acceptable.	Support	
32	I am writing to support the Council's Planners Report which recommends rezoning the above as a low density zone. Currently zoning would permit more that 60 dwellings to be constructed on this small parcel of land. Recently a high density development for part of the was proposed but rejected by the Council. The consequences of such large scale developments would be a disaster for the region in which they are located for the following reasons. 1. This small section of land would have a housing development which is quite out of character with the adjacent area which features medium size blocks, single dwellings and spacious gardens 2. The traffic created as a result of multiple new residences would overtax the road access system. Access to the area is via roads built in the 1940/5Os which are narrow and lined with houses having steep drives and little on site parking. Consequently parked cars, delivery trucks and work vehicles frequently restrict access to a single lane. This requires vehicles using the roads to reverse into vacant spaces to permit oncoming vehicles to pass.	Support	

	Vehicles with trailers or towing boats add to the complexity at times. There is only one access route to the area and this has several bends, one of which is almost a hairpin bend. 3. The parcel of land which is under consideration is on a steep hillside. To prepare the land for development, roads would be required wide enough for garbage, fire and emergency vehicles and blocks would need to be levelled. This will require thousands of truck movements over the next few years to remove rock and soil. This will have a significant impact on the roads, residents and the narrow access lane to the land. Major drainage schemes will be required. Trees will have to be cleared in the nature reserve for fire safety. All of the seems highly inappropriate for a relatively small parcel of land on the edge of a nature reserve halfway up the hills surrounding Hobart. A high density development in such a location would present a visible scar which could be seen from most of the City and Eastern Shore.		
33	I would like to strongly support the recommended amendment to the zoning of the area 21, 21B and part of 21A Enterprise Road, Sandy Bay. These are the reasons I support the change to a lower density of housing: 1. More in keeping with the precedence set of other skyline streets that back on to the reserve, where lots are at least 1500m2 or more. 2. Will mean less traffic congestion to the roads at the bottom of this hill (which is already an issue at times). 3. Will ensure reduced load on stormwater infrastructure which has challenges already (current issues demonstrated again by recent TasWater issues on Birngana Avenue in April 2022). 4. Maintains vegetation on the steep slope of this area, and enables flora and fauna to survive and have a connection to the adjacent bushland reserve. 5. Enables more Eucalyptus viminalis trees to be retained, which provide vital habitat for local bird species. 6. Provides a more 'liveable' suburb for those who will call it home. Many thanks for taking the time to review my email. I am happy to be contacted about the above if required	Support	
34	I wish to support the Hobart City Council's proposal to rezone that section of land that includes 21, 21B and part of 21A Enterprise Road to be classified as Low Density Residential. While it is well known the many negative aspects of previous development proposals would have directly on the site, such as the	Support	

	increased traffic including the particularly heavy traffic during the construction phase, safety concerns with access and fire mitigation, narrow roads, the inappropriate style and number of constructions proposed and with the general amenity of the area, a rezoning to Low Density Residential is appropriate and in keeping with the Sandy Bay area. The size and scale of previous proposals were not in keeping and totally inappropriate for the area.		
35	Please see attached a representation in support of this planning scheme amendment initiated and certified by Council.	Support	Appendix B
36	I wish to give you my full support in regard to your proposal to re-zone the above land to low density residential. Such new zoning of the land would bring it into line, I believe, with the current style of development in the surrounding neighbourhood and overcome many of the problems that higher density development of that land would inevitably create.	Support	
37	TasWater does not object to the proposed amendment to the Interim Planning Scheme as mentioned above and has no formal comments for the Tasmanian Planning Commission in relation to this matter and does not require to be notified of nor attend any subsequent hearings as stated in the attached SPAN. If you have any queries, please contact me.	No opinion	Appendix C
38	Firstly i don't support ANY building works up there. I DO NOT support general residential zoning in 21, 21a, 21b. I DO SUPPORT REZONING TO LOW DENSITY in 21, 21a, 21b. We already have water running down towards our properties in heavy rain; my lower bedrooms have been flooded 5 times in 8 years from water overload from above land and drainage. Increased building up there may well undermine lower properties and result in stormwater run off hazards. Birngana ave is already being treated as a racetrack by motor bikes and vehicles. Vehicles speed up birngana ave every day certain times worse than others. People park on both sides of the road from beddome up niree through birngana which makes it dangerous at times. I have witnessed excessive speeding this year up these roads and wildlife being slaughtered from speed and volume of traffic. The hairpin corner from niree to birngana is a shocking one when cars park in left hand side of niree which then forces us out onto the wrong side of the road prior to the birngana corner. See my email to Shivani Jordan 28march 2022. I asked that a continuing yellow line be put on niree all way to birngana on left side so no one can park on left because when they do it forces us travelling up niree to go onto wrong side of road just dangerously prior to birngana hairpin	Support	

	corner. I asked that two speed bumps be put in birngana Avenue to slow traffic down. I asked that a mirror be put at hairpin corner of birngana to aid in vision. Nothing has been done. But if you bring more volume of traffic to this high area then there will be accidents. I have seen the safety in this area decrease this year and it's all due to building works going on up higher than birngana and speed and the lack of duty of care at niree birngana corner.		
39	We are the owners of 23 Birngana Avenue and have lived at this address for about 20 years. We strongly support Council's study recommending rezoning of the land at 21 ,21A and part of 21B Enterprise Road from General Residential to Low Density Residential. Our primary concern with the current General Residential zoning is that it allows a density of development for which the roads from Enterprise road to Churchill Avenue are totally unsuited. Birngana Avenue, Niree Heights, Beddome Street and Cheverton Parade were not designed to carry traffic generated by potentially 60 additional dwellings. The roads are narrow, have blind corners caused by poor vertical and horizontal alignments and passing is very constrained by parked vehicles. In some areas heavy construction vehicles will find it very difficult to pass between cars parked on both sides of these roads. Parts of Birngana Avenue are already in poor repair and heavy construction vehicles will cause further damage. We also have concerns with the capacity of the stormwater network to deal with 60 additional dwellings. There have already been significant issues with overland stormwater damaging houses above Enterprise Road. Development of 60 additional houses with associated driveways and hardstand areas will significantly increase the amount of stormwater with the potential to overwhelm the stormwater system in 1 in 50 year flood events. In summary we strongly support rezoning the subject land to Low Density Residential.	Support	
40	We wish to support the Council's initiative to rezone the land above Enterprise Rd. We live in Beddome St just past the only arterial road to the area, Niree Heights. This narrow road barely copes with the existing traffic and definitely could not cope with any increase in traffic without causing major congestion. We also have concerns re safety issues if there was a fire .. access and exit would be impossible. Thank you for your consideration of this very important matter	Support	

41	I wish to express my support for the HCC Planners' Report recommending the rezoning from General Residential to Low Density Residential zoning for the proposed development at 21B Enterprise Road. As a resident at 3 Nice Heights Sandy Bay I believe that the current development plan would adversely impact the area by causing the following; 1. Stormwater run-off hazards 2. Increasing in traffic on the feeder road network 3. Damaging the existing road infrastructure 4. Vegetation loss on the steep elevated slopes next to the bushland reserve The proposed rezoning to Low Density Residential would ensure that the development proposed would be more compatible with the neighbourhood and location.	Support	
42	I am writing to strongly endorse the Report of the Acting Director City Life of 8 March 2022 on proposed re-zoning of land above Enterprise Road. The report correctly concludes that rezoning will ensure "that land is appropriately zoned and that use and development is undertaken in a fair and orderly manner." The history of zone changes since the Hobart Planning Scheme of 1982 shows that a major mistake was made in 2011 when the zone was amended from Hills Face to Residential 2 Zone. The Residential 2 zoning allowed a dwelling density of one per 750 m2 for land with a gradient over 20%. The 2011 amendment to the 1982 planning scheme contradicted the recommendations in the comprehensive Mount Nelson Planning Review in 2006. This report recommended that the dwelling density in this area should be one per 1500 m2. The 2011 amendment also contradicted the Hobart City Council's resolution of 26 June 2006 to follow the MNPR recommendations as the basis for a new City of Hobart Planning Scheme. I was a resident in the area in 2011 but received no notice of the change in zoning. Although Council met its statutory obligations regarding advertising the amendment, no public meeting was called despite a recommendation from Council that one be held (Reference: Item 6.2.1 CITY OF HOBART PLANNING SCHEME 1982 – PLANNING SCHEME AMENDMENT – HILLS FACE ZONE, SANDY BAY – 1/2011 AMENDMENT – FILE REF: 32-1-1 28x's Report of the Director Development and Environmental Services and the Senior Development Planner of 3 March 2011 and attachments. Paragraphs 11.1 and 11.2, p 11-12). As a resident in 2011, I had no chance to object to the zoning amendment then, so I greatly welcome the opportunity to comment on PSA-21-4 Amendment which is intended to correct the 2011 mistake. The Report of the Acting Director City Life accurately characterises	Support	

	the land in question as steep, bushfire prone and covered with native vegetation. Access to all three blocks depends on a steeply inclined right-of-way that runs obliquely to Enterprise Road. No other privately owned land on the northeastern slope of Mount Nelson is similarly constrained in terms of access. Attempting more that Low-density Residential development on these blocks will result in traffic safety issues, hazards downslope from extra stormwater run-off and destruction of native forest that has significant bushland and wildlife habitat natural values. Part of the land overlaps a Biodiversity Protection area and a Protected Waterway (Manning Rivulet) and lies partly adjacent to a Bushland Management area (Bicentennial Park) - all reinforcing the difficulty and inappropriateness of developing this land at densities greater than Low-density Residential (one per 1500 m2). The current General Residential zoning would allow in the order of 60 dwellings on 21, 21B and part of 21A. This intensity of development will overload the local road network to an unsafe extent. The site is at the end of a no-through road connected to a road network comprising 8 or 9 junctions down to Churchill Avenue. All but one of the junctions are oblique and sloping. All the roads are inclined, some steeply, and all become one-lane in width when cars are parked on both sides. This network is already at capacity and adding extra traffic from development at General Residential density above Enterprise Road makes no sense. Development at Low-density Residential density will also add to the strain on the road network but not to the extreme extent associated with development at General Residential zoning density. I also strongly endorse the application of a Biodiversity Protection Area overlay to the land. As identified in the report, such an overlay will ensure future development respects the existing bushland setting and will limit impacts on the adjacent Bushland Management and Environmental Living zones.		
43	Dear HCC chief executive officer, please accept our support the re zone	Support	Appendix D
44	This representation is in support of Council's initiative to rezone the land above Enterprise Road. The re-zoning will reduce, stormwater run-off hazards, decrease traffic increases on the feeder road network, potential road damage, loss of vegetation in bush land reserve and reduce the impact on the neighbourhood with dwellings that are more compatible with the existing residences. Thank you.	Support	
45	See attachment	Support	Appendix E

46	With regard to the above location I wish to support its re-zoning to Low Density Residential. I wish to record though that I disapprove of any development of this area due to the negative impact on bushland, run-off, limited traffic routes especially during any emergency and road maintenance. However, I realise that if any development is approved this change in zoning will allow development more compatible with my neighbourhood. Re-zoning will hopefully result in less stormwater run-off hazard, less increase in traffic on the feeder roads and less vegetation loss on steep slopes in a bushland area than development under the current General Residential zoning. I would appreciate acknowledgement of this representation.	Support	
47	We wish to register our support for the proposed amendment to the planning scheme for Rezoning of 21, 21B and part of 21A Enterprise Road, Sandy Bay (PSA-21-4 Amendment) from General Residential to Low Density Residential and inserting the Biodiversity Protection Area overlay. Amending the zoning for this area to low density residential will address concerns related to stormwater run-off hazards, increases in traffic on feeder road networks and potential damage to roads if the existing general residential zoning was to be retained. The insertion of the biodiversity protection area overlay recognises the close relationship prof this land to the surrounding natural bushland of Bicentennial Park. This will minimise development in this sensitive landscape area. We wishes to lodge our support for this are to be rezoned as low density residential.	Support	
48	Regarding council's study recommending the re-zoning of properties at 21,21A and 21B Enterprise Rd. We support the decision by council regarding the re-zoning properties at 21,21A and 21B Enterprise Rd for the following reasons: 1. The Impact on vegetation and wildlife in the area. including swift parrots and other native wildlife. 2. Re-zoning would be inline with the current character for the area. Especially when the land advertised and sold, was initially marketed for one large residence or up to 4 smaller houses. http://3.As road access to that area is limited, re-zoning would assist with traffic. The existing roads are steep and narrow and are a closed loop above Churchill Avenue, i.e. access to the whole area is limited by two roads only (Edith Ave and Cheverton Parade). This also has fire safety implications.	Support	

	4. Re-zoning will not impact as much on the intersections of Edith Ave and Cheverton Parade, especially the busy school Zone in between these intersections (Waimea Primary). 5 . Also the re-zoning will have a positive impact on the surrounding area and Hobart city's skyline. As a result we support the council's study recommending the re-zoning of these properties.		
49	Regarding council's study recommending the re-zoning of properties at 21,21A and 21B Enterprise Rd. We support the decision by council regarding the re-zoning properties at 21,21A and 21B Enterprise Rd for the following reasons: 1. The Impact on vegetation and wildlife in the area. including swift parrots and other native wildlife. 2. Re-zoning would be inline with the current character for the area. Especially when the land advertised and sold, was initially marketed for one large residence or up to 4 smaller houses. http://3.As road access to that area is limited, re-zoning would assist with traffic. The existing roads are steep and narrow and are a closed loop above Churchill Avenue, i.e. access to the whole area is limited by two roads only (Edith Ave and Cheverton Parade). This also has fire safety implications. 4. Re-zoning will not impact as much on the intersections of Edith Ave and Cheverton Parade, especially the busy school Zone in between these intersections (Waimea Primary). 5 . Also the re-zoning will have a positive impact on the surrounding area and Hobart city's skyline. As a result we support the council's study recommending the re-zoning of these properties.	Support	
50	Regarding council's study recommending the re-zoning of properties at 21,21A and 21B Enterprise Rd. I support the decision by council regarding the re-zoning properties at 21,21A and 21B Enterprise Rd for the following reasons: 1. The impact on vegetation and wildlife in the area. including swift parrots and other native wildlife. 2. Re-zoning would be inline with the current character for the area. Especially when the land advertised and sold, was initially marketed for one large residence or up to 4 smaller houses. http://3.As road access to that area is limited, re-zoning would assist with traffic. The existing roads are steep and narrow and are a	Support	

	closed loop above Churchill Avenue, i.e. access to the whole area is limited by two roads only (Edith Ave and Cheverton Parade). This also has fire safety implications. 4. Re-zoning will not impact as much on the intersections of Edith Ave and Cheverton Parade, especially the busy school Zone in between these intersections (Waimea Primary). 5 . Also the re-zoning will have a positive impact on the surrounding area and Hobart city's skyline. As a result I support the council's study recommending the re-zoning of these properties.		
51	Regarding council's study recommending the re-zoning of properties at 21, 21A and 21B Enterprise Rd. We support the decision by council regarding the re-zoning properties at 21,21A and 21B Enterprise Rd for the following reasons: 1. The Impact on vegetation and wildlife in the area. including swift parrots and other native wildlife. 2. Re-zoning would be inline with the current character for the area. Especially when the land advertised and sold, was initially marketed for one large residence or up to 4 smaller houses. 3. As road access to that area is limited, re-zoning would assist with traffic. The existing roads are steep and narrow and are a closed loop above Churchill Avenue, i.e. access to the whole area is limited by two roads only (Edith Ave and Cheverton Parade). This also has fire safety implications. 4. Re-zoning will not impact as much on the intersections of Edith Ave and Cheverton Parade, especially the busy school Zone in between these intersections (Waimea Primary). 5. Also, the re-zoning will have a positive impact on the surrounding area and Hobart city's skyline. As a result we support the council's study recommending the re-zoning of these properties.	Support	
52	Representation in support for rezone 21, 21B, part 21A Enterprise Rd attached.	Support	Appendix F
53	Re: PSA-21-4 Amendment – Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay I wish to confirm my support of the Council's recommendation for rezoning the above properties and also support the Council's decision to advertise the properties for rezoning. The rezoning is important in order to avoid: (i) stormwater run-off hazards;	Support	

	(ii) increases in traffic on the feeder road network; (iii) potential damage to the roads; (iv) vegetation loss on steep elevated slopes next to a bushland reserve.		
54	Re: PSA-21-4 Amendment – Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay I wish to confirm my support of the Council's recommendation for rezoning the above properties and also support the Council's decision to advertise the properties for rezoning. The rezoning is important in order to avoid: (i) stormwater run-off hazards; (ii) increases in traffic on the feeder road network; (iii) potential damage to the roads; (iv) vegetation loss on steep elevated slopes next to a bushland reserve.	Support	
55	I would like to support the reasoning of the above land to low density residential. Compared with what was originally proposed for these sites , the new zoning would result in less traffic snag the only access road to the sites. this road can get extremely use which can make it difficult for property holders lower down the hill from exiting their properties.. The lower density would also allow for rainwater to have a greater chance of soaking into the ground rather than being runoff into the stormwater drains and rivulets. This would likely reduce the risk of flooding to houses on the lower section of MacAuley Rd.	Support	
56	I support the proposal by the Hobart City Council to re- zone the area of 21, 21B & Part of 21A Enterprise Rd to Low Density Residential. The existing road infrastructure is barely adequate for the traffic it currently carries. I live on Cheverton Pde near a blind corner & residents in this area are daily at risk trying to access & exit their properties because of the volume of traffic using Cheverton Pde as the main access route to all properties further up the hill. Therefore anything that minimises the amount of development & vehicles in this area is vital.	Support	
57	We support the HCC Planners' Report that recommends the re-zoning of the land to Low-Density Residential. My wife and I have lived in Cheverton Parade for 36 years and are very concerned by the amount of traffic going up the hill on roads which were not designed to take that volume. More than 25 years ago I rang Council to inquire about future development as we had	Support	

	noticed a significant increase in traffic after Glover Drive was developed. At the time several traffic counts were conducted in Cheverton Parade. The Council's phoned response was that the roads up to Enterprise were at capacity and no further development would be approved on the hill. Any increase in the number of dwellings could only make traffic congestion on the hill worst as no road upgrades have been undertaken. Dwelling density greater than the re-zoning proposed would cause traffic congestion and degradation to the narrow roads. Bush, stormwater runoff and substrate would be compromised to the detriment of local residents and the general public from an aesthetic point of view. In the case of a severe bushfire, it is possible to have a situation of firefighting units trying to get to the fire up the hill while residents flee downhill. To allow higher density than the proposal would be hazardous for residents and firefighters. The risk is significantly increased by only one access which is reasonably narrow. We trust you will support the recommendations in the report.		
Non-Statutory Representation			
58	We are writing to register our support for the above amendment to zoning changes for the land that adjoins our property at 29 Enterprise Road, Sandy Bay, to Low Density Residential. The current General Residential zoning allows for more than 60 dwellings which, if built, would impact negatively on our property and the roads in our neighbourhood. Building 60 dwellings on the elevated, steep slope of 21,21B and 21A Enterprise Road, would require the wholesale clearing of vegetation to allow for such dense construction and would cause devastating storm water run off issues to our property below. We also note that access to most of these properties is via an access road which is just a little laneway and not designed for an additional 60-120 (or more) cars. Enterprise Road and surrounding roads are on very steep land and with the anticipated additional traffic, would surely require regular maintenance and works to keep them in a usable state. Also, Birngana Avenue, which adjoins Enterprise road and winds down towards Beddome street, is quite often the site of roadkill of native species such as pademelons and wallabies. We have also seen echidnas on Birngana Avenue. Native species graze on grass and plants around these roads because we are so close to the reserve	Support	

	that the Lambert Rivulet runs through and also the reserve that adjoins the properties in question. We anticipate that such a significant increase of road users would in turn lead to a significant increase in roadkill of local native species. Currently drivers who live on the roads around Enterprise Road experience congestion when entering Churchill Avenue during school drop off and pick up times due to back-up from the Hutchins and Waimea Schools. An additional 60-120 (or more) cars would compound this issue. We believe a rezoning to Low Density Residential is in the interest of our community, native animals and the Hobart City Council (cost of road maintenance).		

Appendix A

[redacted]

20 April 2022

Chief Executive Officer
Hobart City Council
Email: coh@hobartcity.com

PSA-21-4 AMENDMENT – HOBART INTERIM PLANNING SCHEME 2015 – 21, 21B and PART OF 21A ENTERPRISE ROAD, SANDY BAY

Dear Ms Grigsby,

We write to express our support for the above mentioned amendment being proposed by Council.

We agree with Council's assessment that the development controls associated with 'Low Density Residential' zone are more appropriate for the affected land than the currently applied 'General Residential' zoning provisions.

The land is steeply sloping with approximately 3ha of General Residential zoned area only accessible to a public road via a 5m wide laneway shared with 4 other existing dwellings. The shared laneway is positioned within an 18m± wide, steeply sloping, fee simple strip extending off Enterprise Rd. Access to the land, both for construction and on-going occupation purposes, is very constrained, inconvenient and potentially hazardous.

The junction of the shared laneway with Enterprise Rd (the only potential access point to the subject land) is at an acute angle and less than 30m off-set from another acute angled junction (Enterprise Rd/Birngana Ave) which when combined with standard kerbside parking results in frequent traffic movement challenges in the location.

The road network leading to the site from Churchill Avenue (extending over a distance in excess of 1.1km) is steep; often narrow; and frequently constrained by kerbside parking and acute angled junctions. There are 154 residential properties that rely on a single point of access to the surrounding road network (i.e. Beddome Street/Niree Heights intersection)[1]. Access difficulties are already experienced, and potential hazards already in place, ensuring any significant increase in vehicular movements will inevitably increase inconvenience, hazards, and risks to safety.

The steepness of the land, along with its elevation above the existing urban fringe and close proximity to significant landscape reserves and scenic ridgelines, further warrant that an urban density be applied which serves to transition the prominent urban aesthetic from relatively dense built form to more natural, vegetated, bushland. Such a transition is important if Hobart is to retain its iconic scenic character and minimise impacts on the landscape values of the Derwent Estuary.

It would seem reasonable in the current circumstances that any (re)consideration of appropriate zonings for the land give regard to the Zone Purpose Statements of both the Hobart Interim Planning Scheme 2015 (HIPS) and the State Planning Provisions (SPP) for the Tasmanian Planning Scheme (TPS).

[1] This includes the 10 lots to still be developed under approved subdivision PLN-06-00175 within 26 Edith Ave. Also, some of these 154 properties are likely to contain more than 1 dwelling.

The Zone Purpose Statements for the General Residential Zone, as outlined in Clause 10.1.1 of HIPS and Clause 8.1 of the SPPs, are detailed in table 1 below. The Zone Purpose Statements for the Low Density Residential Zone, as outlined in Clause 12.1.1 of HIPS and Clause 10.1 of the SPPs, are detailed in table 2 below.

Table 1 – General Residential Zone – Zone Purpose Statements

Hobart Interim Planning Scheme 2015 (HIPS)		***State Planning Provisions (SPPs)***	
10.1.1.1	*To provide for residential use or development that accommodates a range of dwelling types at suburban densities, where full infrastructure services are available or can be provided.*	*8.1.1*	*To provide for residential use or development that accommodates a range of dwelling types where full infrastructure services are available or can be provided.*
10.1.1.2	*To provide for compatible non-residential uses that primarily serve the local community.*	*8.1.2*	*To provide for the efficient utilisation of available social, transport and other service infrastructure.*
10.1.1.3	*To provide for the efficient utilisation of services.*	*8.1.3*	*To provide for non-residential use that:* *(a) primarily serves the local community; and* *(b) does not cause an unreasonable loss of amenity through scale, intensity, noise, activity outside of business hours, traffic generation and movement, or other off site impacts.*
10.1.1.4	*To encourage residential development that respects the neighbourhood character.*	*8.1.4*	*To provide for Visitor Accommodation that is compatible with residential character.*
10.1.1.5	*To provide a high standard of residential amenity.*		
10.1.1.6	*To allow commercial uses which provide services for the needs of residents of a neighbourhood and do not displace an existing residential use or adversely affect their amenity particularly through noise, traffic generation and movement, and the impact of demand for on-street parking.*		

Table 2 – Low Density Residential Zone – Zone Purpose Statements

Hobart Interim Planning Scheme 2015 (HIPS)		***State Planning Provisions (SPPs)***	
12.1.1.1	*To provide for residential use or development on larger lots in residential areas where there are infrastructure or environmental constraints that limit development.*	*10.1.1*	*To provide for residential use and development in residential areas where there are infrastructure or environmental constraints that limit the density, location or form of development.*
12.1.1.2	*To provide for non-residential uses that are compatible with residential amenity.*	*10.1.2*	*To provide for non-residential use that does not cause an unreasonable loss of amenity, through scale, intensity, noise, traffic generation and movement, or other off site impacts.*
12.1.1.3	*To encourage residential development that respects the neighbourhood character.*	*10.1.3*	*To provide for Visitor Accommodation that is compatible with residential character.*
12.1.1.4	*To provide a high standard of residential amenity.*		
12.1.1.5	*To ensure that development respects the natural and conservation values of the land and is designed to mitigate any visual impacts of development on public views.*		

Grey highlighted text – the Zone Purpose Statement conflicts with the subject site's land capability.
Green highlighted text – the Zone Purpose Statement aligns with the subject site's land capability.

The Zone Purpose Statements for the General Residential Zone (both within HIPS and SPPs) clearly predicate that land should be zoned in such a manner where services are fully available (or capable) and those services can be more fully and efficiently utilised by additional residential development. There are additional references to

facilitation of development respectful to neighbourhood character and the availability of social and transport infrastructure. The nature of the land subject to the rezoning consideration, and its location, does not accord with these Zone Purpose objectives.

Furthermore, in this regard, the land fails to align with the Zone Application Guideline GRZ 3 issued by the Tasmanian Planning Commission (TPC) for the assignment/application of the General Residential Zone when developing the Local Provisions Schedule for the new Statewide Planning Scheme.[2] GRZ 3 states:

> *The General Residential Zone should not be applied to the land that is highly constrained by hazards, natural values (i.e. threatened vegetation communities) or other impediments to developing the land consistent with the zone purposes of the General Residential Zone, except where those issues have been taken into account and appropriate management put into place during the rezoning process.*

However, the Zone Purpose Statements for the Low Density Residential Zone (both within HIPS and SPPs) does demonstrate an alignment with infrastructure and environmental constraints affecting the land. And also the potential impact on landscape (visual) values and the need for controls on development density and character.

The TPC's Zone Application Guideline LDRX 1 for the Low Density Residential aligns with the characteristics of the subject site and the surrounding context. LDRZ 1 states:

> *The Low Density Residential Zone should be applied to residential areas where one of the following conditions exist:*
>
> *(a) residential areas with large lots that cannot be developed to higher densities due to any of the following constraints:*
>
> *(i) lack of availability or capacity of reticulated infrastructure services, unless the constraint is intended to be resolved prior to development of the land; and*
>
> *(ii) environmental constraints that limit development (e.g. land hazards, topography or slope); or*
>
> *(b) small, residential settlements without the full range of infrastructure services, or constrained by the capacity of existing or planned infrastructure services; or*
>
> *(c) existing low density residential areas characterised by a pattern of subdivision specifically planned to provide for such development, and where there is justification for a strategic intention not to support development at higher densities.*

It's understood that planning scheme amendments must seek to further the objectives set out in Schedule 1 of the *Land Use Planning and Approvals Act 1993*.

In this regard, objectives (a) and (b) within Part 1, Clause 1 of Schedule 1 of the Act are particularly applicable.

> *(a) to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity; ....*
>
> *(b) to provide for the fair, orderly and sustainable use and development of air, land and water; ...*

Lower density development results in lesser areas of impervious surfaces and greater areas retained or established as vegetation (natural landscape). The retention of native vegetation and/or introduction of new plantings helps sustain ecological process and genetic diversity. It also helps with erosion control and limiting the volume and rate of stormwater discharges from the site to surrounding areas.

[2] Guideline No. 1 – Local Provisions Schedule (LPS): zone and code application - Tasmanian Planning Commission (TPC) ..... https://www.planning.tas.gov.au/__data/assets/pdf_file/0006/583854/Section-8A-Guideline-No.-1-Local-Provisions-Schedule-LPS-zone-and-code-application-version-2.pdf

The 3 large parcels, which are the subject of the rezoning proposal, have a combined General Residential zoned area of approximately 3ha. Such an area has the potential to permit (as an Acceptable Solution) more than 80 dwellings under the current density provisions for that zoning.

However, the narrow shared laneway (access) width; the acute angle of that laneway's junction with Enterprise Rd; and the close proximity of that junction with the Enterprise Rd/Birngana Ave intersection would render it incapable of safely accommodating the more than 800 traffic movements per day likely to result from such development.

Even the smallest of the 3 parcels (21 Enterprise Rd) has potential to permit (as an Acceptable Solution) up to 19 dwellings. The additional traffic movements that would result from such a development would in itself exceed the capabilities of the shared laneway. It is therefore clearly apparent, that under the current General Residential zoning arrangements, the capacity of the shared access can be entirely consumed by the development densities permitted for any 1 of the 3 parcels subsequently rendering the remaining 2 parcels impossible to develop in the manner that their zoning would suggest.

The current zoning does not therefore permit a sustainable development approach to be applied across the land.

Accordingly, we support Council's proposal to rezone 21, 21A and 21B Enterprise Rd, Sandy Bay to Low Density Residential Zone and to expand the Biodiversity Protection Area overlay over the land.

Yours sincerely,

[redacted]

[redacted]

Appendix B

AllUrbanPlanning PTY LTD

4 May 2022

Kelly Grigsby
Chief Executive Officer
City of Hobart
GPO Box 503
HOBART 7001

Dear Kelly

Representation in support of PSA-21-4 Amendment – Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay

All Urban Planning has been engaged by [redacted] to prepare a representation in support of the above planning scheme amendment initiated and certified by Council.

The amendment is to rezone 21,21B and part of 21A Enterprise Road from General Residential to Low Density Residential and apply the Biodiversity Protection Area overlay to the land.

In my assessment the Council's proposed amendment is appropriate and should be approved.

The site

The three properties are located behind the row of existing houses on the top side of Enterprise Road. 21 Enterprise Road is approximately 6600m^2, 21B is 8030m^2 and 21A approximately 7.4ha.

The site adjoins open space along the crest of Mount Nelson known as Bicentennial Park to the south west and Manning Rivulet to the east.

Access to the site is via a right of way off Enterprise Road.

The land is generally steep, and according to Council has gradients of around 25° (47%) at the south-eastern end of the land and 16° (29%) at the north-western end.

Council's engineers have noted the road network has limited capacity to absorb increased traffic produced from any development and from heavy vehicle movements required to undertake construction. They have also noted the potential risk to neighbouring properties from large development excavation into the Dolerite geology.

Planning History

I have reviewed a number of Council reports[1] and summarise the zoning history of the site as I understand it:

[1] Mount Nelson Planning Review, Final Report 2006, GHD Pty Ltd and Agenda report to the Development and Environmental Services Committee, 21 March 2011.

19 Mawhera Ave, Sandy Bay Tasmania 7005 Call 0400 109 582 Email frazer@allurbanplanning.com.au allurbanplanning.com.au

AllUrbanPlanning

- The site was zoned Hills Face under the City of Hobart Planning Scheme 1982 (see Attachment 1). The Objective of the Hills Face Zone was *to minimise the potential for development in sensitive landscape areas which also possess severe constraints in the provision of access and reticulated services, or land identified as being topographically difficult to develop*.
- When the Hills Face Zone was being reviewed in 2006, the Mount Nelson Planning Review[2] (MNPR) recommended that a lower density precinct 30C within the Residential 2 Zone be applied to the subject land. It was recommended that this have a permitted density of 1 dwelling per 1500m^2 and a basic plot ratio of 0.3.
- The MNPR recommended the following Statement of Desired Future Character be applied to the land as part of the Precinct 30C controls of the planning scheme:

  The Precinct contributes to the character of the Mt Nelson area. It represents the interface between the bushland covered higher slopes of Mt Nelson and the urban landscapes of the lower slopes.

  Vegetation should be sensitively managed to reduce ground level fuel loads around buildings and consequent bushfire hazard and minimise risk of weed invasion of the bushland. A canopy of mature trees that appear continuous from more distant metropolitan viewing points should be maintained.

  Further subdivision of existing larger lots that abut the Environmental Management Zone may not be appropriate except in accordance with a Site Development Plan that demonstrates appropriate resolution of environmental, access servicing and visual impact issues.

  The construction of additional houses on already developed lots may not be appropriate except within building envelopes indicated on a prior site development plan. Buildings should be located and designed to remain declaratively unobtrusive in the regional landscape setting.

  Siting and construction of building and works should be managed to protect the water quality and streamside vegetation from the adverse effects of litter, weeds, nutrients, erosion and sedimentation.

- Council resolved at its meeting on 26 June 2006 that the recommendations of the MNPR be used as the basis for a new City of Hobart Planning Scheme. (Attachment 2)
- The zones and boundaries proposed in the Draft City of Hobart Planning Scheme 2009 were consistent with those recommended in the MNPR.
- At that time, it was not proposed in the Draft City of Hobart Planning Scheme 2009 to introduce separate precinct controls as suggested in the MNPR for Precinct 30C. Instead, it was proposed that development of lots over 1000m^2 in the Residential Zone (such as 21, 21A and 21B Enterprise Road) would be subject to the provisions of a Bushland Values Schedule. This controlled the design and built form and native vegetation removal.

[2] Mount Nelson Planning Review Stage 2 and 3 report, GHD, June 2006, P30.

AllUrbanPlanning PTY LTD

- Council further considered the rezoning of this land above Enterprise Road[3] in 2011 and ultimately did not adopt MNPR density restriction on the basis that the residential zone under the Interim Planning Scheme structure did not accommodate precincts within the residential zone. At that time the 1982 planning scheme applied a density of 1 dwelling per 750m^2 to sites like this with a slope over 20%. The Bushland Values Schedule was not applied to this land within the Residential 2 Zone.
- In 2015 Council introduced the *Hobart Interim Planning Scheme* which simply transitioned the Residential 2 zoning from the *City of Hobart Planning Scheme 1982* to the current General Residential Zone. All other zone based considerations for the site based on the characteristics of this steep bushland that were carefully considered in the MNPR and 2009 Draft City of Hobart Planning Scheme were lost.
- The current General Residential zoning does not include the application of precincts and applies the same development controls for density, siting and site cover to the land as all other General Residential areas across the Southern Region. A residential density of 1 dwelling per 325m^2 site area now applies.

Summary of Planning History

Between 2006 and 2015 the planning controls for 21, 21A and 21B Enterprise Road have transitioned in a series of steps/decisions from:

- the Hills Face Zone that minimised the potential for development in this sensitive landscape area that was identified as being topographically difficult to develop (attachment 1)
- to a recommendation in the MNPR that the land be zoned Residential 2 with a Precinct 30C designation that would limit residential density to 1 dwelling per 1500m^2 site area as part of (attachment 2)
- to Residential 2 with a designation of 1 dwelling per 750m^2 site area for sites with a slope over 20% in 2011
- to the current General Residential Zone under the Hobart Interim Planning Scheme 2015 that applies a flat density of 1 dwelling per 325m^2 with no consideration to the landscape or topographical characteristics of the land. See Figure 2.

Through the above decisions, in my opinion Council has inadvertently removed the planning controls for this steep bushland that had been the subject of lengthy consideration as part of the MNPR and the 2009 Draft City of Hobart Planning Scheme.

In my view the Low Density Residential Zone with a density of 1 dwelling per 1500m^2 (similar to that applied to the Mount Nelson bends) would have been a more appropriate transitional zoning from the Hills Face and subsequent Precinct 30C controls.

[3] Agenda report to the Development and Environmental Services Committee, 21 March 2011

Zone application guidance

Guideline No.1 issued by the Tasmanian Planning Commission under Section 8A of the Land Use Planning Approvals Act 1993 sets out the zone application guidelines for planning schemes. I make comment in relation to the intended application of each of these zones below.

In accordance with Clause 3.4, the primary objective in applying a zone should be to achieve the zone purpose to the greatest extent possible.

General Residential Zone

In my assessment, application of the General Residential zoning does not align with Zone Application Guideline GRZ 3 for the General Residential Zone:

GRZ 3 The General Residential Zone should not be applied to land that is highly constrained by hazards, natural values (i.e. threatened vegetation communities) or other impediments to developing the land consistent with the zone purpose of the General Residential Zone, except where those issues have been taken into account and appropriate management put into place during the rezoning process.

Comment

In my opinion, the subject land that is bushfire prone, steep, subject to some overland flow and adjoining a Biodiversity Protection Area, is highly constrained and not suitable for residential development at an urban density.

Low Density Residential Zone

In my assessment the Zone Application Guidelines for the Low Density Residential Zone show good alignment with the characteristics of the subject land as follows:

> *LDRZ 1 The Low Density Residential Zone should be applied to residential areas where one of the following conditions exist:*
>
> *(a) residential areas with large lots that cannot be developed to higher densities due to any of the following constraints:*
>
> *(i) lack of availability or capacity of reticulated infrastructure services, unless the constraint is intended to be resolved prior to development of the land; and*
>
> *(ii) environmental constraints that limit development (e.g. land hazards, topography or slope); or*
>
> *(b) small, residential settlements without the full range of infrastructure services, or constrained by the capacity of existing or planned infrastructure services; or*
>
> *(c) existing low density residential areas characterised by a pattern of subdivision specifically planned to provide for such development, and where there is justification for a strategic intention not to support development at higher densities.*

Comment

The subject land aligns with LDRZ 1(a)ii) in that it exists as three larger lots that are designated as a within a Bushfire Prone Area under the planning scheme and significantly constrained by the steep topography.

> *LDRZ 3 The Low Density Residential Zone should not be applied for the purpose of protecting areas of important natural or landscape values.*

Comment

The land was identified in the MNPR for lower density residential development below the more sensitive natural and landscape values. The intended application of the Low Density Residential Zone is by reason of the hazard and topographical considerations rather than landscape and aligns with this guidance.

> *LDRZ 4 The Low Density Residential Zone should not be applied to land that is targeted for greenfield development unless constraints (e.g. limitations on infrastructure, or environmental considerations) have been identified that impede the area being developed to higher densities.*

Comment

As above the bushfire hazard and topographical considerations indicate that the land is unsuited to development at a higher density. The road network between the sites and Churchill Avenue is narrow and constrained. These constraints also impede development of the subject land to higher densities.

Regional Land Use Strategy

I agree with the comments in the Council officer assessment report, 8 March 2022 that the proposed Low Density Residential zoning is consistent with Policy SRD 1.5 and SRD 1.6 in relation to consistency with the Southern Tasmania Regional Land Use Strategy. However, I do not agree with paragraph 5.30.1 that the site is not significantly constrained due to its slope, vegetation and bushfire attack level rating in itself.

Conclusion

In my opinion, the subject land that is steep and highly constrained by its geology, access and surrounding environmental values is not suitable for residential development at an urban density.

I consider that the proposed Low Density Residential Zone should be applied.

AllUrbanPlanning PTY LTD

I would be pleased to discuss as necessary.

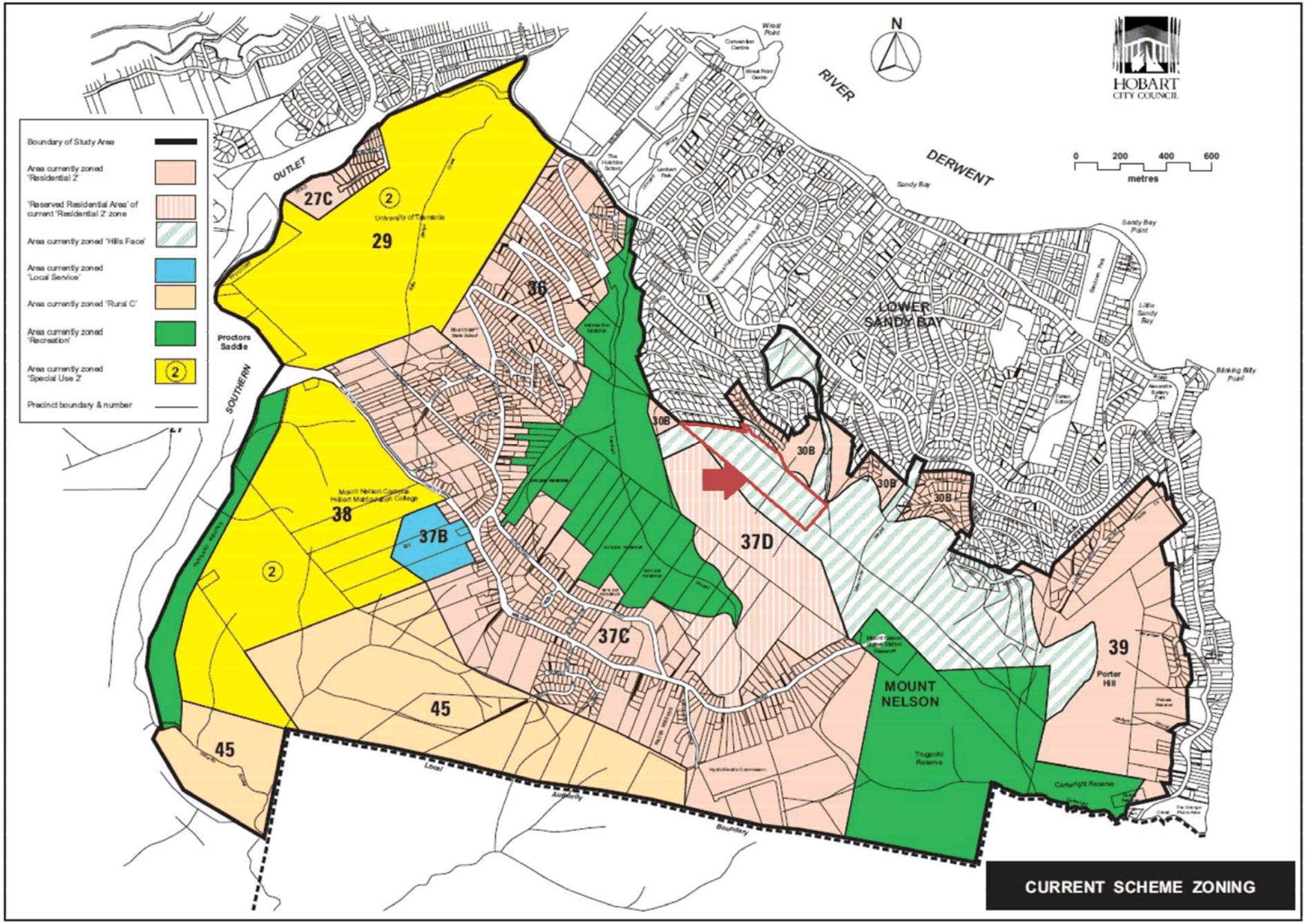
Yours sincerely

Frazer Read
Principal
All Urban Planning Pty Ltd

AllUrbanPlanning PTY LTD

Attachment 1

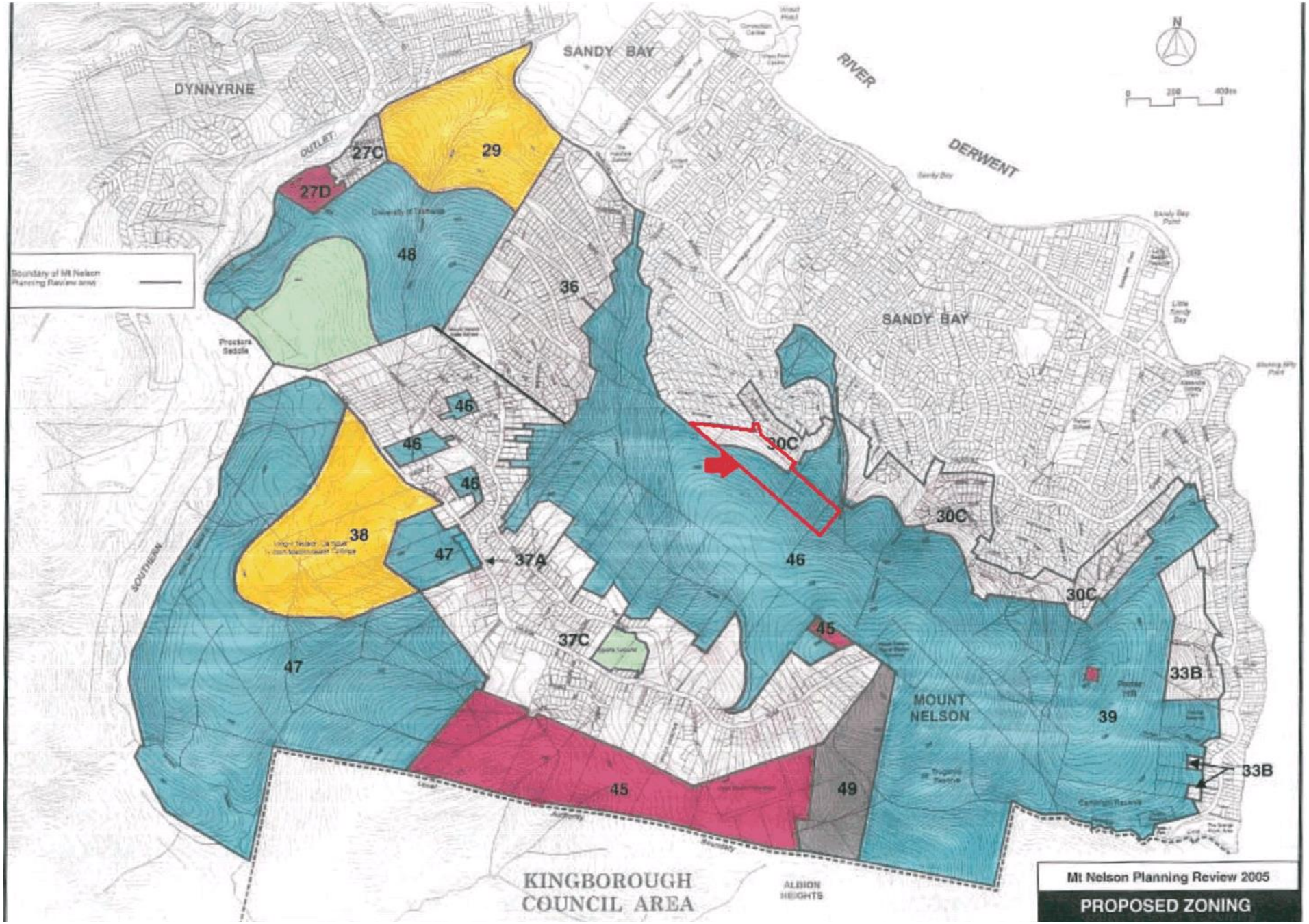
City of Hobart Planning Scheme 1982 Hills Face Zoning


Boundary of Study Area
Area currently zoned 'Residential 2'
'Reserved Residential Area' of current 'Residential 2' zone
Area currently zoned 'Hills Face'
Area currently zoned 'Local Service'
Area currently zoned 'Rural C'
Area currently zoned 'Recreation'
Area currently zoned 'Special Use 2'
Precinct boundary & number
N
HOBART CITY COUNCIL
0 200 400 600
metres
RIVER
DERWENT
OUTLET
SOUTHERN
Proctors Saddle
LOWER SANDY BAY
MOUNT NELSON
Porter Hill
27C
29
36
38
37B
37C
37D
30B
39
45
CURRENT SCHEME ZONING

AllUrbanPlanning PTY LTD

Attachment 2

Mount Nelson Planning Review


SANDY BAY
RIVER
DERWENT
DYNNYRNE
OUTLET
27C
27D
29
48
36
Boundary of Mt Nelson Planning Review area
Proctors Saddle
SANDY BAY
46
46
46
30C
30C
30C
38
47
37A
46
SOUTHERN
37C
45
47
33B
MOUNT NELSON
39
33B
45
49
KINGBOROUGH COUNCIL AREA
ALBION HEIGHTS
Mt Nelson Planning Review 2005
PROPOSED ZONING

Appendix C

Submission to Planning Authority Notice

Council Planning Permit No.	PSA-21-4	**Council notice date**	1/04/2022
TasWater details			
TasWater Reference No.	TWDA 2022/00460-HCC	**Date of response**	05/05/2022
TasWater Contact	Al Cole	**Phone No.**	0439605108
Response issued to			
Council name	CITY OF HOBART		
Contact details	coh@hobartcity.com.au		
Development details			
Address	21 ENTERPRISE RD, SANDY BAY	**Property ID (PID)**	9003918
Description of development	Draft Amendment - Rezone from General Residential to Low Density Residential and insert the Biodiversity Protection Area overlay		

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Date of Issue
Hobart City Council	Attachment A/PSA-21-4	n/A	24/2/2022

Conditions

Pursuant to the *Water and Sewerage Industry Act* 2008 (TAS) Section 56P(1) TasWater makes the following submission(s):

1. TasWater does not object to the draft amendment to planning scheme and and has no formal comments for the Tasmanian Planning Commission in relation to this matter and does not require to be notified of nor attend any subsequent hearings.

Advice

General

For information on TasWater development standards, please visit https://www.taswater.com.au/building-and-development/technical-standards

For application forms please visit https://www.taswater.com.au/building-and-development/development-application-form

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

Authorised by

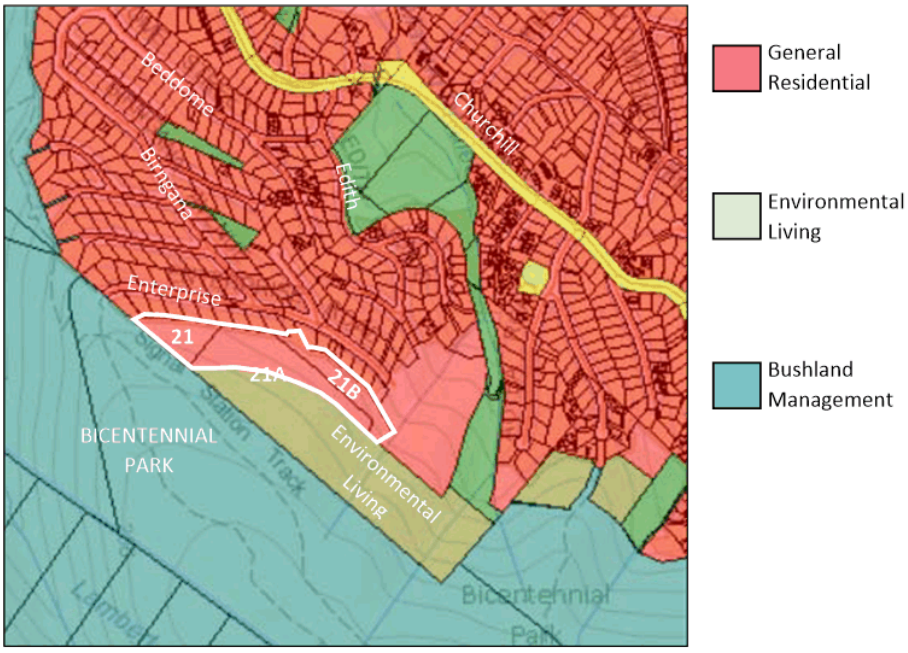
Jason Taylor
Development Assessment Manager

TasWater Contact Details			
Phone	13 6992	Email	development@taswater.com.au
Mail	GPO Box 1393 Hobart TAS 7001	Web	www.taswater.com.au

Appendix D

[redacted]

We support the Hobart City Council proposal to re-zone land above Enterprise Road from General Residential to Low Density Residential as outlined white on the map below.



The current general residential dwelling density will have serious negative impacts on the community relating to poorly controlled stormwater, increased traffic, damage to the road network, and loss of natural values associated with bushland areas.
psa-21-4-planners-report.pdf (hobartcity.com.au) .

The HCC Planners' Report proposes a change the zoning of this land from General Residential (one dwelling per 325 m^2) to Low-Density Residential (one dwelling per 1500 m^2), thereby allowing development to be proposed that is compatible with the neighbourhood and with the location.
It is suggested that the land be zoned Landscape Conservation under the new Hobart Local Provision Schedule.

The land is located at the end of Enterprise Road Sandy Bay and is some of the highest General Residential Zoned land at the top of Sandy Bay being at between 180m and 230m

AHD. It provides a vegetated backdrop to Sandy Bay and is contiguous with Bicentennial Park and the broader Mount Nelson ecosystem.

Heavily vegetated the land is covered by an intact forest community of eucalyptus Pulchella Forest and Woodland as shown in figure 2. This forest community is home to numerous endemic flora and fauna species, all of which would likely be lost if the land was developed in accordance with its current General Residential Zoning Provisions.

The land proposed to be zoned Landscape Conservation comprises three separate property titles:
Property Title Zoning
CT175781/1
General Residential
CT175780/1
General Residential & Environmental Living
CT169834/40
General Residential

The location of these property titles is shown in figure 1 and the existing zoning in figure 3. The portion of CT169834/14 between 19 and 23 Enterprise Rd would retain the existing zoning.

The properties are virtually surrounded by Public Land which forms the Hobart Bicentennial Park and is in the ownership of the Tasmanian Parks and Wildlife Service and the Hobart City Council as shown in figure 4. Zoning the property Landscape Conservation would ensure the values of the park were maintained in perpetuity. The public lands are zoned Environmental Management under the scheme.

With gradients up to 25% the land is quite steep making the construction of any roads, dwellings and infrastructure challenging.

Existing Zoning
Residential Dwelling Density
The General Residential Zoning of the properties would provide for a maximum residential dwelling unit density of 1 dwelling per 325m2 or 2.90 hectares, or 89 dwellings.

Non-Residential Use and Development
Due to the land's location at the top of Porters Hill/ Bicentennial Park.

Subdivision
The minimum lot size within the General Residential Zone is 450m2 and subdivision of the properties is technically feasible, however access onto Enterprise Road is compromised by rights of ways and drainage easements in favour of other adjacent lots.

Development Potential
Zoning the land Landscape Conservation would reduce the potential for the properties to be developed for multiple residential dwellings which would accord with protection of the natural values of the land and the surrounding area and protection of the existing neighbourhood amenity and character.

There are numerous instances where Hobart City Council has zoned land to a zone with lesser development potential such as the Sandy Bay Escarpment which went from General Residential to Low Density Residential. There are no legislative provisions which would prevent Hobart City Council from zoning the land Landscape Conservation under the LPS.

Access
Access to the land is via a gravel driveway off the Enterprise Road. This access driveway was constructed approximately 2 years ago purportedly in accordance with approval granted by Hobart City Council. The road infrastructure has failed twice since construction during heavy rainfall events, at least one of these failures was reported to relevant officers of Hobart City Council.

Lots CT175781/1 & CT175780/1 do not have frontage to a Council maintained roadway and rely upon rights of way across CT169834/40. CT175781/1 is also subject to drainage easements, limiting the development potential and access options across the frontage to Enterprise Road.
The existing access due to slope and burdening easements is not considered appropriate to provide for higher density general residential development.

LPS
The Zone Purpose of the Landscape Conservation Zone is reproduced below and it entirely accords with the natural values of the land and the significant contribution the land makes to neighbourhood character and amenity.

As there is no Environmental Living Zone under the Tasmanian Planning Scheme, it is assumed that land within Hobart which is currently zoned Environmental Living will be zoned Landscape Conservation under the LPS. Zoning the land Landscape Conservation would therefore provide for contiguous zoning of the area.

Landscape Conservation Zone

22.1 Zone Purpose

The purpose of the Landscape Conservation Zone is:

22.1.1 To provide for the protection, conservation and management of landscape values.

22.1.2 To provide for compatible use or development that does not adversely impact on the protection, conservation and management of the landscape values.

Low Density Residential Zone

If it is not deemed to be appropriate to zone from General Residential to Landscape Conservation the alternative would be to zone the land, Low Density Residential. This zone has the following Zone Purpose Statement as reproduced below.

10.1 Zone Purpose

The purpose of the Low Density Residential Zone is:

10.1.1 To provide for residential use and development in residential areas where there are infrastructure or environmental constraints that limit the density, location or form of development.

10.1.2 To provide for non-residential use that does not cause an unreasonable loss of amenity, through scale, intensity, noise, traffic generation and movement, or other off site impacts.

10.1.3 To provide for Visitor Accommodation that is compatible with residential character.

The above zone purpose statement accords with the neighbour character and amenity of the surrounding area and zoning the land Low Density Residential is also considered to be an excellent alternative zoning.

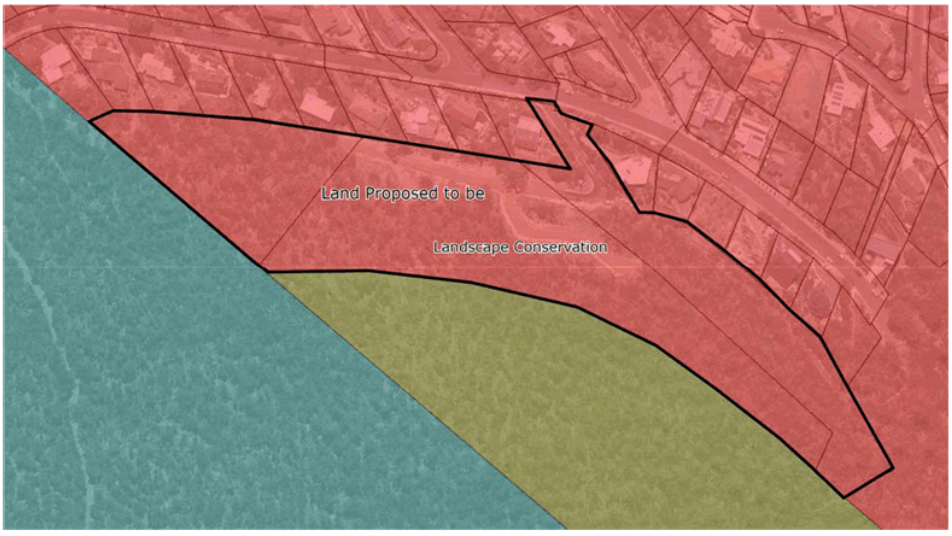


Figure 1: Area proposed to be zoned Landscape Conservation under the LPS

Figure 2: Vegetation forest community

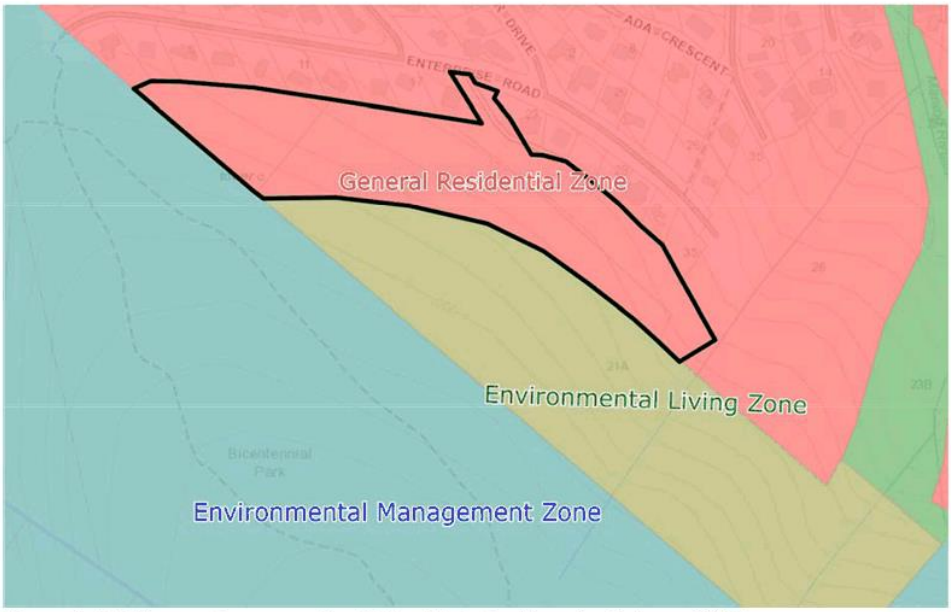


Figure 3: Existing zoning as per the Hobart Interim Planning Scheme 2015

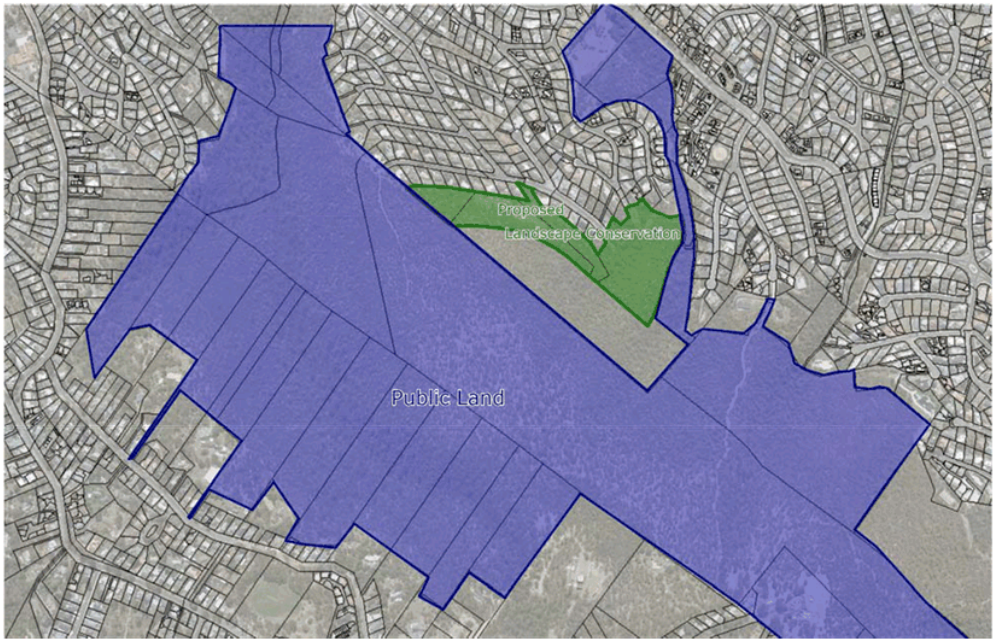


Figure 4: Surrounding public land

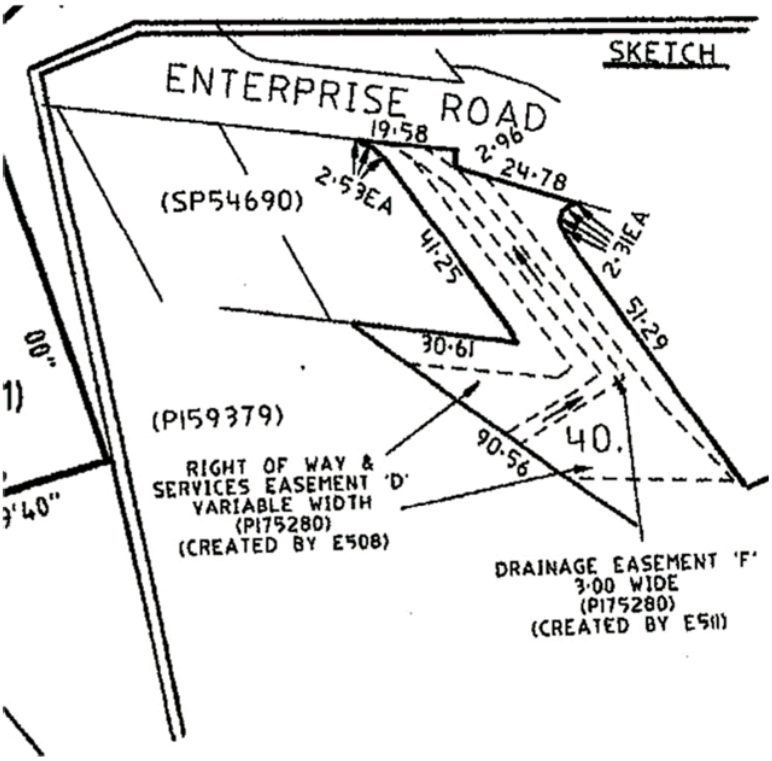


Figure 5: Extract from property title showing rights of way and drainage easements

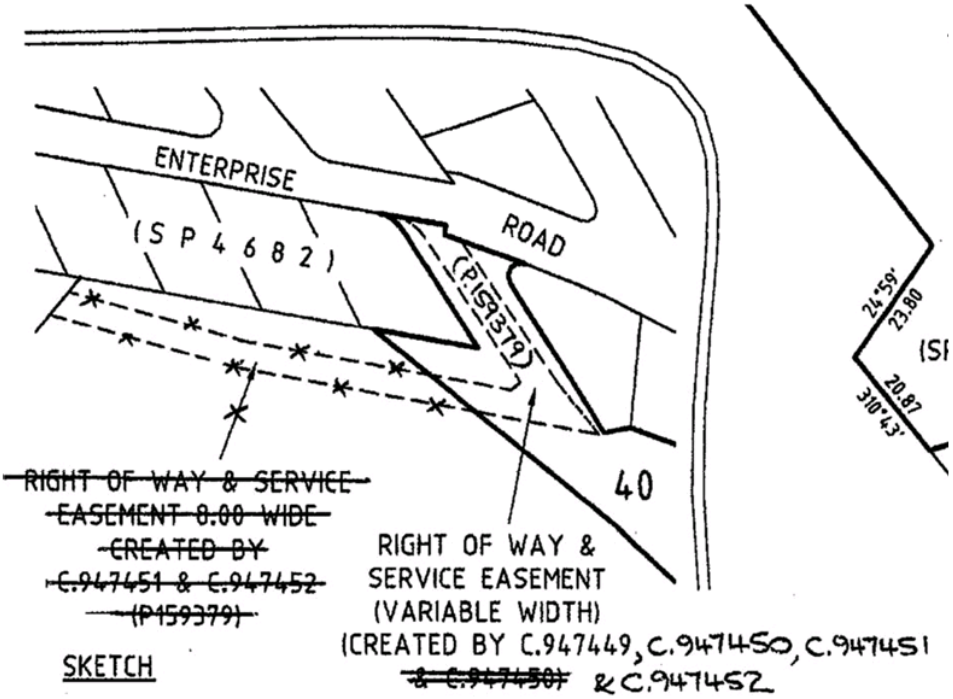


Figure 6: Extract from property title showing rights of way and drainage easements

If the land was to be compulsorily acquired by Hobart City Council it could be added to the Hobart Bicentennial Park, significantly adding to the parks usability and amenity. Access to the park from the north would be significantly improved allowing people to walk directly from the end of Birngana Road and Lower Sandy Bay.

Increases in traffic on the feeder road network

HCC engineers have indicated the access roads to the proposed rezone sites will be problematic due to increased traffic from any development, heavy vehicles during construction and the current approved 20+ dwellings (due to commence) at the southern end of Enterprise road. Our property is at risk during excavation of blue stone. The roads are narrow, there is limited off street parking, there are yellow lines restricting car parking. There is only 1 standard width footpath for our children, there is a heritage blue stone wall constructed between 19 and 21 Enterprise road that must be conserved, there are 25 metre sight lines between the private right of way, Glover street and Birngarna ave. Parking on the road and in front of 17 and 19 enterprise is of high risk and a place of frequent vehicle accidents. See figure 7 recent vehicle accident at the top of Birngarna ave and Figure 8 heavy vehicle damage to the road. Figures 9,10 and 11 show heavy unsafe vehicle movements.

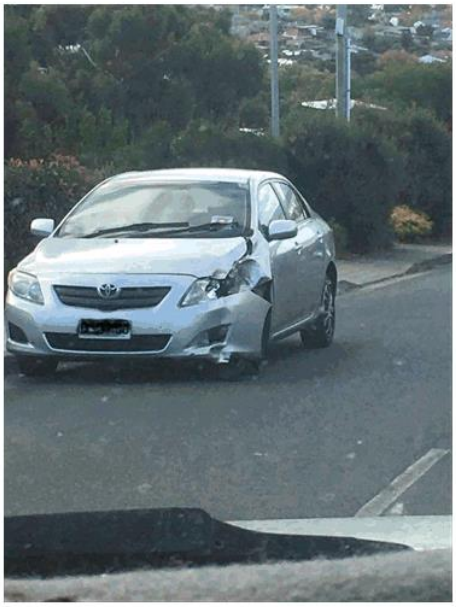


Figure 7 Vehicle accident Birngarna

Figure 8 heavy vehicle damage to the road

Figure 9 Enterprise and Birngarna vehicle intersection high risk

Figure 10 Enterprise and Private right of Way vehicle obstructions

Figure 11 vehicle sight line obstructions southern end Enterprise Road

Stormwater run-off hazards

A rezone to a lower density will have significantly less storm water impact to the surrounding environment and lower water courses. Nutrients, rubbish and storm water are overwhelming the water courses that descend from Mt Nelson via Enterprise Road. The existing natural water ways are currently struggling to cope with the existing changes to storm water mitigation and the lower creeks (McCauley Ave) are being flooded. High level management of adverse effects of litter, weeds, nutrients, erosion and sedimentation is required. See figure 12 and 13 storm water destruction to infrastructure.

figure 12 storm water road damage adjacent to 19 Enterprise road.

Figure 13 Existing storm water and road damage.

Vegetation loss on steep elevated slopes next to a bushland reserve.
Flora and fauna should be sensitively to maintain a balance between the rezone and Mt Nelson reserve and minimise risk of weed invasion of the bushland. The range of local and endangered flora and fauna, mature trees should appear continuous from a range of city viewing points.

The proposed rezoning is considered to present an excellent strategic opportunity for Hobart City Council to protect the neighbourhood character and amenity of the area and deliver an improved long term outcome for the future development of Hobart City.

[redacted]

[redacted]

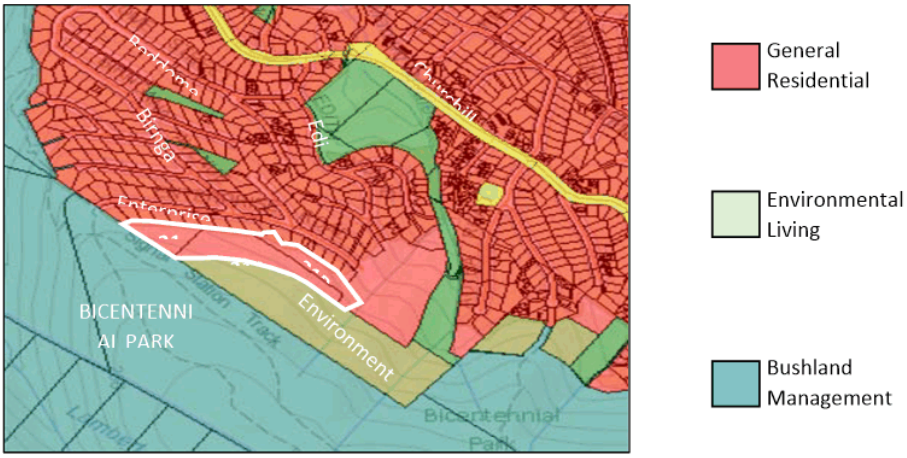
Appendix E

Subject: HCC Re-zoning of land above Enterprise Road

[redacted]

6 May 2022

We support the HCC decision to rezone the land 21, 21B and part of 21A Enterprise Road – outlined white on the map below.



The HCC Planners' Report on the re-zoning proposal notes that General Residential dwelling density could have serious negative impacts on the community relating to poorly controlled stormwater, increased traffic, damage to the road network, and loss of natural values associated with bushland areas. psa-21-4-planners-report.pdf (hobartcity.com.au) .

We have significant concerns regarding stormwater management and run-off hazards, increases in vehicle, heavy vehicle on the feeder road network, damage to the roads and limited pedestrian walkways. Loss of vegetation loss on steep elevated slopes next to a bushland reserve and negative impact on the existing flora, fauna and endangered species.

We agree with the HCC Planners' Report proposes an amendment which will change the zoning of this land from General Residential (one dwelling per 325 m^2) to Low-Density Residential (one dwelling per 1500 m^2), thereby allowing development to be proposed that is compatible with the neighbourhood and with the location.

[redacted]

Appendix F

[redacted]

6th May 2022

Chief Executive Officer
City of Hobart
GPO Box 503
Hobart TAS 7001

Dear Kelly Grigsby,

RE: REPRESENTATION IN SUPPORT FOR AMENDMENT PSA-21-4 - Hobart Interim Planning Scheme 2015 - 21, 21B and part of 21A Enterprise Road, Sandy Bay Rezoning

We are writing to express our support for an amendment to the Hobart Interim Planning Scheme 2015 in relation to the proposed rezone of 21, 21B and part 21A Enterprise Road from General Residential to Low Density Residential and insert the Biodiversity Protection Area overlay.

As residents and owners of dwelling on Enterprise Road, we understand and appreciate the challenges of the steep terrain and the complexity of access, and environmental risks & impacts that this site poses. We support efforts to minimise impact to the surrounding neighbourhood and encourage means to provide better quality development within the site itself. We highlight some key areas of our concerns under the current zone, and believe a rezone to Low Density Residential will address these issues and mitigate the impact significantly.

Access/ Road Network / Traffic

We are very conscious of the risk of bushfire and have genuine concerns of inadequate bushfire evacuation plans due to the current road networks of the immediate area to the land in discussion. Any future high density development will greatly impact the surrounding road network due to the location of the site at the top most. Current traffic system of the surrounding area is inadequate in many areas and large amount of future vehicles will pose danger to some parts, as well as place a significant strain on the road infrastructure. Added to that, would be the larger vehicles that are required during construction on the site.

In-ground services inadequacy & strains

We have great concerns of the current strain on the stormwater system and fear future high density development will invite problems with runoffs & erosion and will impact greatly on downstream drainage. The existing in-ground infrastructure for services have required repairs and maintenance due to ground movement & slope. An increase in the capacity for these existing services to accommodate high density development, such as that recently proposed (and refused by Council) for 21B Enterprise Rd will further create problems for the system and the existing dwellings in the vicinity.

A high density development will invite more extensive rock breaking and ground interference, and will result with an increase in hard surfaces which will affect the stormwater system and rivulets. This will be detrimental to the environment and the neighbourhood.

Past Zone identification

It appears, as highlighted in Council's report in relation to the history of these parcels of land and the zones that were assigned to them, have since been re-assigned from "Hills Face Zone" to "General Residential". We feel the concerns and recommendations of the previous Mount Nelson Planning Review for these parcels of land have not translated into the current planning scheme and will likely pose problematic to those living in the area if the planning scheme does not identify nor address them in assessing future developments. Council's initiation to add a Biodiversity Protection Area overlay to ensure protection of the species and maintain environmental values that are consistent of the area and the adjacent Bicentennial Park is welcome approach to address some of these concerns.

We fully support the draft amendment as exhibited for viewing. We seek to have Council's draft amendment be approved for the rezoning of 21, 21B and part 21A Enterprise Road.

Yours sincerely,

[redacted]

[redacted]

City of HOBART

HOBART INTERIM PLANNING SCHEME 2015

PSA-21-4 AMENDMENT

INSTRUMENT OF CERTIFICATION

It is hereby certified that draft Amendment PSA-21-4 to the Hobart Interim Planning Scheme 2015 meets the requirements specified in section 32 of the former provisions of the *Land Use Planning and Approvals Act 1993*.

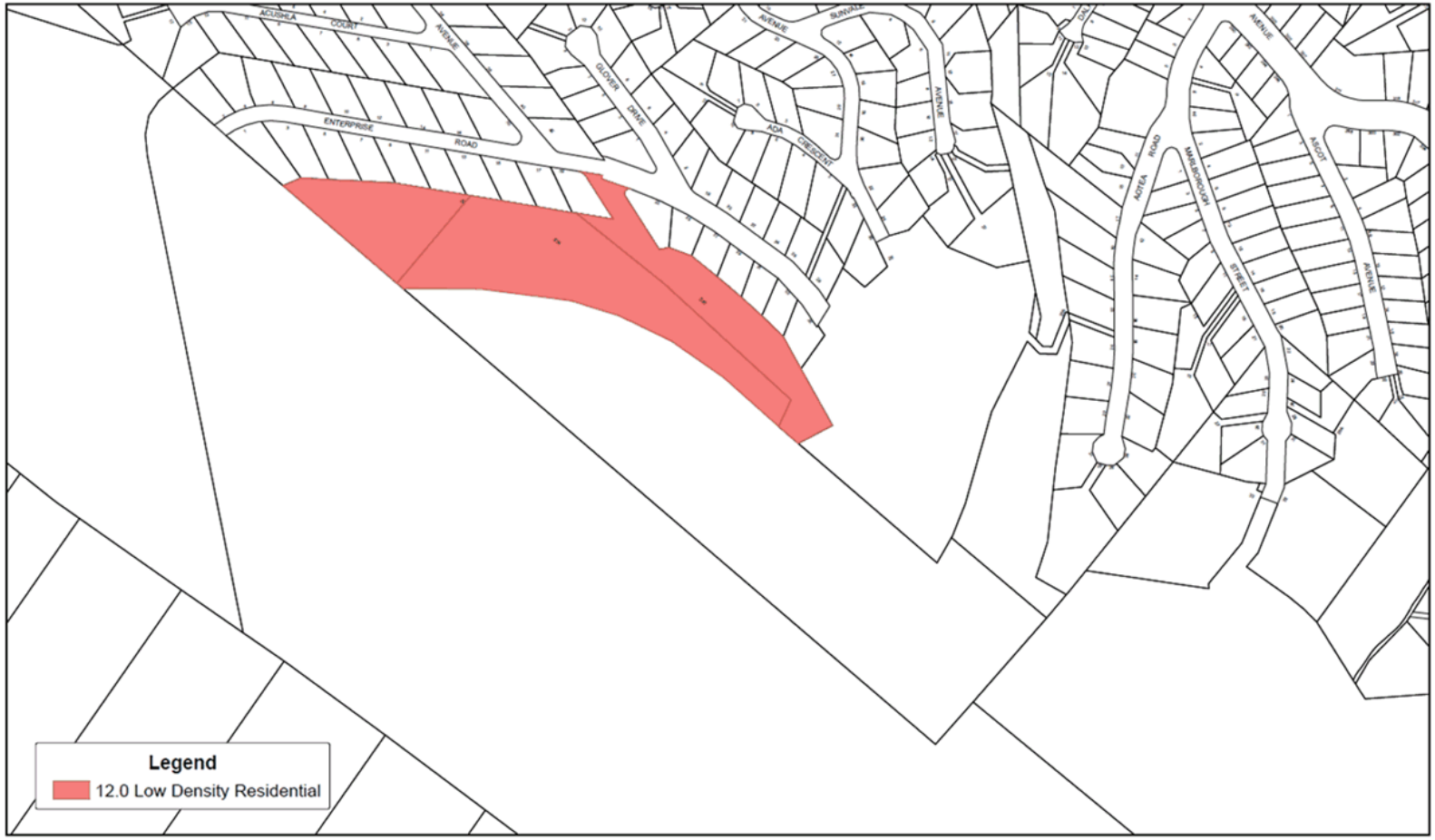
The Common Seal of the Hobart City Council is fixed hereon, pursuant to Council's resolution of 28 March 2022 in the presence of:

HOBART CITY COUNCIL 1842

..... General Manager

..... ~~Mayor~~ Director City Life.

Date: 29/3/2022



City of HOBART

PSA-21-4

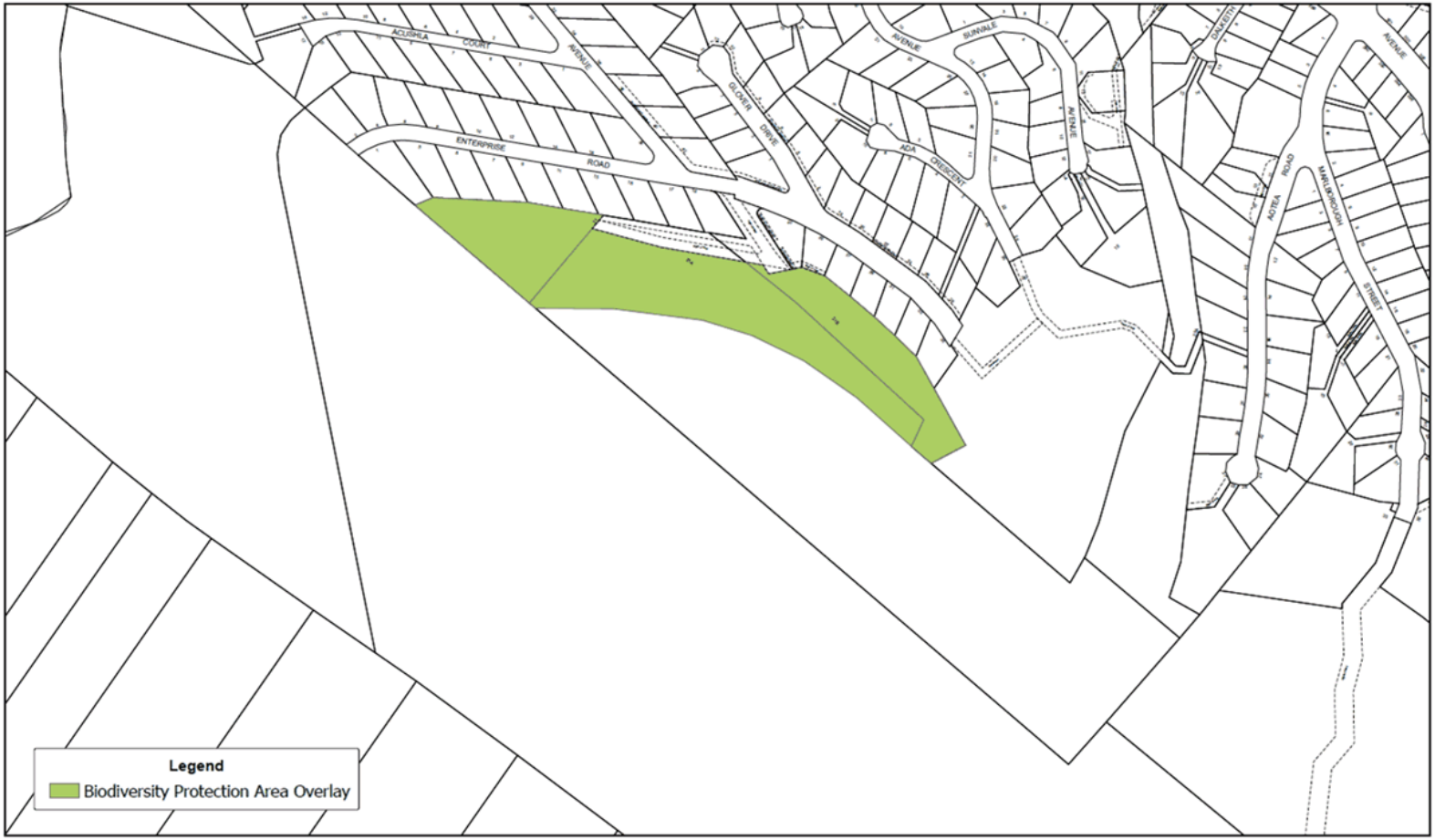
Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay from General Residential to Low Density Residential and insert the Biodiversity Protection Area overlay of the Biodiversity Code under the Hobart Interim Planning Scheme 2015

N

1:4,000

Disclaimer: The City of Hobart does not warrant that the information contained on this plan is correct and a field survey is to be conducted before the information contained in the plan is relied upon.

© City of Hobart. Map generated on: Thursday, February 24, 2022 by cholp



City of HOBART

PSA-21-4

Rezone 21, 21B and part of 21A Enterprise Road, Sandy Bay from General Residential to Low Density Residential and insert the Biodiversity Protection Area overlay of the Biodiversity Code under the Hobart Interim Planning Scheme 2015

N

1:4,000

Disclaimer: The City of Hobart does not warrant that the information contained on this plan is correct and a field survey is to be conducted before the information contained in the plan is relied upon.

© City of Hobart. Map generated on: Thursday, February 24, 2022 by chclp

ireneinc
PLANNING & URBAN DESIGN

16 February 2022

Mr Neil Noye
Director of City Planning
Hobart City Council
By email: coh@hobartcity.com.au

Dear Neil

ZONING OF LAND AT ENTERPRISE ROAD, SANDY BAY

I write on behalf of the owners of land at 21A and 21B Enterprise Road, Sandy Bay in response to Council's letter of 1 February 2022 notifying them that Council will be considering a report relating to the possible rezoning of their land at an upcoming meeting.

By way of background, Ireneinc were first engaged by the landowner in respect of the previous application for 20 dwellings when it was refused by Council and an appeal was lodged. This appeal was subsequently withdrawn.

Since this time the landowner has been working with JAWS architects, engineers, as well as ourselves on a very different proposal at a reduced density, with the aim of coming back to Council with a new application which better meets the development standards of the *Hobart Interim Planning Scheme 2015* (HIPS 2015).

The revised proposal is significantly advanced and therefore it is of concern that the Council is considering a change to the statutory planning controls on the land with such limited consultation with the landowner.

While it is now apparent that this matter was originally raised with the Council in August or September 2021, this is not something the landowner was aware of at that time, or when the matter was considered by Council meetings in September & October 2021. It is of concern that in the subsequent months further work and expense has been incurred, without knowledge of these matters, or of the Council's decision to seek a report on whether it should initiate rezoning of the land.

Zoning Review

In relation to the history of the planning for the area and in particular the zoning which has been applied to the land now in question, we submit that the relevant consideration should be the existing zoning under the current HIPS 2015 and the most recent previous provisions which would be those of the *City of Hobart Planning Scheme 1982* (HPS 1982) where the land was within the Residential 2 Zone.

As part of the implementation of the HIPS 2015 there was a requirement to undertake like for like translation as much as possible from previous planning schemes to the new interim scheme.

At this time, the translation of the Residential 2 Zone to the General Residential Zone was considered to be the like for like translation. Specific consideration of the application of zones to this land would have been required given that 21A Enterprise Road is only partially zoned General Residential, with the balance of that site being in the Environmental Living Zone. In provided this dual zoning for the land protection of the upper slopes and natural values was provided.

smithstreetstudio | ireneinc
49 Tasma St, North Hobart, TAS 7000
Tel (03) 6234 9281
Fax (03) 6231 4727
Mob 0418 346 283
Email planning@ireneinc.com.au
PLANNING TAS PTY LTD TRADING AS IRENEINC PLANNING & SMITH STREET STUDIO PLANNING & URBAN DESIGN | ABN 78 114 905 074

The subject land is not significantly different from adjoining and nearby land which has been successfully developed as General Residential and therefore demonstrates that this land is not unreasonably constrained from development appropriate for the zone.

The subject land is located between the 175m and 225m contours, like other developed land adjoining in Enterprise Road and nearby in Nicholas Drive and Lindeth Court. These areas, including the directly adjoining area, are very like the subject land in their location, characteristics and slope, and are developed to residential densities typical of the area more generally at in the order of 1/867m^2.

Regarding the relationship of the subject land to the Council's Environmental Management Zoned reserve, it is noted that the neighbouring site at 21 Enterprise Road is already developed with a single dwelling and that the subject land owned by our client is separated by the large area of 21A Enterprise Road which is zoned Environmental Living. It is this are of land outside the General Residential Zoned are which forms an effective transition between the residential areas including those yet to be developed and the reserve3d land beyond.

It is therefore considered that the combined provisions of the planning scheme including the zones and applicable codes, as they currently apply, are appropriate and sufficient to ensure that any future development of the land responds to the constraints of the land and protects the amenity of the neighbouring properties.

If you have any further queries in relation to any of the above, please contact me on 6234 9281.

Yours sincerely

Jacqui Blowfield
Senior Planner
IRENEINC PLANNING & URBAN DESIGN

8.2 Amendment to Planning Legislation (Major Projects) File Ref: F22/44598

Report of the Manager Development Appraisal of 24 May 2022 and attachments.

Delegation: Council

REPORT TITLE: **AMENDMENT TO PLANNING LEGISLATION (MAJOR PROJECTS)**

REPORT PROVIDED BY: Manager Development Appraisal

1. Report Purpose and Community Benefit

1.1. The State Government has proposed to amend the *Land Use Planning and Approvals Act 1993*, in particular the provisions relating to major projects.

1.2. A consultation period was extended to allow for comment on the proposed amendments. A response has been provided on behalf of the Council. There was insufficient time within the consultation period to enable Council endorsement prior to the response being provided. That endorsement is sought now.

2. Report Summary

2.1. The Council's endorsement is sought in relation to the response to the proposed amendments to the *Land Use Planning and Approvals Act 1993*. A copy of the response is **Attachment A**.

3. Recommendation

That the Council endorse the response to the proposed amendments to the Land Use Planning and Approvals Act 1993 for major projects, dated 12 May 2022.

4. Background

4.1. The *Land Use Planning and Approvals Act 1993* was amended in 2020 to introduce a new process for "major projects". Currently, there are proposed amendments to those provisions.

4.2. In summary, the draft Bill proposes various amendments that are intended to improve the major projects assessment process in the following ways:

4.2.1. improve the assessment process in relation to sensitive material, for example by preventing the public display of culturally sensitive Aboriginal heritage information during the assessment process;

4.2.2. update references to legislation that has been repealed since the major projects process came into operation, such as the Gas Pipelines Act 2000;

4.2.3. enable easier public involvement in the process through better use of digital technology, for example by sharing information digitally. This will also make it easier to meet statutory notification requirements;

4.2.4. provide fairer outcomes for landowners who are not the proponent/developer but whose land is included within a major project declaration. The amendments will make it clearer to all involved when a major project is completed and where a landowner may still apply for a planning permit on their land;

4.2.5. enable the Commission or assessment panel or a regulator to grant permission for site investigations to occur once a major project is declared and before the assessment criteria is finalised, in circumstances where the site investigation is necessary or must occur early to align with the seasonal survey requirements and the site investigations have been identified in the major project proposal;

4.2.6. allow the assessment panel to consider aspects of a proposed major project on land outside of the declared area and make recommendations to the Minister, where appropriate, to alter the declared area of the proposed major project;

4.2.7. clarify that the process continues if regulators do not respond at various stages in the process when they are required to respond;

4.2.8. provide the assessment panel with more time to co-ordinate responses from regulators with an additional 14 days to make the final assessment criteria and an additional 14 days to prepare the initial assessment report;

4.2.9. allow the assessment panel to address any minor administrative errors that may occur during the assessment process including notifying any persons that may have not been included in earlier consultations and seeking their views before a final decision is made on the proposed major project; and

4.2.10. revising the current major project permit amendment processes to enable an additional process option that is relative to the scale of the proposed permit amendment. This is for permit amendments that are larger than a minor amendment but less complex than a significant amendment to a major project permit. This additional option will involve public exhibition of the proposed major project permit amendment and public hearings.

4.3. The proposed amendments are largely supported. However, there are some concerns regarding:

4.3.1. the role of the Council in the assessment of major projects, particularly in its capacity as stormwater manager and highway authority; and

4.3.2. the expectation that the Council will carry out steps with no ability to charge fees.

5. Proposal and Implementation

5.1. A response has already been provided, in order to meet the stated timeframes for the consultation period. As such, Council endorsement is sought to support this response.

6. Strategic Planning and Policy Considerations

6.1. The response attempts to protect the Council, particularly when it is carrying out statutory functions and ensuring that it is adequately compensated for steps taken in relation to major projects.

7. Financial Implications

7.1. The response itself has no impact on the Council's financial position.

7.2. The response seeks to protect the Council to ensure that it is able to charge fees for steps taken in relation to major projects.

8. Legal, Risk and Legislative Considerations

8.1. Not applicable.

9. Delegation

9.1. This report is delegated for the Council's consideration.

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Karen Abey
MANAGER DEVELOPMENT APPRAISAL

Date: 24 May 2022
File Reference: F22/44598

Attachment A: Response from the City of Hobart - Draft Land Use Planning and Approvals Amendment Bill 2022 ⇩

City of HOBART

Enquiries to: Karen Abey
☎: 6238 2179
✉: coh@hobartcity.com.au
Our Ref: KA

12 May 2022

Via Email: yoursay.planning@dpac.tas.gov.au

Dear Colleagues

DRAFT LAND USE PLANNING AND APPROVALS AMENDMENT BILL 2022

A response on behalf of the City of Hobart to the proposed amendments to the *Land Use Planning and Approvals Acts 1993* follows.

Insufficient notice to the Council as asset owner

The applicant is required to contact "relevant regulators" before making a proposal for a declaration for a major project. This phrase is defined in s.60B as "a person or entity that is a relevant regulator in relation to the major project under section 60Z". Section 60Z includes:

(a) the EPA Board;

(b) any gas pipeline licensee;

(c) TasWater;

(d) Tasmanian Heritage Council; and

(e) other legislative bodies.

It does not include Councils in their capacity as:

(a) stormwater manager pursuant to the *Urban Drainage Act 2013*; or

(b) highway authority pursuant to the *Local Government (Highways) Act 1982*.

Council stormwater and highway assets are commonly in or on private land. While Councils appear to have control over the ability to have a project declared to be a major project, in that the consent of a Council (if it owns the land) is required by section 60P(2)(b)), a Council does not have that same control if it is only the occupier or administrator of land (see section 60P(3)(b)) – only notice is required to be given in these circumstances. This would leave a Council being effectively excluded from the assessment process since it is not a "relevant regulator" in its capacity as stormwater manager and highway authority where those assets are in or on private land.

This also means that Councils are not sufficiently consulted in circumstances where additional land is included in a proposal, where there is a significant amendment to a major project permit which has been proposed, or where the final assessment of the completed works is being carried out – steps which are introduced by this amending legislation.

This concern was raised in the City of Hobart's previous submission on the major projects legislation and remains a valid concern. There is no justification for giving Councils in these capacities less of a priority than entities such as TasWater.

Fees

The fees which may be charged in relation to major projects are specified in section 60ZZR. There is no allowance for Councils and since there is no application to the Council, section 205 of the *Local Government Act 1993* does not provide a basis to charge fees. If Councils were included as "relevant regulators" then they would be able to charge by the hour for time spent on a proposal.

This is of particular concern given that section 60ZZP is being amended to introduce subsection (10), which allows for conditions to be imposed for the Council as planning authority to assess further "plans, information, designs or other documents". Councils also have an enforcement role, given section 48AA: A planning authority must, within the ambit of its power, enforce the observance of any condition or restriction to which a major project permit is subject.

Given that major projects are the most significant and complex, to impose an obligation and seemingly restrict the ability to impose fees places a burden on ratepayers and an unreasonable expectation of Councils with limited resources and expertise. There should be an allowance for fees which would ensure that Councils were able to recover the cost of engaging external consultants, if necessary, to assess aspects of major projects and to support the enforcement process.

Timeframes

There is lack of clarity about the timeframe for Councils to assess documents pursuant to the proposed section 60ZZP(10)(a). If the expectation is that the time limits in section 60, that is, 15 business days to request further information and 20 business days to assess, then may be completely unfeasible in the circumstances of these significant and complex proposals, particularly if Councils are required to engage external consultants to assist with the assessment.

Amendment decision

Section 60ZZZAB(5) does not include Councils, so they will not necessarily receive notice of an amendment to a major project permit.

No ability to amend land for other applications

It is frustrating to see proposed amendments to this legislation to allow for major projects to be amended, with no corresponding amendment to planning applications pursuant to s.57 or 58. It is noted that the Supreme Court (Tomaszewski v Hobart City Council [2020] TASSC 48) has stated that it is not possible to amend applications. Allowing amendments had been done historically by the Council but we are no longer able to do so, given the Supreme Court decision. So if a developer wants to introduce new land, they need to make a whole new application. This is inefficient and unproductive, and creates "red tape". There is no reason why applications couldn't be amended if there was a legislative pathway to do so; albeit there would need to be an ability for Councils to request further information, appropriate adjustments to the statutory clocks, and protections for the public to be able to have sufficient ability to object or support amended proposals.

Yours faithfully

(Neil Noye)
DIRECTOR CITY LIFE

8.3 City Planning - Advertising Report
File Ref: F22/48968

Memorandum of the Director City Life of 25 May 2022 and attachment.

Delegation: Committee

City of HOBART

MEMORANDUM: CITY PLANNING COMMITTEE

City Planning - Advertising Report

Attached is the advertising list for the period 10 May 2022 to 23 May 2022

RECOMMENDATION

That:

1. ***That the information be received and noted.***

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Neil Noye
DIRECTOR CITY LIFE

Date: 25 May 2022
File Reference: F22/48968

Attachment A: City Planning - Advertising Report ⇩

Application	Street	Suburb	Development	Works Value	Expiry Date	Referral	Proposed Delegation	Advertising Period Start	Advertising Period End
PLN-22-153	1 / 678 HUON ROAD	FERN TREE	Change of Use to Visitor Accommodation	$0	07/06/2022	ayersh	Director	13/05/2022	27/05/2022
PLN-22-288	18 PATERNOSTER ROW	HOBART	Change of Use to Visitor Accommodation	$0	21/06/2022	ayersh	Director	16/05/2022	30/05/2022
PLN-22-193	3 WOODLANDS AVENUE	NEW TOWN	Partial Demolition, Alterations, Extension, Carport, and Ancillary Dwelling	$600	27/06/2022	ayersh	Director	19/05/2022	02/06/2022
PLN-20-639	16 EURELLA AVENUE	SANDY BAY	Partial Demolition and Alterations	$80,000	09/06/2022	baconr	Director	20/05/2022	03/06/2022
PLN-21-567	9 DIGNEY STREET	DYNNYRNE	Partial Demolition, Alterations, and Extension	$250,000	21/06/2022	baconr	Director	20/05/2022	03/06/2022
PLN-22-227	19 BATHURST STREET	HOBART	Alterations	$46,957	14/06/2022	ikinb	Director	16/05/2022	30/05/2022
PLN-22-19	32 COMMERCIAL ROAD	NORTH HOBART	Partial Demolition, New Parking Space and Front Fencing	$8,000	12/06/2022	langd	Committee Delegation	10/05/2022	24/05/2022
PLN-22-151	19 AOTEA ROAD	SANDY BAY	Alterations, Front Fencing and Outbuilding	$10,000	05/07/2022	langd	Director	13/05/2022	27/05/2022

Application	Street	Suburb	Development	Works Value	Expiry Date	Referral	Proposed Delegation	Advertising Period Start	Advertising Period End
PLN-21-578	12 WARWICK STREET	HOBART	Partial Demolition, Alterations, Extensions, and Change of Use to Dwelling	$500,000	25/06/2022	langd	Director	20/05/2022	03/06/2022
PLN-22-242	92 FOREST ROAD	WEST HOBART	Partial Demolition and Alterations	$45,000	01/07/2022	langd	Director	23/05/2022	06/06/2022
PLN-22-222	6 MIDWOOD STREET	NEW TOWN	Partial Demolition and Alterations	$990,000	02/06/2022	maxwellv	Director	10/05/2022	24/05/2022
PLN-21-743	3 BIMBADEEN COURT	WEST HOBART	Garage and Studio	$250,000	05/07/2022	maxwellv	Council (Council Land)	11/05/2022	25/05/2022
PLN-22-49	22 ASCOT AVENUE	SANDY BAY	Extension (Deck)	$90,000	31/05/2022	maxwellv	Director	18/05/2022	01/06/2022
PLN-21-831	410 SANDY BAY ROAD	SANDY BAY	Partial Demolition, Alterations, Signage, Landscaping, Driveway Alterations, Fencing and Water Feature	$550,000	02/06/2022	obrienm	Director	18/05/2022	01/06/2022
PLN-22-235	1 / 32 BATH STREET	BATTERY POINT	Partial Demolition, Alterations and Extension	$100,000	20/06/2022	sherriffc	Director	18/05/2022	01/06/2022

Application	Street	Suburb	Development	Works Value	Expiry Date	Referral	Proposed Delegation	Advertising Period Start	Advertising Period End
PLN-21-569	2 / 816 SANDY BAY ROAD	SANDY BAY	Change of Use to Visitor Accommodation	$0	15/06/2022	sherriffc	Council (Called In)	20/05/2022	03/06/2022
PLN-20-889	68 BAY ROAD	NEW TOWN	Partial Demolition, Alterations, and Extensions for Six Multiple Dwellings (Two New, Four Existing)	$270,000	07/06/2022	smeea	Director	19/05/2022	02/06/2022
PLN-22-259	15 NEWLANDS AVENUE	LENAH VALLEY	Partial Demolition, Alterations, and Extension	$240,000	13/06/2022	smeea	Director	20/05/2022	03/06/2022
PLN-22-297	10 CASCADE ROAD	SOUTH HOBART	Outbuilding	$7,500	24/06/2022	smeea	Director	23/05/2022	06/06/2022
PLN-22-158	479 SANDY BAY ROAD	SANDY BAY	Partial Demolition, Alterations, and Extension	$300,000	03/06/2022	widdowsont	Director	10/05/2022	24/05/2022
PLN-20-875	466 LENAH VALLEY ROAD	LENAH VALLEY	Partial Demolition, Alterations, Extension and Stormwater Infrastructure	$250,000	28/05/2022	widdowsont	Council (Council Land)	11/05/2022	25/05/2022
PLN-21-661	36 FEDERAL STREET	NORTH HOBART	Dwelling	$380,000	14/06/2022	widdowsont	Director	23/05/2022	06/06/2022

Application	Street	Suburb	Development	Works Value	Expiry Date	Referral	Proposed Delegation	Advertising Period Start	Advertising Period End
PLN-22-252	6 EVANS STREET	HOBART	Archaeological Investigations	$48,140	09/06/2022	widdowsont	Director	23/05/2022	06/06/2022

8.4 Delegated Decision Report (Planning)
File Ref: F22/50720

Memorandum of the Director City Life of 30 May 2022 and attachment.

Delegation: Committee

City of HOBART

MEMORANDUM: CITY PLANNING COMMITTEE

Delegated Decision Report (Planning)

Attached is the delegated planning decisions report for the period 16 May 2022 to 27 May 2022.

RECOMMENDATION

That:

1. ***That the information be received and noted.***

As signatory to this report, I certify that, pursuant to Section 55(1) of the Local Government Act 1993, I hold no interest, as referred to in Section 49 of the Local Government Act 1993, in matters contained in this report.

Neil Noye
DIRECTOR CITY LIFE

Date: 30 May 2022
File Reference: F22/50720

Attachment A: Delegated Decision Report (Planning) ⇩

30 May 2022

Delegated Decisions Report (Planning)

30 applications found.

Approved All

Planning Description	Address	Works Value	Decision	Authority
PLN-20-875 Partial Demolition, Alterations, Extension and Stormwater Infrastructure	464A LENAH VALLEY ROAD LENAH VALLEY TAS 7008	$ 250,000	Approved	Delegated
PLN-21-441 Dwelling	36 HILLCREST ROAD TOLMANS HILL TAS 7007	$ 400,000	Approved	Delegated
PLN-21-541 Dwelling	60 ATHLEEN AVENUE LENAH VALLEY TAS 7008	$ 400,000	Approved	Delegated
PLN-21-667 Alterations, Retaining Wall, and Fencing	1 LONGVIEW AVENUE SANDY BAY TAS 7005	$ 70,000	Approved	Delegated
PLN-21-691 Partial Demolition, Alterations, and Partial Change of Use to Food Services	236-244 SANDY BAY ROAD SANDY BAY TAS 7005	$ 950,000	Approved	Delegated
PLN-21-864 Partial Demolition, Alteration and Extension	22 BRAMBLE STREET RIDGEWAY TAS 7054	$ 400,000	Approved	Delegated
PLN-22-107 Partial Demolition, Alterations, Front Fencing, and Signage	18-20 ASHFIELD STREET SANDY BAY TAS 7005	$ 65,000	Approved	Delegated
PLN-22-109 Outbuilding	1 DALY ROAD LENAH VALLEY TAS 7008	$ 45,000	Approved	Delegated
PLN-22-137 Five Multiple Dwellings (Two Approved, Three New)	851 SANDY BAY ROAD SANDY BAY TAS 7005	$ 980,000	Approved	Delegated
PLN-22-141 Partial Demolition, Alterations, and Extension	2A VALENTINE STREET NEW TOWN TAS 7008	$ 450,000	Approved	Delegated
PLN-22-149 Partial Demolition, Alterations, and Front Fencing	9 WARWICK STREET HOBART TAS 7000	$ 200,000	Approved	Delegated
PLN-22-168 Signage	183-185 SANDY BAY ROAD SANDY BAY TAS 7005	$ 0	Approved	Delegated
PLN-22-173 Partial Demolition and Alterations	32 VIEW STREET SANDY BAY TAS 7005	$ 150,000	Approved	Delegated
PLN-22-186 Partial Demolition and Alterations	2 BROMBY STREET NEW TOWN TAS 7008	$ 9,500	Approved	Delegated
PLN-22-190 Temporary Classrooms	24-26 WELD STREET SOUTH HOBART TAS 7004	$ 300,000	Approved	Delegated
PLN-22-195 Change of Use to Visitor Accommodation	84 GOULBURN STREET HOBART TAS 7000	$ 0	Approved	Delegated
PLN-22-203 Partial Demolition and Alterations	7 ALBERRY AVENUE NORTH HOBART TAS 7000	$ 70,000	Approved	Delegated
PLN-22-210 Alterations to Previously Approved Development	18 ASCOT AVENUE SANDY BAY TAS 7005	$ 16,000	Approved	Delegated
PLN-22-218 Outbuilding	49 CAVELL STREET WEST HOBART TAS 7000	$ 10,000	Approved	Delegated
PLN-22-219 Front Fencing	2 CROSS STREET NEW TOWN TAS 7008	$ 10,000	Approved	Delegated
PLN-22-225 Signage	75 HARRINGTON STREET HOBART TAS 7000	$ 0	Approved	Delegated
PLN-22-228 Partial Demolition, Alterations, and Extension	23 COLVILLE STREET BATTERY POINT TAS 7004	$ 300,000	Approved	Delegated
PLN-22-230 Partial Demolition and Alterations	73 TASMA STREET NORTH HOBART TAS 7000	$ 4,000	Approved	Delegated
PLN-22-233 Alterations (Solar Panels)	17 LITTLE ARTHUR STREET NORTH HOBART TAS 7000	$ 6,500	Approved	Delegated
PLN-22-239 Change of Use to Visitor Accommodation	690 SANDY BAY ROAD SANDY BAY TAS 7005	$ 15,000	Approved	Delegated

Planning Description	Address	Works Value	Decision	Authority
PLN-22-303 Change of Use to Visitor Accommodation	6 KINGSLEY AVENUE SANDY BAY TAS 7005	$ 0	Approved	Delegated
PLN-22-317 Change of Use to Visitor Accommodation	27A CROSS STREET NEW TOWN TAS 7008	$ 0	Approved	Delegated
PLN-22-326 Change of Use to Visitor Accommodation	28 REGENT STREET SANDY BAY TAS 7005	$ 0	Approved	Delegated
PLN-22-51 Signage and Alteration to Operating Hours	95 HAMPDEN ROAD BATTERY POINT TAS 7004	$ 2,300	Approved	Delegated
PLN-22-83 Alterations to Previously Approved Multiple Dwelling	2/678 HUON ROAD FERN TREE TAS 7054	$ 100,000	Approved	Delegated

9. QUESTIONS WITHOUT NOTICE

Section 29 of the *Local Government (Meeting Procedures) Regulations 2015*.
File Ref: 13-1-10

An Elected Member may ask a question without notice of the Chairman, another Elected Member, the Chief Executive Officer or the Chief Executive Officer's representative, in line with the following procedures:

1. The Chairman will refuse to accept a question without notice if it does not relate to the Terms of Reference of the Council committee at which it is asked.
2. In putting a question without notice, an Elected Member must not:
   (i) offer an argument or opinion; or
   (ii) draw any inferences or make any imputations – except so far as may be necessary to explain the question.
3. The Chairman must not permit any debate of a question without notice or its answer.
4. The Chairman, Elected Members, Chief Executive Officer or Chief Executive Officer's representative who is asked a question may decline to answer the question, if in the opinion of the respondent it is considered inappropriate due to its being unclear, insulting or improper.
5. The Chairman may require a question to be put in writing.
6. Where a question without notice is asked and answered at a meeting, both the question and the response will be recorded in the minutes of that meeting.
7. Where a response is not able to be provided at the meeting, the question will be taken on notice and
   (i) the minutes of the meeting at which the question is asked will record the question and the fact that it has been taken on notice.
   (ii) a written response will be provided to all Elected Members, at the appropriate time.
   (iii) upon the answer to the question being circulated to Elected Members, both the question and the answer will be listed on the agenda for the next available ordinary meeting of the committee at which it was asked, where it will be listed for noting purposes only.

10. CLOSED PORTION OF THE MEETING

That the Committee resolve by majority that the meeting be closed to the public pursuant to regulation 15(1) of the *Local Government (Meeting Procedures) Regulations 2015* because the items included on the closed agenda contain the following matters:

- Confirm the minutes of the Closed portion of the meeting
- Questions without notice in the Closed portion

The following items were discussed: -

Item No. 1	Minutes of the last meeting of the Closed Portion of the Committee Meeting
Item No. 2	Consideration of supplementary items to the agenda
Item No. 3	Indications of pecuniary and conflicts of interest
Item No. 4	Questions Without Notice