CITY OF HOBART

AGENDA

Special City Planning Committee Meeting

Open Portion

Monday, 24 February 2020

at 3:45 pm
Lady Osborne Room, Town Hall

THE MISSION

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

THE VALUES

The Council is:

People	We value 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 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

Special City Planning Committee Meeting (Open Portion) held Monday, 24 February 2020 at 3:45 pm in the Lady Osborne Room, Town Hall.

COMMITTEE MEMBERS
Deputy Lord Mayor Burnet (Chairman)
Briscoe
Harvey
Behrakis
Dutta

Apologies:

Leave of Absence:

NON-MEMBERS
Lord Mayor Reynolds
Zucco
Sexton
Thomas
Ewin
Sherlock
Coats

1. 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.

2. 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 General Manager 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.

2.1 APPLICATIONS UNDER THE HOBART INTERIM PLANNING SCHEME 2015

2.1.1 199 NELSON ROAD, MOUNT NELSON - DWELLING PLN-19-783 - FILE REF: F20/19290

Address:	199 Nelson Road, Mount Nelson
Proposal:	Dwelling
Expiry Date:	25 February 2020
Extension of Time:	Not applicable
Author:	Helen Ayers

RECOMMENDATION

That pursuant to the *Hobart Interim Planning Scheme 2015*, the Council approve the application for a dwelling at 199 Nelson Road, Mount Nelson 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-19-783 - 199 NELSON ROAD MOUNT NELSON TAS 7007 - Final Planning Documents, except where modified below.

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.

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 sw4

Any new stormwater connection must be constructed and existing abandoned connections sealed by the Council at the owner's expense, prior to the first occupation.

Detailed engineering drawings must be submitted and approved, prior to commencement of work. The detailed engineering drawings must include:

1. **the location of the proposed connection; and**
2. **the size of the connection appropriate to satisfy the needs of the development.**

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

Advice:

The applicant is advised to submit detailed design drawings via a Council City Amenity Division application for a new stormwater connection. If detailed design to satisfy this condition is submitted via the planning condition endorsement process there may be fees associated with the assessment, and once approved the applicant will still need to submit an application for a new stormwater connection with Council City Amenity Division.

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

Reason for condition

To ensure the site is drained adequately.

ENG 2a

Prior to first occupation, vehicular barriers compliant with the Australian Standard AS/NZS1170.1:2002 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 NCC2016 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 2b

Prior to the issue of any approval under the *Building Act 2016* or the commencement of works on site (whichever occurs first), a certified vehicle barrier design (including site plan with proposed location(s) of installation) prepared by a suitably qualified engineer, compliant with Australian Standard AS/NZS1170.1:2002, must be submitted to Council.

Advice:

If the development's building approval includes the need for a

Building Permit from Council, the applicant is advised to submit detailed design of vehicular barrier as part of the Building Application.

If the development's building approval is covered under Notifiable Work the applicant is advised to submit detailed design of vehicular barrier as a condition endorsement of the planning permit condition. Once the certification has been accepted, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Reason for condition

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

ENG 2c

Prior to the first occupation, vehicular barriers must be inspected by a qualified engineer and certification submitted to the Council confirming that the installed vehicular barriers comply with the certified design and Australian Standard AS/NZS1170.1:2002.

Advice:

Certification may be submitted to the 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 driveway and parking module and compliance with the relevant standards.

ENG 3a

The access driveway, and parking module (parking spaces, aisles and manoeuvring area) must be designed and constructed in accordance with Australian Standard AS/NZS2890.1:2004 (including the requirement for vehicle safety barriers where required), or a Council approved alternate design

certified by a suitably qualified engineer to provide a safe and efficient access, and enable safe, easy and efficient use.

Advice:

It is advised that designers consider the detailed design of the access and parking module prior to finalising the Finished Floor Level (FFL) of the parking spaces (especially if located within a garage incorporated into the dwelling), as failure to do so may result in difficulty complying with this condition.

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. **Where the design deviates from AS/NZS2890.1:2004 the designer must demonstrate that the design will provide a safe and efficient access, and enable safe, easy and efficient use, and**
4. **Show dimensions, levels, gradients and transitions, and other details as Council deem necessary to satisfy the above requirement.**

Advice:

It is advised that designers consider the detailed design of the access and parking module prior to finalising the Finished Floor Level (FFL)

of the parking spaces (especially if located within a garage incorporated into the dwelling), as failure to do so may result in difficulty complying with this condition.

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 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 9

An approved Tree Retention Plan must be implemented.

Prior to the granting of any approval under the *Building Act 2016* or the commencement of works (whichever occurs first), a Tree Retention Plan must be submitted and approved identifying trees to be retained and protected.

The plan must:

1. **Show the location of all trees on the lot with a diameter greater than 12cm at 1.4m above ground level;**
2. **Show the associated tree protection zones and structural root zones as determined under Australian Standard AS 4970-2009;**
3. **Be informed by an assessment by a suitably qualified person of the likely impact to trees where development/disturbance would occur within tree protection zones, but outside structural root zones;**
4. **Be informed by the recommendations of a suitably qualified person about potential reasonably practicable and feasible measures that could be employed to retain healthy trees in the long term where development/disturbance would occur within tree protection zones but outside structural root zones;**
5. **Be accompanied by the advice of the suitably qualified person;**
6. **Show all areas of development and disturbance on the lot (including earthworks);**
7. **Demonstrate that the maximum number of trees will be retained that is reasonably practicable and feasible, given the general design of the development and requirements of the bushfire hazard management plan;**
8. **Include reasons for trees proposed to be removed; and**
9. **Include tree identification and protection measures to be followed during site works to ensure the trees to be retained are not damaged or destroyed.**

The final approved tree retention plan must be implemented and complied with.

Advice:

Once the tree retention 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 ensure the development does not result in unnecessary or unacceptable loss of priority biodiversity values

ENV 15

All construction vehicles and machinery must be effectively cleaned of soil both before entering and before leaving the property.

Soil cleaned from construction vehicles and machinery must not be allowed, either directly or indirectly, to enter waterways or the Council's stomwater system.

Note: further information on effective measures for washdown can be found here.

Reason for condition

To minimise the spread of weeds and pathogens.

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.

An amended SWMP must be submitted and approved prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be based on drawing BA11 dated June 2019, and include the following amendments:

1. **The water diversion barrier referred to in the notes must be shown on the plan.**
2. **A sediment barrier must be shown on the downslope side of the driveway.**
3. **Stockpiles must be shown clear of the tree protection zones of trees to be retained on the approved tree retention plan.**
4. **The location and design of sediment barriers must consider potential impacts to the root zones of trees to be retained on the approved tree retention plan.**
5. **A diagram of the design of the sediment fence must be shown on the plan.**

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.

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 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.

NEW SERVICE CONNECTION

Please contact the Hobart City Council's City Amenity 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.

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.

RIGHT OF WAY

The private right of way must not be reduced, restricted or impeded in any way, and all beneficiaries must have complete and unrestricted access at all times.

You should inform yourself as to your rights and responsibilities in respect to the private right of way particularly reducing, restricting or impeding the right during and after construction.

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.

PART 5 AGREEMENT

Part 5 Agreement

Please note that the owner(s) of this property are subject to Part 5 Agreement C703750 that requires the owner(s) to:

- refrain from planting any exotic invasive species on the land;
- manage weeds on the lot;
- implement a Council-approved landscaping plan;

- take all due care during construction to ensure large boulders are prevented from rolling downslope;

if boulders, soil or or weathered dolerite are found at depths of >1.5m, ensure excavations are adequately retained by drained retaining structures.

Copies of the Part 5 Agreement are available from The LIST website (www.thelist.tas.gov.au) via the 'Scanned Dealings' section.

Bird Collision Risk

Vegetation supporting the endangered Swift Parrot is located on or near the site and a number of features of the existing and/or proposed development could present a significant risk of bird collisions. It is therefore strongly recommended that measures recommended for the upper level of the northern elevation specified on page 143 of the Natural Values Assessment be implemented to reduced the risk of Swift Parrot collisions in the final design of the building.

Dispersive Soils

To avoid damage to the development and to the environment associated with dispersive soils, it is recommended that appropriate measures be implemented to manage the risk. Further information regarding management of dispersive soils can be found in *Dispersive Soils and Their Management: Technical Reference Manual* (DPIW, 2008).

Attachment A:	PLN-19-783 - 199 NELSON ROAD MOUNT NELSON TAS 7007 - Planning Committee or Delegated Report ⇩
Attachment B:	PLN-19-783 - 199 NELSON ROAD MOUNT NELSON TAS 7007 - CPC Agenda Documents ⇩
Attachment C:	PLN-19-783 - 199 NELSON ROAD MOUNT NELSON TAS 7007 - Planning Referral Officer Environmental Development Planner Report ⇩

City of HOBART

APPLICATION UNDER HOBART INTERIM PLANNING SCHEME 2015

Type of Report:	Delegated
Delegated:	18 February 2020
Expiry Date:	25 February 2020
Application No:	PLN-19-783
Address:	199 NELSON ROAD , MOUNT NELSON ADJACENT ROAD RESERVE
Applicant:	Sean Connolly 1/28 Marlborough Street
Proposal:	Dwelling
Representations:	Two (2)
Performance criteria:	Low Density Residential Zone Development Standards, Parking and Access Code, and Biodiversity Code

1. Executive Summary

1.1 Planning approval is sought for a Dwelling, at 199 Nelson Road, Mt Nelson.

1.2 More specifically the proposal includes a two storey, skillion roofed dwelling with four bedrooms, two living areas and a two car garage. The proposal also includes the widening of an existing shared driveway to allow vehicle access onto the property, which is partially located within the Council's road reservation.

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

1.3.1 Zone Development Standards - Private Open Space and Sunlight
1.3.2 Parking and Access Code - Vehicular Passing Areas Along an Access
1.3.3 Biodiversity Code - Buildings and Works

1.4 Two (2) representations objecting to the proposal were received within the statutory advertising period between 15 and 30 January 2020.

1.5 The proposal is recommended for approval subject to conditions.

1.6 The final decision is delegated to the Council.

2. Site Detail

2.1 The application site is an irregularly shaped 1505m² lot on the southern side of Bend 4, Nelson Road. The site is densely vegetated and slopes moderately down toward the east. Nelson Road is also included in the application due to the nature of the works required in the road reservation to facilitate site access.

Figure 1: The location of the application site is highlighted in yellow.

3. Proposal

3.1 Planning approval is sought for a Dwelling, at 199 Nelson Road, Mt Nelson.

3.2 More specifically the proposal is for:

- A two storey dwelling.
- The dwelling is rectangular in shape with a skillion roof, and is cut significantly into the slope of the site, such that almost only the upper level is above the natural ground line.
- The upper level includes three bedrooms, one with ensuite and walk in wardrobe, separate bathroom and laundry, and an open living dining and kitchen area.
- The lower level includes a fourth bedroom, a study and a pool room.
- There is also an attached two car garage at the lower level.
- The proposal also includes the widening of an existing shared driveway to allow vehicle access onto the property, which is partially located within the Council's road reservation.

4. Background

4.1 Planning application PLN-17-572 was approved in January 2018 for a larger two storey dwelling for this site. As there was too much variation between the previously approved dwelling and the currently proposed, a new planning application was deemed to be required. (The currenjt It is noted that like the current application, the previous application involved works in Council's road reserve and ordinarily would've been determined by Committee and Council. However, the applicant did not grant an extension of time sufficient to allow the planning permit to be considered by a meeting of full Council, and so the matter is delegated to the Director City Planning. One objection to that application was received.

4.2 The application is referred to Council only because there are works in the road reservation. The number of representations (2) does not trigger a Council or Committee Referral. The applicant, citing the way in which the previous application was determined by the Director City Planning, was only prepared to provide a seven day extension of time, allowing the application to be considered by a special City Planning Committee meeting immediately prior to being determined at the Council meeting on 24 February 2020.

5. Concerns raised by representors

5.1 Two (2) representations objecting to the proposal were received within the statutory advertising period between 15 and 30 January 2020.

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.

Excavation:
Both representors are concerned that the extent of excavation proposed has the potential to cause undue disturbance in one of two ways. The first means of excavation is the use of jackhammers, which will be a lengthy and noisy process. The second means of excavation is the use of explosives, which has the potential to damage the representors houses.
One of the representors has requested that a bond for potential damage to their property be sought to ensure that they are adequately protected from potential damage.
One representor has indicated that they operate a visitor accommodation business from their property and has requested that any excavation activity be restricted to after 9:30 am to avoid disturbance to their guests.
Roof Colour:
Both representors are concerned that the roof is proposed to be almost white. The representors have suggested that this will make the whole of the building highly reflective when viewed from above and as such visually prominent. Both representors have asked that the roof be required to be a darker, less reflective, natural colour to better blend with the surrounds, thus reducing the visual bulk.
Proposed Fencing:
One represnentor is concerned that the description of the proposed fencing at the top of the cut is unclear. As such, they have requested that the fence be conditioned to be timber and in a natural colour to match their requested roof colour.
Tree Removal:
One representor is concerned that the description of the extent of vegetation removal for the proposed driveway is excessive. They have asked that the clearing be limited to the minimum necessary for the driveway and dwelling construction.
Overland Stormwater Flow:

One representor has suggested that the proposed location of the house is in an overland flow path, and that storm events will result in water potentially flowing through the dwelling. The representor has requested that the applicant be made aware of this potential issues.

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 Low Density Residential Zone of the *Hobart Interim Planning Scheme 2015*.

6.3 The site is currently vacant. The proposed use is a single residential dwelling. The proposed use is a permitted use in the zone.

6.4 The proposal has been assessed against:

6.4.1 Part D - 12.0 Low Density Residential Zone

6.4.2 Part E - E6.0 Parking and Access Code

6.4.3 Part E - E7.0 Stormwater Management Code

6.4.4 Part E - E10.0 Biodiversity Code

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

6.5.1 General Residential Zone Development Standards:

Private Open Space - Part D 12.4.3 P2
Sunlight - Part D 12.4.4 P1

6.5.2 Parking and Access Code:-

Vehicular Passing Areas Along an Access - Part E E6.7.3 P1

6.5.3 Biodiversity Code:

Building and Works - Part E E10.7.1 P1

6.6 Each performance criterion is assessed below.

6.7 Private Open Space - Part D 12.4.3 P2

6.7.1 The acceptable solution at clause 12.4.3 A2 requires the provision of private open space adjacent to and accessible from a habitable room which has a minimum dimension of 4m, a minimum area of 24m^2 and is oriented to face north.

6.7.2 The proposal includes two areas of private open space that are adjacent to and accessible from habitable rooms of the dwelling and are generally oriented to face north. The upper level portion has a maximum width of 2.5m and the lower portion has a maximum width of 3.5m.

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 12.4.3 P2 provides as follows:

A dwelling must have private open space that:

(a) includes an area that is capable of serving as an extension of the dwelling for outdoor relaxation, dining, entertaining and children's play and that is:
(i) conveniently located in relation to a living area of the dwelling; and
(ii) orientated to take advantage of sunlight.

6.7.5 The proposed upper level deck is accessed via large sliding doors from the living / dining area and will function as an extension to this space. The proposed lower level patio is similarly accessed via large sliding doors from the pool room and will function as an extension to this space. Both areas will receive full morning sun, losing sunlight shortly after midday.

6.7.6 The proposal complies with the performance criterion.

6.8 Sunlight - Part D 12.4.4 P1

6.8.1 The acceptable solution at clause 12.4.4 A1 requires a dwelling to have a window of a habitable room (other than a bedroom) facing within 30 degrees of north.

6.8.2 The proposal includes windows to habitable rooms facing north east and west south west.

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 12.4.4 P1 provides as follows:

A dwelling must be sited and designed so as to allow sunlight to enter at least one habitable room (other than a bedroom).

6.8.5 The dwelling has been designed such that the habitable rooms will receive uninterrupted sunlight all morning, and into the early afternoon.

6.8.6 The proposal complies with the performance criterion.

6.9 Vehicular Passing Areas Along an Access - Part E E6.7.3 P1

6.9.1 The acceptable solution at clause E6.7.3 A1 requires passing bays to be provided at 30m intervals for driveways greater than 30m in length, with the first passing bay at the kerb.

6.9.2 The proposal only includes a passing bay at the kerb.

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 E6.7.3 P1 provides as follows:

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;

(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.

6.9.5 The application has been assessed by Council's Development Engineer, who has provided the following comment:

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; - No
(ii) is more than 30 m long; - YES
(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; - No
(c) have the first passing area constructed at the kerb; - YES
(d) be at intervals of no more than 30 m along the access. - No

Performance Criteria - P1:
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; - Feasible

(b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; - Feasible

(c) suitability for the type and volume of traffic likely to be generated by the use or development; - Feasible

(d) ease of accessibility and recognition for users. - Feasible

Passing bay near the interface with Nelson Road given the nature of the shared access, but no passing bay at 30m intervals. Onsite turning is provided.

Based on the above assessment and given the submitted documentation, vehicle passing areas, may be accepted under Performance Criteria P1:E6.7.3 of the Planning Scheme. Given the driveway configuration, the low volume of traffic and the provision of on site turning.

6.9.6 The proposal complies with the performance criterion.

6.10 Building and Works - Part E E10.7.1 P1

6.10.1 The acceptable solution at clause E10.7.1 A1 requires native vegetation to be retained in the biodiversity protection area.

6.10.2 The proposal includes the removal of native vegetation in the biodiversity protection area.

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 E10.7.1 P1 provides as follows:

Clearance and conversion or disturbance must satisfy the following:

(a) if low priority biodiversity values:
(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;
(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;

(b) if moderate priority biodiversity values:
(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;
(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;
(iii) remaining moderate priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values;

(c) if high priority biodiversity values:
(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;
(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;
(iii) remaining high priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values;
(iv) special circumstances exist;

6.10.5 The application has been assessed by Council's Environmental Development Planner, who has provided the following comment:

The Biodiversity Code applies because the removal of native vegetation is proposed within a Biodiversity Protection Area. No exemptions are applicable.

The submitted Natural Values Assessment indicates that there are 18 trees present on the lot. The Natural Values Assessment (NVA) indicates that 9 of these trees are likely to require removal to facilitate the development, and the retention of 9 trees would be feasible. However, the submitted plans indicate that one of the trees identified for removal in the NVA can be kept (feature is a temporary soil stockpile not a water tank) and that a further 4 trees could be jeopardised by works in the vicinity including hydraulic services and the driveway cut embankment.

The bushfire hazard management plan submitted with the application includes the following prescriptions for the proposed hazard management area (whole of lot):

The HAZARD MANAGEMENT AREA is to be established and maintained in a "minimal fuel condition" as specified in AS3959 2009 Part 2.2.3.2(f) for the area shown in "RED" on this plan. This may be achieved through the adoption / implementation of the following recommendations;

- Provision of heat shields or ember traps on the side of the property affected by the bushfire prone vegetation.
  This can include non-flammable fencing / walls & plantings of shrubs or hedges.
- Use low flammability plants and avoid placing them adjacent to glazed elements of the proposed dwelling.
- Regular slashing / mowing of grass areas to a height of less than 100mm.
- Keep plants and trees from overhanging roofs and gutters.
- Install gutter guards and regularly clean roof areas where leaf litter and other flammable materials may gather.
- Ensure woodpiles and other flammable materials are not stored against the dwelling.
- Establish non-flammable areas such as patios / garden paths etc around the perimeter of the dwelling.
- Separation between large trees should be maintained, preferrably 20m (Horizontally), from other significant trees or groups of shrubs
  and maintain a vertical separation between the ground / low plants to the tree canopies.

A Natural Values Assessment was submitted with the application. The findings of the NVA include:
the vegetation within the property is 'Eucalyptus pulchella dry forest and woodland' (DPU);
no threatened flora species were recorded;
5 small black gums (Eucalyptus ovata) are present on the site and constitute 'moderate biodiversity value' as foraging habitat for Swift Parrots;
The lack of tree hollows and trees with a dbh > 70 cm make this site unsuitable for swift parrot nesting;
remaining vegetation on the site is classified as being of 'low priority biodiversity value'.

The relevant standards are contained in section E10.7.1 'Buildings and Works'. The application does not comply with acceptable solution A1 as vegetation of moderate priority biodiversity value is proposed to be removed (E. ovata trees). The relevant performance criterion, P1, states the following:

"Clearance and conversion or disturbance must satisfy the following:

(a) if low priority biodiversity values:
(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;
(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;

(b) if moderate priority biodiversity values:
(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;
(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;
(iii) remaining moderate priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values..."

There is limited opportunity to retain substantial areas of vegetation on site given the need for an adequate bushfire hazard management area and vehicular access. BAL-29 construction has been proposed, which is the maximum allowable BAL level as a deemed-to-comply solution under the Building Regulations. Given the vegetation on the site is predominantly of low biodiversity value, this is considered acceptable given site restrictions and the needs of the development.

With regard to the moderate priority biodiversity values (E. ovata trees), it is disappointing that only 2 of the 5 present would be retained under the proposal. While one of these trees could potentially be retained with a house re-design, the two other trees would be impacted by the proposed driveway which would be very difficult to re-site. Given that swift parrot foraging trees are generally considered to be those with a diameter of >40cm, and all of the trees to be removed have a diameter of less than 40cm, impacts are considered acceptable.

There is little that can be done to protect the E. ovata trees other than ensuring the trees and their root zones are protected during the development and any future works on the property such as landscaping. Conditions to this effect are recommended for any permit granted. The same condition should protect the other trees identified for retention.

Given that some of the assumptions about the retention and removal of trees made in the NVA are questionable, it is recommended that a condition be applied to any permit granted requiring the submission, approval and implementation of a tree

retention plan.

6.10.6 The proposal complies with the performance criterion.

7. Discussion

7.1 Planning approval is sought for a Dwelling.

7.2 The application was advertised and received two (2) representations. The representations raised concerns including excavation, roof colour, proposed fencing, tree removal and overland stormwater flow.

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, and Environmental Development Planner. The officers have raised no objection to the proposal, subject to conditions. The Environmental Development Planner's report is provided at Attachment C to this report.

7.5 The proposal is recommended for approval.

8. Conclusion

8.1 The proposed Dwelling at 199 Nelson Road, Mount Nelson 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 a Dwelling at 199 Nelson Road, Mount Nelson 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-19-783 - 199 NELSON ROAD MOUNT NELSON TAS 7007 - Final Planning Documents, except where modified below.

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.

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 sw4

Any new stormwater connection must be constructed and existing abandoned connections sealed by the Council at the owner's expense, prior to the first occupation.

Detailed engineering drawings must be submitted and approved, prior to commencement of work. The detailed engineering drawings must include:

1. **the location of the proposed connection; and**
2. **the size of the connection appropriate to satisfy the needs of the development.**

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

Advice:
The applicant is advised to submit detailed design drawings via a Council City Amenity Division application for a new stormwater connection. If detailed design to satisfy this condition is submitted via the planning condition endorsement process there may be fees associated with the assessment, and once approved the applicant will still need to submit an application for a new stormwater connection with Council City Amenity Division.

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

Reason for condition

To ensure the site is drained adequately.

ENG 2a

Prior to first occupation, vehicular barriers compliant with the Australian Standard AS/NZS1170.1:2002 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 NCC2016 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 2b

Prior to the issue of any approval under the *Building Act 2016* or the commencement of works on site (whichever occurs first), a certified vehicle barrier design (including site plan with proposed location(s) of installation) prepared by a suitably qualified engineer, compliant with Australian Standard AS/NZS1170.1:2002, must be submitted to Council.

Advice:

- *If the development's building approval includes the need for a Building Permit from Council, the applicant is advised to submit detailed design of vehicular barrier as part of the Building Application.*
  If the development's building approval is covered under Notifiable Work the applicant is advised to submit detailed design of vehicular barrier as a condition endorsement of the planning permit condition. Once the certification has been accepted, the Council will issue a condition endorsement (see general advice on how to obtain condition endorsement).

Reason for condition

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

ENG 2c

Prior to the first occupation, vehicular barriers must be inspected by a qualified engineer and certification submitted to the Council confirming that the installed vehicular barriers comply with the certified design and Australian Standard AS/NZS1170.1:2002.

Advice:

- *Certification may be submitted to the 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 driveway and parking module and

compliance with the relevant standards.

ENG 3a

The access driveway, and parking module (parking spaces, aisles and manoeuvring area) must be designed and constructed in accordance with Australian Standard AS/NZS2890.1:2004 (including the requirement for vehicle safety barriers where required), or a Council approved alternate design certified by a suitably qualified engineer to provide a safe and efficient access, and enable safe, easy and efficient use.

Advice:

- *It is advised that designers consider the detailed design of the access and parking module prior to finalising the Finished Floor Level (FFL) of the parking spaces (especially if located within a garage incorporated into the dwelling), as failure to do so may result in difficulty complying with this condition.*

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. **Where the design deviates from AS/NZS2890.1:2004 the designer must demonstrate that the design will provide a safe and efficient access, and enable safe, easy and efficient use, and**
4. **Show dimensions, levels, gradients & transitions, and other details as Council deem necessary to satisfy the above requirement.**

Advice:

- *It is advised that designers consider the detailed design of the access and*

parking module prior to finalising the Finished Floor Level (FFL) of the parking spaces (especially if located within a garage incorporated into the dwelling), as failure to do so may result in difficulty complying with this condition.

- *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 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 9

An approved Tree Retention Plan must be implemented.

Prior to the granting of any approval under the *Building Act 2016* or the commencement of works (whichever occurs first), a Tree Retention Plan must be submitted and approved identifying trees to be retained and protected.

The plan must:

1. **Show the location of all trees on the lot with a diameter greater than 12cm at 1.4m above ground level;**
2. **Show the associated tree protection zones and structural root zones as determined under Australian Standard AS 4970-2009;**
3. **Be informed by an assessment by a suitably qualified person of the likely impact to trees where development/disturbance would occur within tree protection zones, but outside structural root zones;**
4. **Be informed by the recommendations of a suitably qualified person about potential reasonably practicable and feasible measures that could be employed to retain healthy trees in the long term where development/disturbance would occur within tree protection zones but outside structural root zones;**
5. **Be accompanied by the advice of the suitably qualified person;**
6. **Show all areas of development and disturbance on the lot (including earthworks);**
7. **Demonstrate that the maximum number of trees will be retained that is reasonably practicable and feasible, given the general design of the development and requirements of the bushfire hazard management plan;**
8. **Include reasons for trees proposed to be removed; and**
9. **Include tree identification and protection measures to be followed during site works to ensure the trees to be retained are not damaged or destroyed.**

The final approved tree retention plan must be implemented and complied with.

Advice: Once the tree retention 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 ensure the development does not result in unnecessary or unacceptable loss of priority biodiversity values

ENV 15

All construction vehicles and machinery must be effectively cleaned of soil both before entering and before leaving the property.

Soil cleaned from construction vehicles and machinery must not be allowed, either directly or indirectly, to enter waterways or the Council's stomwater system.

Note: further information on effective measures for washdown can be found here.

Reason for condition

To minimise the spread of weeds and pathogens.

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.

An amended SWMP must be submitted and approved prior to the issue of any approval under the *Building Act 2016* or the commencement of work, whichever occurs first. The SWMP must be based on drawing BA11 dated June 2019, and include the following amendments:

1. **The water diversion barrier referred to in the notes must be shown on the plan.**
2. **A sediment barrier must be shown on the downslope side of the driveway.**
3. **Stockpiles must be shown clear of the tree protection zones of trees to be retained on the approved tree retention plan.**
4. **The location and design of sediment barriers must consider potential impacts to the root zones of trees to be retained on the approved tree retention plan.**
5. **A diagram of the design of the sediment fence must be shown on the plan.**

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.

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 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.

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.

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.

RIGHT OF WAY

The private right of way must not be reduced, restricted or impeded in any way, and all beneficiaries must have complete and unrestricted access at all times.

You should inform yourself as to your rights and responsibilities in respect to the private right of way particularly reducing, restricting or impeding the right during and after construction.

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.

PART 5 AGREEMENT

Part 5 Agreement

Please note that the owner(s) of this property are subject to Part 5 Agreement C703750 that requires the owner(s) to:

- refrain from planting any exotic invasive species on the land;
- manage weeds on the lot;
- implement a Council-approved landscaping plan;
- take all due care during construction to ensure large boulders are prevented from rolling downslope;

- if boulders, soil or or weathered dolerite are found at depths of >1.5m, ensure excavations are adequately retained by drained retaining structures.

Copies of the Part 5 Agreement are available from The LIST website (www.thelist.tas.gov.au) via the 'Scanned Dealings' section.

Bird Collision Risk

Vegetation supporting the endangered Swift Parrot is located on or near the site and a number of features of the existing and/or proposed development could present a significant risk of bird collisions. It is therefore strongly recommended that measures recommended for the upper level of the northern elevation specified on page 143 of the Natural Values Assessment be implemented to reduced the risk of Swift Parrot collisions in the final design of the building.

Dispersive Soils

To avoid damage to the development and to the environment associated with dispersive soils, it is recommended that appropriate measures be implemented to manage the risk. Further information regarding management of dispersive soils can be found in *Dispersive Soils and Their Management: Technical Reference Manual* (DPIW, 2008).

(Helen Ayers)
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: 19 February 2020

Attachment(s):

Attachment B - CPC Agenda Documents
Attachment C - Planning Referral Officer Environmental Development Planner Report

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

KEY PROPOSAL STATISTICS PROJECT DATA

TITLE	VOLUME SP143020	FOLIO C.T.12411-1 C.T.40617-1 DATE OF ISSUE 18 JULY 2006
LOCATION	199, NELSON ROAD	
SITE AREA:	3,957m2	
FOOTPRINT	204.96M2 (ROOF AREA)	
GROUND FLOOR	109.40M2	
FIRST FLOOR	160.75M2	
GARAGE	44M2	
TOTAL	314.15M2	
DECK	36M2	
SITE COVERAGE	19% +-	
CROSSOVER WIDTH	3,500	
HIGHTEST POINT OF BUILDING	6,400(EAST ELEVATION)	

DRAWING LIST

SHEET BA01	COVER SHEET/KEY DATA
SHEET BA02	EXISTING CONDITIONS
SHEET BA03	SITE PLAN/SWMP
SHEET BA04	GROUND/FIRST FLOOR PLANS
SHEET BA05	ROOF PLAN
SHEET BA06	ELEVATIONS
SHEET BA07	SECTION DETAIL
SHEET BA08	ENERGY EFFICIENCY
SHEET BA09	WET AREAS
SHEET BA10	WINDOW SCHEDULE
SHEET BA11	SWMP
SHEET B12	BCA NOTES

FINISHES

EXTERNAL WALLS	SPOTTED BLUE GUM/ MAXLINE/COMPRESSED SHEET CLADDING
DECK	SPOTTED BLUE GUM
ALUMINIUM WINDOWS	CHARCOAL GREY (DOUBLE GLAZED)
ROOF	SURFMIST

FOR CONSTRUCTION

Date: 30/6/19

Client: Scott & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARC 2019/6/5

Drawn by: LJ — Checked by: LJ

- CHECK ALL DIMENSIONS AND MEASUREMENTS ON SITE PRIOR TO FABRICATION AND OR CONSTRUCTION.
- DIMENSIONS ARE IN MILLIMETERS "FRAME TO FRAME" AND DO NOT ALLOW FOR INTERIOR LININGS.
- DO NOT SCALE DRAWINGS, IF IN DOUBT ASK.
- ALL WORK IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA (BCA) AS AMENDED, RELEVANT AUSTRALIAN STANDARDS (AS) CODES AND GOOD BUILDING PRACTICES.
- DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND SCHEDULES.

ISSUE	DESCRIPTION	DATE

Sheet Original: A - 1

Scale: As Shown

Reduced Printing:

Title: Specification & detailing for certification & permit issue of residential construction

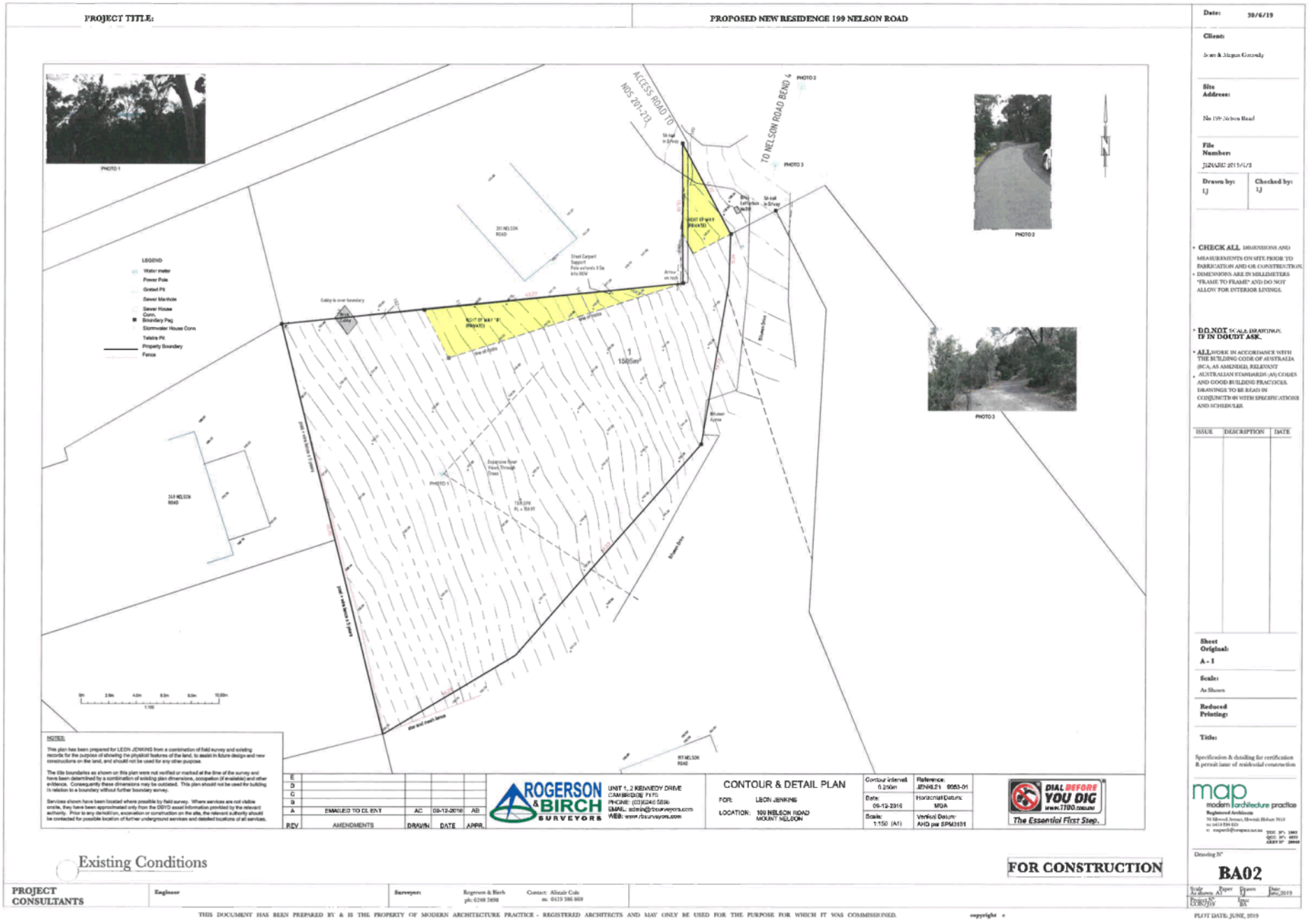
map modern architecture practice
Registered Architects
54 Silwood Avenue, Howrah Hobart 7018
m: 0419 894 623
e: maparch@netspace.net.au
TCC Nº: 1005
QCC Nº: 4033
ARBV Nº: 20040

Drawing Nº **BA01**

Scale: As shown — Paper: A1 — Drawn: LJ — Date: June,2019
Project Nº: CON/J19 — Issue: BA

PROJECT CONSULTANTS — Engineer: — Surveyor: Rogerson & Birch ph: 6516 5898 — Contact: Alistair Cole m: 0419 386 866

PLOT DATE: JUNE, 2019



PROJECT TITLE:

PROPOSED NEW RESIDENCE 199 NELSON ROAD

Date: 3/1/20

Client:
Sean & Megan Connolly

Site Address:
No 199 Nelson Road

File Number:
JUNARQ 2019/AG/3

Drawn by: LJ
Checked by: LJ

SYMBOL LEGEND

- BUILDING SECTION FLAG (SHEET NUMBER / DETAIL NUMBER)
- DETAIL FLAG (SHEET NUMBER)
- EXTERIOR ELEVATION FLAG (ELEVATION NUMBER / SHEET NUMBER)
- WINDOW OPENING FLAG
- OPEN SASH FLAG

ABBREVIATIONS

	Item	Comments
OS	Opening Sash	
F	Fixed Glazing	
GB	Glass Balustrade	
DP	Down Pipe	Stainless Steel
PLD	Panel Lift Door(2,100h)	1 Window Panel/Gor Ten
T	Tiled Paving	Entry
NGL	Natural Ground Level	At building Face
FGL	Finished Ground Level	At building Face
CO	Custom orb	Shale grey
CS	9mm Compressed sheet	EnviTec
SBG	Spotted Gum Cladding	Oil finish
ML	Max line 340 Cladding	Monument
PF	Facade Frame	Eco Tec Cladding
BW	Block Work	End walls (N/S) retained
PD	Pivot Door	White Glass

Proposed Site/SWMP Plan
Scale 1:200

FOR CONSTRUCTION

NOTES:
1 - The information contained in this document is copyright and may not be used or reproduced for any other project or purpose.
Verify all dimensions and levels on site and report any discrepancies to MAP Architects for direction prior to the commencement of work.
Drawings are to be read in conjunction with all other contract documents.
Use figured dimensions only. Do not scale from drawings.
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ISSUE	DESCRIPTION	DATE
SCC	NEW DRIVWAY DESIGN	JULY 31, 2017
SCC	SITE/BOUNDARY DIMENSIONS	JANUARY 8, 2020

Sheet Original:
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Title:
Specification & detailing for certification & permit issue of residential construction

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Registered Architects
TOC R^o: 1093
QBCC R^o: 1033
ABSV N^o: 20043

Drawing N^o
BA03

Scale	Paper	Drawn	Date
As shown	A1	LJ	June 2019
Drawing No		Issue	
DWG/01		BA	

PLOT DATE: JUNE, 2019

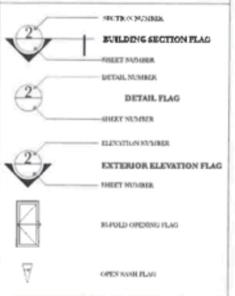
PROJECT CONSULTANTS

Engineer

Surveyor: Rogerson & Birch ph: 6248 5890 Contact: Alistair Cole m: 0419 586 869

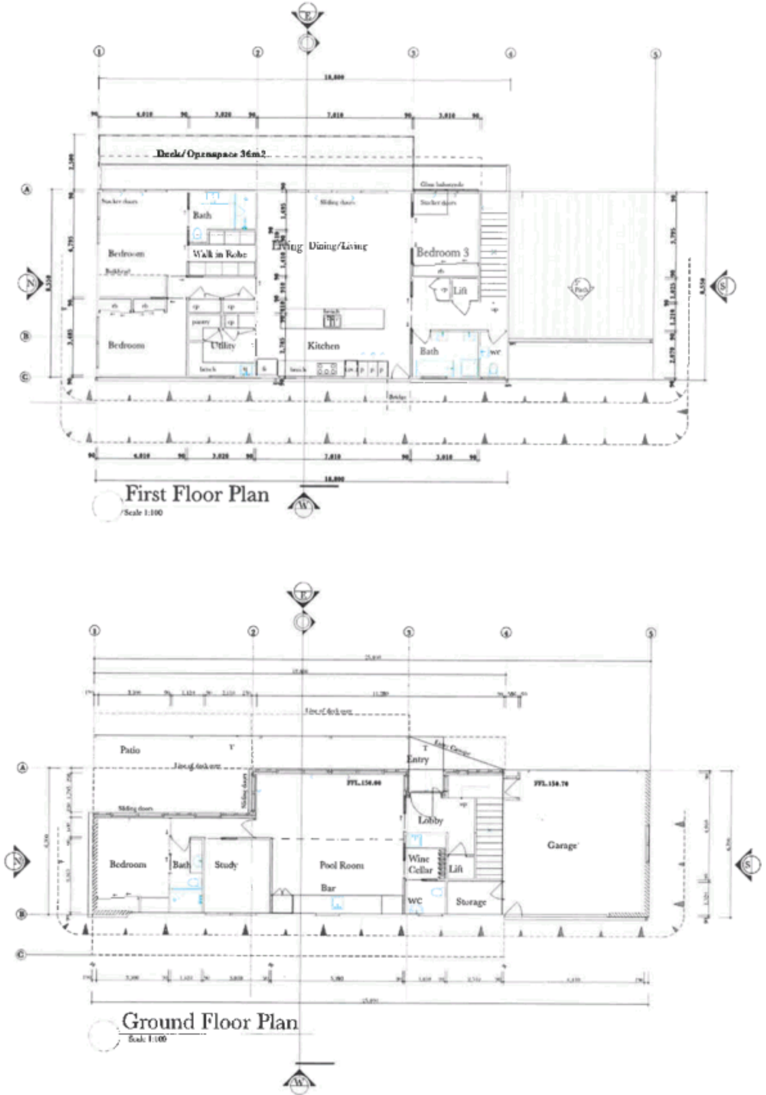
PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

SYMBOL LEGEND



ABBREVIATIONS

	Item	Comments
OS	Opening Sash	
F	Fixed Glazing	
GB	Glass Balustrade	
DP	Down Pipe	Stainless Steel
PLD	Panel Lift Door(2,150h)	1 Window Panel/Cor Ten
T	Tiled Paving	Entry
NGL	Natural Ground Level	At building Face
FGL	Finished Ground Level	At building Face
CO	Custom orb	Shale grey
CS	9mm Compressed sheet	EnuTec
SBG	Spotted Gum Cladding	Oil finish
ML	Max line 340 Cladding	Monument
FF	Facade Frame	Enu Tec Cladding
BW	Block Work	End walls (N/S) retained
PD	Pivot Door	White Glass



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Date: 30/12/19

Client: Sean & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARG 2015/0/9

Drawn by: LJ

Checked by: LJ

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ISSUE	DESCRIPTION	DATE
HCC	OPENSPACE	30/12/19

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map modern architecture practice
Registered Architects
54 Elwood Avenue, Howrah Hobart 7018
m: 0419 894 623
e: [illegible]
TCC N°: 1003
QCC N°: 4833
ARBV N°: 20040

FOR CONSTRUCTION

Drawing N° **BA04**

Scale	Paper	Drawn	Date
As shown	A1	LJ	June,2019
Project N°		Issue	
OFN7/J19		BA	

PLOT DATE: JUNE, 2019

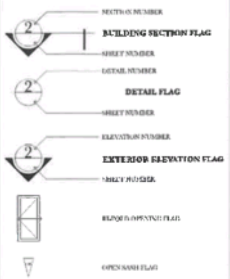
PROJECT CONSULTANTS

Engineer:

Surveyor: Rogerson & Birch ph: 6248 5898 Contact: Alistair Cole m: 0419 386 889

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

SYMBOL LEGEND



ABBREVIATIONS

	Item	Comments
OS	Opening Sash	
F	Fixed Glazing	
GB	Glass Balustrade	
DP	Down Pipe	Stainless Steel
PLD	Panel Lift Door(2,150h)	1 Window Panel/Cor Ten
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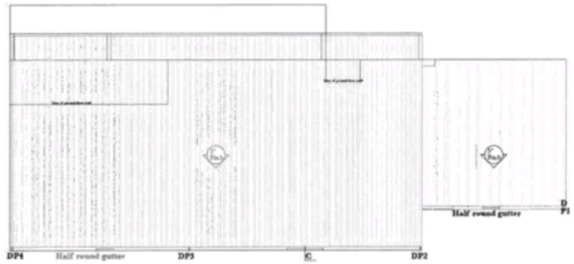
CO	Custom orb	Shale grey
CS	9mm Compressed sheet	EnviTec
SBG	Spotted Gum Cladding	Oil finish
ML	Max line 340 Cladding	Monument
FF	Facade Frame	Exo Tec Cladding
BW	Block Work	End walls (N/S) retained
PD	Pivot Door	White Glass



Roof Plan
Scale 1:100

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Rain and range of rainfall Hobart

Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
39	32	37	46	38	44	47	45	42	54	49	47	
12-95	8-83	15-85	15-83	17-86	18-90	22-93	19-103	22-96	26-107	21-87	15-115	460-781

Roof Cladding

Roof Cladding-BCA volume 2 Part 3.5.3
Colourbond 'Custom orb' metal sheeting installed in accordance with this part.
AS 1562.1 and manufacturers recommendations.

Refer to Lysaght roofing & walling manual for full details on sheet installation, fixings & flashings.

- Minimum pitch 5 degrees.
- Corrosion protection in accordance with BCA Table 3.5.1.1
- End lap of sheets 5-15 degrees - minimum 200 mm. above 15 degrees - minimum 150mm
- Ridge line valley to be turned up (stop ended).
- Fasteners to be made of compatible material with roofing material.
- Crest fixings of end spans & every second rib and internal spans every third ribs.
- Where possible sheets to be laid with side laps facing away from prevailing weather.
- Reflective foil insulation to be fitted to underside of sheets.

R3.8 Insulation batts to roof space above ceiling lining.

Recommended fixings for severe exposure conditions to AS 3566 use class 4 materials for severe exposure & stainless steel for every server coastal environments.

Gutters & Down pipes

Gutters &Downpipes -BCA volume 2 Part 3.5.2
- Colourbond metal fascias & gutters
- Eve gutters installed with a fall of 1:500 (normally).
- Box gutter fall of 1:100
- Spacing between downpipes maximum 12m.
- Down pipes to be located 1.2m from a valley or provisions made for overflow.
- Gutters & down pipes to be selected in accordance with BCA Vol.2 part 3.2.5 & table 3.5.2.2

Roofwater Drainage

Rainwater intensity - eaves gutters - 99ml/hour (1 in 20years)
- valley/box gutters - 155ml/hour (1 in 100years)

Number of downpipes required 4
Size of downpipes 75ø / 90ø
Size of gutter 125D

Calculations
Downpipe DP1 - 44m2 catchment
DP2 - 51.50m2 catchment

North

FOR CONSTRUCTION

Date: 30/6/19

Client: Sean & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARC 2019/8/3

Drawn by: LJ | Checked by: LJ

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ISSUE	DESCRIPTION	DATE
HOC	NEW DRIVWAY DESIGN	JULY 31, 2017

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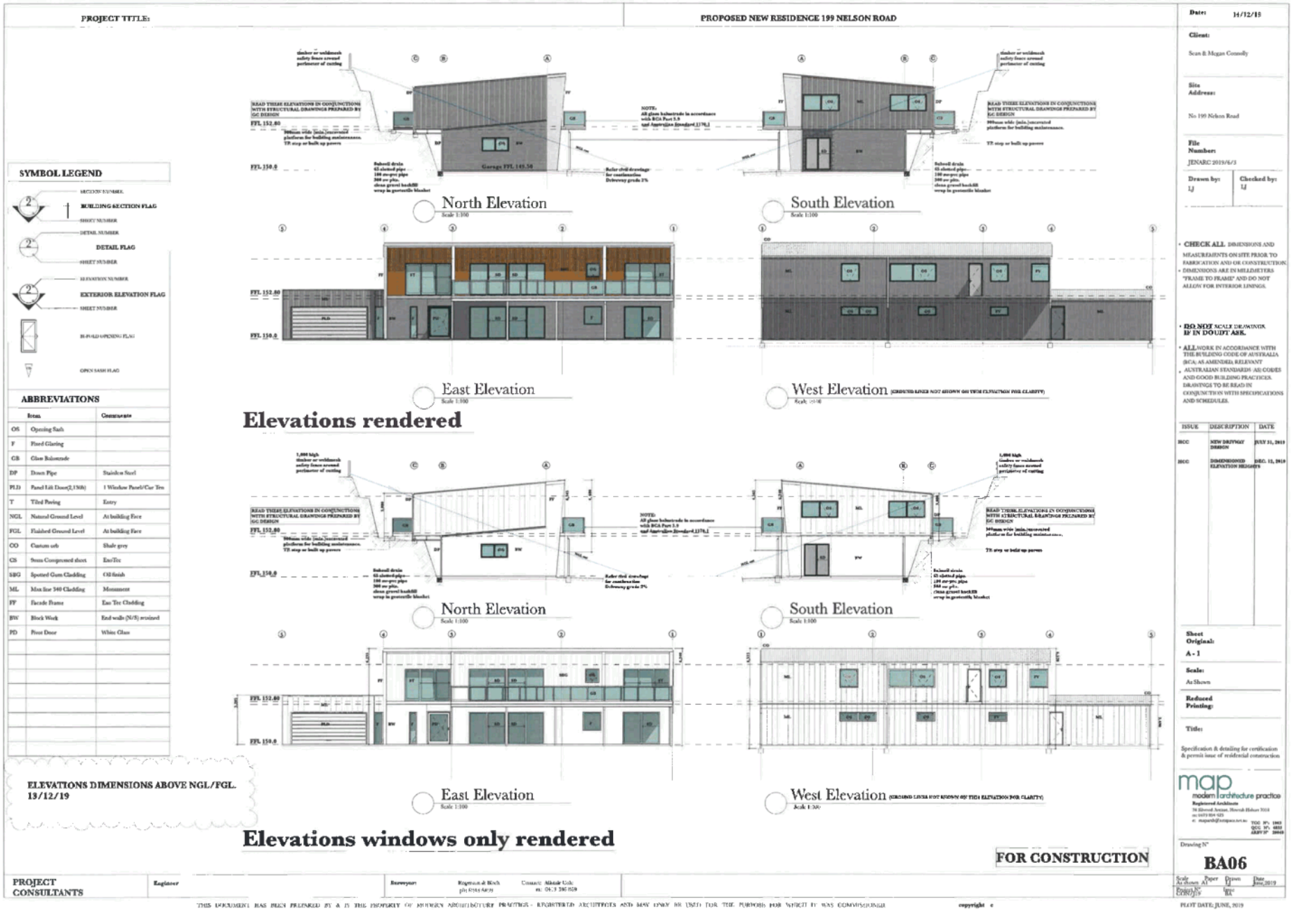
Project N° CON/J19 | Issue BA

PROJECT CONSULTANTS | Engineer | Surveyor: Rogerson & Birch ph: 6248 5898 | Contact: Alistair Cole m: 0419 386 869

PLOT DATE: JUNE, 2019


PROJECT TITLE:
PROPOSED NEW RESIDENCE 199 NELSON ROAD
Date: 14/12/19
Client:
Scan & Megan Connolly
Site Address:
No 199 Nelson Road
File Number:
JENARC 2019/6/3
Drawn by: LJ
Checked by: LJ
SYMBOL LEGEND
BUILDING SECTION FLAG
DETAIL FLAG
EXTERIOR ELEVATION FLAG
BI-FOLD OPENING FLAG
OPEN SASH FLAG
ABBREVIATIONS
Item
Comments
OS Opening Sash
F Fixed Glazing
GB Glass Balustrade
DP Down Pipe
Stainless Steel
PLD Panel Lift Door(2,150h)
1 Window Panel/Car Tire
T Tiled Paving
Entry
NGL Natural Ground Level
At building Face
FGL Finished Ground Level
At building Face
CO Custom orb
Shale grey
CS 9mm Compressed sheet
EnoTec
SBG Spotted Gum Cladding
Oil finish
ML Miss line 340 Cladding
Monument
FF Facade Frame
Eno Tec Cladding
BW Block Work
End walls (N/S) rendered
PD Pivot Door
White Glass
North Elevation
Scale 1:100
South Elevation
Scale 1:100
East Elevation
Scale 1:100
West Elevation (GROUND LINES NOT SHOWN ON THIS ELEVATION FOR CLARITY)
Elevations rendered
North Elevation
Scale 1:100
South Elevation
Scale 1:100
East Elevation
Scale 1:100
West Elevation (GROUND LINES NOT SHOWN ON THIS ELEVATION FOR CLARITY)
Elevations windows only rendered
ELEVATIONS DIMENSIONS ABOVE NGL/FGL.
13/12/19
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ISSUE
DESCRIPTION
DATE
HCC
NEW DRIVWAY DESIGN
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HCC
DIMENSIONED ELEVATION HEIGHTS
DEC. 13, 2019
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Specification & detailing for certification & permit issue of residential construction
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Drawing N°
BA06
FOR CONSTRUCTION
PROJECT CONSULTANTS
Engineer
Surveyor
PLOT DATE: JUNE, 2019
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PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

Date: 30/6/19

Client: Sean & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARC 2019/6/3

Drawn by: LJ | Checked by: LJ

SYMBOL LEGEND

BUILDING SECTION FLAG

DETAIL FLAG

EXTERIOR ELEVATION FLAG

BI-FOLD OPENING FLAG

OPEN SASH FLAG

ABBREVIATIONS

Item		Comments
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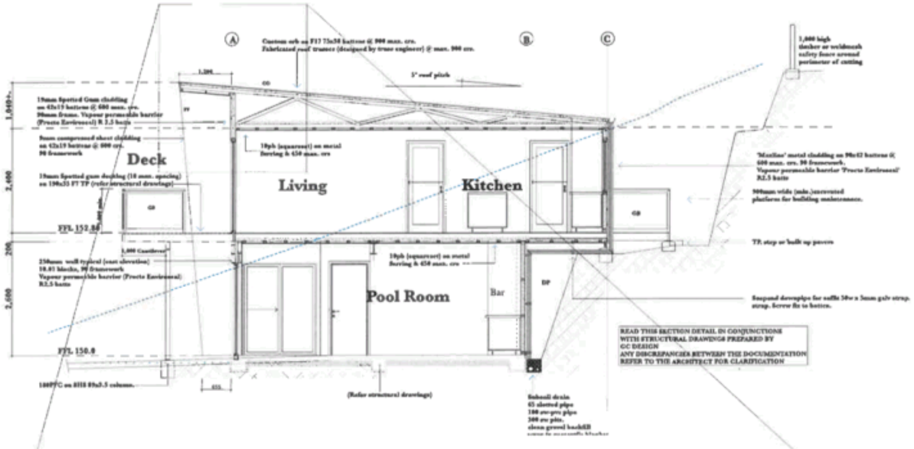
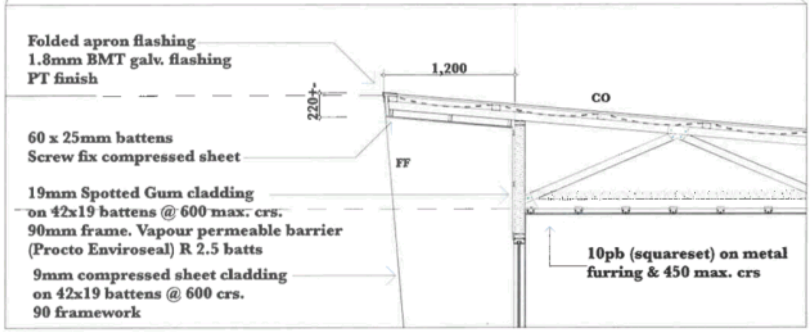


Section A A



Eave Detail

DECK CONSTRUCTION

FRAMING MGP10 (TO 2400 HEIGHT)

WALL & CEILING LININGS

WET AREA FINISHES TO AS 3740

WATERPROOFING

ENERGY EFFICIENCY

BRICKWORK/BLOCKWORK

WOODHEATERS

STRUCTURAL STEEL

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FOR CONSTRUCTION

Drawing N°: BA07

PROJECT CONSULTANTS | Engineer | Surveyor: Rogerson & Birch ph: 6248 5898 | Contact: Alistair Cole m: 0419 586 909

PLOT DATE: JUNE, 2019

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

WALL INSULATION - AS SHOWN

- MINIMUM R 2.5 BULK MINERAL INSULATION BATTS TO ALL 90MM TIMBER FRAME
- "MAXLINE/ SPOTTED GUM CLADDING TO UPPER FLOOR - WALL FRAME REFLECTIVE INSULATION FIXED TO CAVITY SIDE OF TIMBER FRAME BRICK VENEER CONSTRUCTION.

GROUND FLOOR CEILING INSULATION - AS SHOWN

MINIMUM R 2.0 MINERAL INSULATION BATTS TO CEILING

CEILING INSULATION - AS SHOWN

MINIMUM R 4.0 MINERAL INSULATION BATTS TO CEILING
REFLECTIVE FOIL INSULATION TO UNDERSIDE OF ROOF CLADDING.

BUILDING FABRIC - BCA VOLUME 2 PART 3.12.1 CLIMATE ZONE 7

INSULATION TO COMPLY WITH AS/NZS 4859.1 INSTALLED TO FORM A CONTINUOUS THERMAL BARRIER THROUGHOUT THE CONDITIONED SPACE OF THE BUILDING

	MINIMUM R-VALUE REQUIRED	DOWN LIGHT ADJUSTMENT FACTOR	TOTAL R-VALUE OF BUILDING MATERIALS	TYPE OF INSULATION MATERIAL TO BE ADDED	R-VALUE OF ADDED INSULATION	TOTAL R-VALUE
ROOF CONSTRUCTION PITCHED ROOF WITH FLAT CEILING & LINING	R-4.3	+ 25% R-5.4	METAL ROOF 0.4	BRADFORD GOLD BULK MINERAL BATT	5.0	**R-5.4**
WALL CONSTRUCTION CLAY MASONRY VENEER (MINIMUM 110 EXTERNAL)	R-2.4		CLAY MASONRY 0.55	MINERAL BATT / REFLECTIVE FOIL	2.0 / 0.67	**R-3.22**
FLOOR CONSTRUCTION SUSPENDED TIMBER FLOOR ENCLOSED	R-2		TIMBER 0.7	BRADFORD OPTIMO BULK MINERAL FLOOR BATT	2.5	**R-3.2**

BUILDING SEALING " CONDITION SPACE" - BCA VOLUME 2 PART 3.12.3

CHIMNEYS & FLUES - CHIMNEYS OR FLUES OF OPEN SOLID BURNING APPLIANCES TO BE FITTED WITH DAMPERS OR FLAPS THAT CAN CLOSE AND SEAL OFF THE CHIMNEY OR FLUE.

ROOF LIGHTS - ROOF LIGHTS MUST BE SEALED FITTED WITH PERFORATED DIFUSER FITTED AT CEILING OR INTERNAL LINING LEVEL, WHERE INSTALLED AS A ROOF WINDOW BE FITTED WITH A WEATHER PROOF SEAL OR A SHUTTER SYSTEM.

EXTERNAL WINDOWS & DOORS - EXTERNAL WINDOWS AND DOORS OR SIMILAR OPENINGS TO BE FITTED WITH SEALS TO RESTRICT AIR FILTRATION.

ENTRY DOOR & SLIDING DOORS - EXTERNAL ENTRY DOORS & INTERNAL SLIDING DOORS TO BE FITTED WITH SEALS TO RESTRICT AIR FILTRATION.

EXHAUST FANS - EXHAUST FANS TO BE FITTED WITH A SEALING DEVICE SUCH AS SELF CLOSING DAMPERS, FILTERS OR LIKE.

INSULATION - INSULATION TO FLOOR JOISTS BETWEEN CONDITIONED AND NON CONDITIONED SPACE.

CONSTRUCTION OF ROOFS, WALLS & FLOORS.

- THE EXTERNAL FABRIC OF THE BUILDING INCLUDING; ROOFS, WALLS, FLOORS, WINDOWS, DOORS OR LIKE TO BE CONSTRUCTED AND SEALED TO MINIMISE AIR LEAKAGE.
- INTERNAL LININGS SYSTEMS ON CEILINGS, WALLS AND FLOOR JUNCTIONS TO BE CLOSE FITTING OR SEALED INCLUDING THE CAULKING OF SKIRTING, ARCHITRAVES, CORNICES OR THE LIKE.

NOTE: ENERGY REQUIEMENTS

Internal wall insulation	= R2.0
Timber floor insulation	= R2.0
Suspended slab insulation	= R2.0 under
Roof insulation	= R4.0 ceiling & R1.3 roof blanket
Wall glazing	= U-Value - 291, SHGC (Solar Heat Gain Co-efficient) = 0.44

Energy Efficiency Plan
Scale 1:100

Window Orientation Sector

Ceiling Plan
Scale 1:100

Ground Floor Plan
Scale 1:100

FOR CONSTRUCTION

Date: 30/6/19

Client: Sean & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARG 2019/1/1

Drawn by: LJ
Checked by: LJ

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Drawing N°
BA08

PROJECT CONSULTANTS | Engineer | Surveyor

PLOT DATE: JUNE, 2019

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

Date: 30/6/19

Client: Scott & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARC 2019/6/4

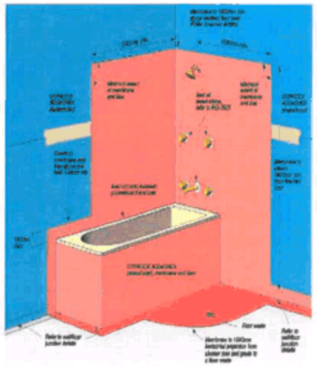
Drawn by: LJ | Checked by: LJ

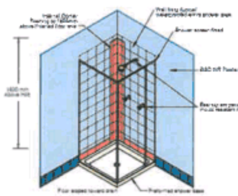
FOR FULL DETAILS REFER AUSTRALIAN STANDARD 3740

Vessels or area where the fixture is installed	Floors and horizontal surfaces	Walls	Wall junctions and joints	Penetrations
Enclosed shower with hob	Waterproof entire enclosed shower area, including hob (see Figure 3.8.1.1)	Waterproof to not less than 150mm above the shower floor substrate or not less than 25 mm above the maximum retained water level which ever is the greater with the remainder being water resistant to a height of not less than 1800 mm above the finished floor level. (see Figure 3.8.1.1)	Waterproof internal and external corners and horizontal joints within a height of 1800 mm above the floor level and not less than 40 mm width either side of the junction (see Figure 3.8.1.1)	Waterproof all penetrations
Enclosed shower without hob	Waterproof entire enclosed shower area including waterstop	Waterproof to not less than 150mm above the shower floor substrate with the remainder being water resistant to a height of not less than 1800 mm above the finished floor level. (see Figure 3.8.1.1)	Waterproof internal and external corners and horizontal joints within a height of 1800 mm above the floor level and not less than 40 mm width either side of the junction (see Figure 3.8.1.1)	Waterproof all penetrations
Enclosed shower with step down	Waterproof entire enclosed shower area including the step down.	Waterproof to not less than 150mm above the shower floor substrate or not less than 25 mm above the maximum retained water level whichever is the greater with the remainder being water resistant to a height of not less than 1800 mm above the finished floor level. (see Figure 3.8.1.1)	Waterproof internal and external corners and horizontal joints within a height of 1800 mm above the floor level and not less than 40 mm width either side of the junction (see Figure 3.8.1.1)	Waterproof all penetrations
Enclosed shower with step preformed shower base	N/A	Water resistant to a height of not less than 1800 mm above finished floor level. (see Figure 3.8.1.1)	Waterproof internal and external corners and horizontal joints within a height of 1800 mm above the floor level and not less than 40 mm width either side of the junction (see Figure 3.8.1.1)	Waterproof all penetrations
Unenclosed showers	Waterproof entire unenclosed shower area.	Waterproof to not less than 150mm above the shower floor substrate or not less than 25 mm above the maximum retained water level with the remainder being water resistant to a height not less 1800 mm above the finished floor level. (see Figure 3.8.1.1)	Waterproof internal and external corners and horizontal joints within a height of 1800 mm above the floor level and not less than 40 mm width either side of the junction (see Figure 3.8.1.1)	Waterproof all penetrations
Areas outside the shower area for concrete and compressed fibre cement sheet flooring	Water resistant to entire floor.	N/A	Waterproof all wall/floor junctions where a flashing is used the horizontal leg must be not less than 40 mm	N/A
Areas outside the shower area for timber floors including particleboard, plywood and other timber based flooring materials	Waterproof entire floor.	N/A	Waterproof all wall/floor junctions where a flashing is used the horizontal leg must be not less than 40 mm	N/A
Areas adjacent to baths and spas for concrete and compressed fibre cement sheet flooring	Water resistant to entire floor.	Water resistant to a height of not less than 150 mm above the vessel and exposed surfaces below the vessel lip to floor level. (see Figure 3.8.1.2)	Waterproof edges of the vessel and junction of bath enclosure with floor. Where the lip of the bath is supported by a horizontal surface, this area must be waterproof for showers over bath and water resistant for all other cases. (see Figure 3.8.1.2)	Waterproof all tap and spout penetrations where they occur in 1 horizontal surface.
Areas adjacent to baths and spas (see note 1) for timber floors including particleboard, plywood and other timber based flooring materials	Waterproof entire floor.	Water resistant to a height of not less than 150 mm above the vessel and exposed surfaces below the vessel lip to floor level. (see Figure 3.8.1.3)	Waterproof edges of the vessel and junction of bath enclosure with floor. Where the lip of the bath is supported by a horizontal surface, this area must be waterproof for showers over bath and water resistant for all other cases. (see Figure 3.8.1.3)	Waterproof all tap and spout penetrations where they occur in 1 horizontal surface.
Inserted baths	N/A for floor under bath. Waterproof entire shelf area, incorporating waterstop under the bath lip and project not less than 5 mm above the tile surface. (see Figure 3.8.1.4)	N/A for wall under bath. Waterproof to not less than 150 mm above the lip of the bath	N/A for wall under bath.	Waterproof all tap and spout penetrations where they occur in 1 horizontal surface.
Walls adjoining other vessels (e.g. sinks, laundry tubs and basins)	N/A	Water resistant to a height of not less than 150 mm above the vessel and if the vessel is within 75 mm of the wall. (see Figure 3.8.1.5)	Where the vessel is fixed to a wall, waterproof edges for extent of vessel.	Waterproof all tap and spout penetrations where they occur in 1 horizontal surface.
Laundries and WCs	Water resistant to entire floor.	Waterproof all wall/floor junctions to not less than 25 mm above the finished floor level, sealed to floor.	Waterproof all wall/floor junctions, where a flashing is used the horizontal leg must be not less than 40 mm.	N/A

If a shower is included above a bath, refer to the requirements for a shower area walls and penetrations.

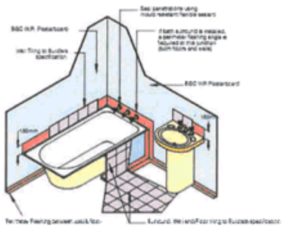
BUILDING CODE OF AUSTRALIA TABLE 3.8.1.1 - WATERPROOFING & WATER RESISTANCE REQUIREMENTS FOR BUILDIN ELEMENTS IN WET AREAS



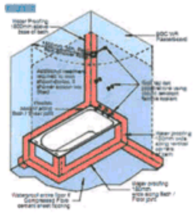


Wet Areas

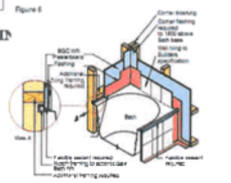
Wet Resistant Plasterboard - Wet Area Application



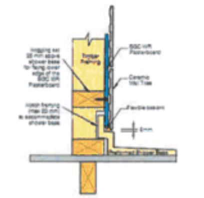
BATH AND VANITY



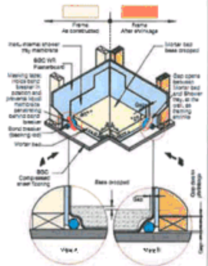
AUSTRALIAN STANDARD AS 3740-2004



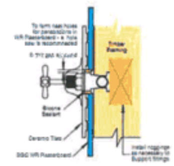
PERIMETER & BATH FLASHINGS



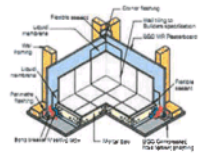
PRE-FORMED SHOWER BASE AND EXTERNAL SHOWER TRAY



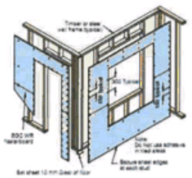
STRUCTURAL MOVEMENTS AND CONTROL JOINTS



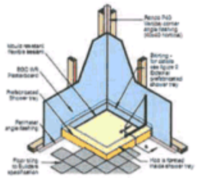
SEALING PENETRATIONS

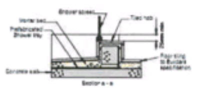


INSITU SHOWER TRAY

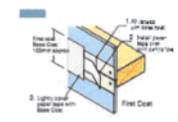


SHEET SETOUT UNTILED AREAS

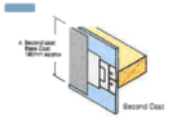




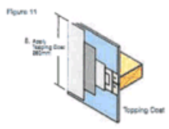
PLASTERBOARD JOINTING



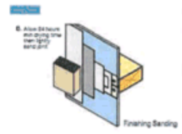
FIRST COAT AND TAPE



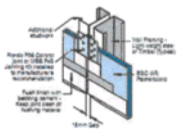
SECOND COAT



FINISH COAT



SANDING AND FINISHING



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- DO NOT SCALE DRAWINGS, IF IN DOUDT ASK.
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ISSUE	DESCRIPTION	DATE

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FOR CONSTRUCTION

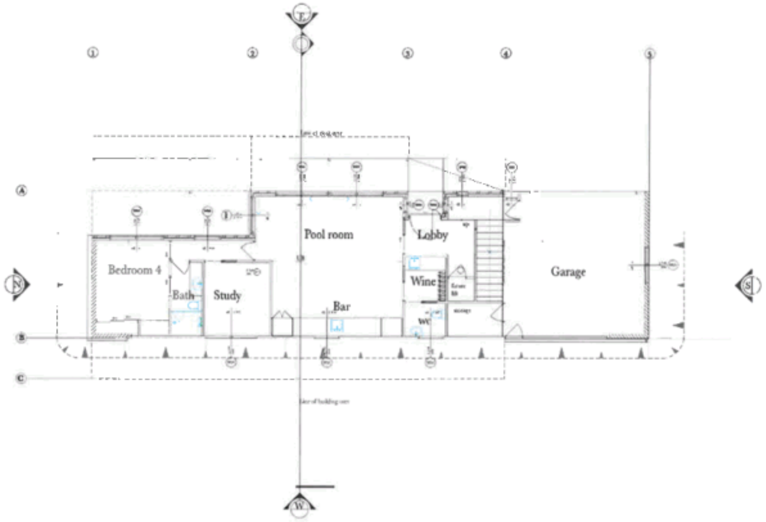
Drawing N° BA09

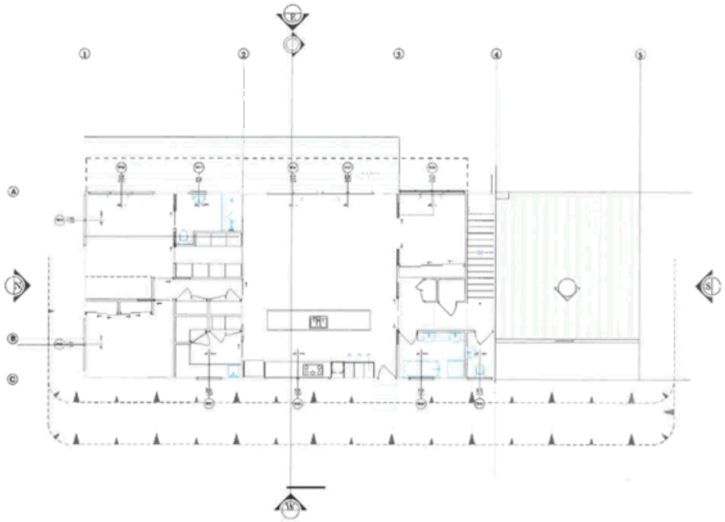
Scale As shown | Paper A1 | Drawn LJ | Date June, 2019
Project N° CONJ19 | Issue BA

PLOT DATE: JUNE, 2019

PROJECT CONSULTANTS | Engineer | Surveyor

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD





ID	W25	W26	W27	W28	W29	W30	W31	W32
Type	Sliding door	Sliding door	Fixed	Fixed	Fixed	Fixed	Swinging	Fixed
Glazing	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)
*U-Value/*SHGC	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.
Frame Material	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Width	3,800		1,200	1,200	1,200	1,200	1,600	3,400
Height	2,515		1,200	1,200	1,200	1,200	1,200	400
Sill Height	0		1,200	1,200	1,200	1,200	1,200	2,000
Area	9.37		1.44	1.44	1.44	1.44	1.87	1.17
ID / Elevation								

ID	W33	W34	W35	W36	W37
Type	Swinging	Fixed	Swinging	Fixed vent	Fixed
Glazing	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)	Doubled glazed low-e (Argon filled)
*U-Value/*SHGC	3.7 max,SHGC 0.50 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.60 approx.	3.7 max,SHGC 0.50 approx.
Frame Material	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Width	400	3,400	1,600	600	600
Height	2,400	400	1,200	600	600
Sill Height	0	2,000	1,200	1,500	1,500
Area	0.92	1.17	1.87	0.30	0.30
ID / Elevation					

Window Schedule

Lintel Schedule

Span	Size (F17)
900	90x45
1,800	120x45 or 140x35
2,400	2-140x35
2,700	2-140x45 or 170x45
3,000	2-170x45 or 190x45
3,600	2-240x35 or 290x45

Glazing Notes

1. Glazing and frames to BCA part 3.6 AS2047 & AS1288
2. Window sash locations and glazing configurations refer elevations.
3. Double glazed low-e glazing with standard Al frames. (U-value 3.7 max,SHGC 0.60 approx.)
4. Natural aluminium

BCA Requirements

Where people can fall -
(a) 1metre or more -
(1) from a floor or roof or through an opening (other than through an openable window) in the external wall of a building; or
(2) due to a sudden change of level within or associated with a building; or
(b) 2m or more from a floor through an openable window -
(1) in a bedroom in a Class 2 or 3 building or a Class 4 part of a building; or
(2) in a Class 9b early childhood centre; or
(c) 4m or more from a floor through an openable window not covered by (b), a barrier must be provided which must be -
(d) continuous and extend for the full extent of the hazard; and
(f) constructed to prevent people from falling through the barrier; and
(g) capable of restricting the passage of children; and
(h) of strength and rigidity to withstand -
(1) the foreseeable impact of people; and
(2) where appropriate, the static pressure of people against it.

NOTE: ENERGY REQUIEMENTS

Internal wall insulation = R2.0
Timber floor insulation = R2.0
Suspended slab insulation = R2.0 under
Roof insulation = R4.0 celling & R1.3 roof blanket
Wall glazing = U-Value - 291, SHGC (Solar Heat Gain Co-efficient) = 0.44

FOR CONSTRUCTION

Date: 30/6/19
Client: Sean & Megan Connelly
Site Address: No 199 Nelson Road
File Number: JENARC 2019/6/3
Drawn by: LJ
Checked by: LJ

- **CHECK ALL** DIMENSIONS AND MEASUREMENTS ON SITE PRIOR TO FABRICATION AND OR CONSTRUCTION.
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Drawing N°: BA10

PROJECT CONSULTANTS — Engineer — Surveyor

PLOT DATE: JUNE, 2019

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

Date: 30/6/19

Client: Sean & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARC 2019/6/3

Drawn by: LJ | Checked by: LJ

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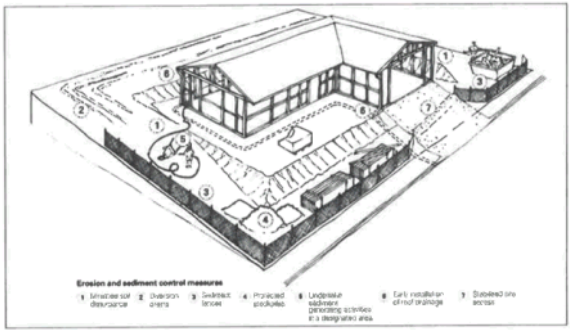
ISSUE	DESCRIPTION	DATE



SOLID WASTE MATERIAL TO BE STORED AND REMOVED FROM SITE REGULARLY.

REMOVABLE WC TO BE INSTALLED ON SITE DURING CONSTRUCTION UPTO THE POINT WHERE MAIN SEWER LINE IS CONNECTED.

STOCK PILES TO BE STABILISED AS DETAILED IN THE ABOVE DIAGRAM.

VEHICLES/MACHINERY ACCESSING THE SITE TO USE HARDENED ACCESS POINT TO BE THOROUGHLY WASHED (HIGH PRESSURE) TO REMOVE SOIL AND PLANT MATERIAL BEFORE LEAVING SITE.

REMOVE ANY SOIL, CONCRETE, PAINT OR OTHER POTENTIAL POLLUTANTS FROM ANY AREA NOT WITHIN THE SITE BOUNDARY, TO MINIMISE POLLUTION RUN OFF IN THE RETICULATED STORM WATER SYSTEM.

RETICULATED WATER MAINS AND ELECTRICAL CONNECTION TRENCHED TOGETHER. NOTES AS PER SEWER AND STORMWATER TRENCHING ABOVE.

WATER DIVERSION BARRIER (DIVERSION OF UPSLOPE WATER) CONSTRUCTED FROM SAND OR GRAVEL FILLED BAGS IN ACCORDANCE RECOMMENDED PRACTISE.

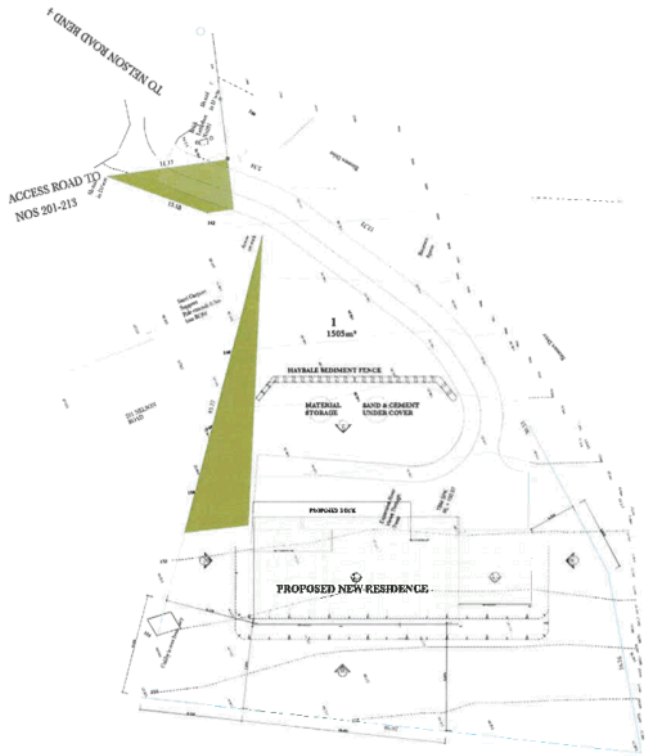
SILT TRAPS/STORMWATER PIT PROVIDE FILTRATION BARRIER AS DETAILED ABOVE.

REVEGETATION & LONGTERM EROSION CONTROLS:

ONLY REMOVE VEGETATION AS REQUIRED DURING CONSTRUCTION.
TREAT HEAVILY CLAYED SOILS WITH GYPSUM OR LIME AT A RATE OF 10t/ha TO STABILISE CLAY PARTICLES.
TEMPORARY STABILISATION CAN BE GAINED BY SOWING RYECORN/OATS AT 60kg/ha AND RYEGRASS var. CONCORDE AT 10kg/ha OR SIMILAR FAST ROOTING GRASSES/CROPS (WITH ADVICE FROM AGRONOMIST) TO HOLD TOGETHER TOP SOIL.
PERMANENT GROUND STABILISATION CAN BE ACHIEVED USING TURF OR OTHER GRASS MIXES OF FINE LEAF RYES, FESCUSES, POA, CLOVER, ETC.
GARDEN AREAS TO BE MULCHED WITH WATER EFFICIENT PLANTINGS THAT HAVE QUICK ESTABLISHMENT TIMES TO BE USED IN INITIAL GARDEN BEDS.

WHERE TUNNEL EROSION IS A EVIDENT THE TUNNELED AREA MUST BE COMPLETELY BROKEN UP AND RECONSOLIDATED TO INTERRUPT CHANNELED FLOWS OF WATER AND THEN STABILISED WITH VEGETATION. DEEP RIP ACROSS THE SLOPE MAKING SURE THAT THESE RIP LINES ARE DEEPER THAT THE BOTTOM OF THE TUNNELS. COMPACT USING RUBBER WHEELED TRACTOR ON AREAS OF SHALLOW TUNNELING. TUNNELS DEEPER THE RIPPERS ARE BEST EXCAVATED AND REPACKED.

IT IS THE BUILDERS RESPONSIBILITY TO VERIFY THE LOCATION OR ALL UNDERGROUND SERVICES, INCLUDING BUT NOT LIMITED TO; GAS, WATER, SEWER, STORM WATER, ELECTRICITY, TELECOMMUNICATIONS.



Storm Water Management Plan (SWMP)
Scale 1:100

FOR CONSTRUCTION

Sheet Original: A - 1

Scale: As Shown

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Titles: Specification & detailing for certification & permit issue of residential construction

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Registered Architects
91 Sherwell Avenue, Howrah Hobart 7018
m: 0419 386 869
e: maparch@mapace.net.au

Drawing N° **BA11**

Scale	Paper	Drawn	Date
As shown	A1	LJ	June, 2019
Project N°	Rev		
DRG/19	EA		

PROJECT CONSULTANTS

Engineer	Surveyor	Regreson & Birch ph: 6248 3898	Contact: Alistair Cole m: 0419 386 869

PLOT DATE: JUNE, 2019

PROJECT TITLE: PROPOSED NEW RESIDENCE 199 NELSON ROAD

OUTLINE SPECIFICATION TO BCA

- These notes are excerpts for guidance only and include but limited to the following Refer BCA for full details

3.1- SITE PREPERATION
- All filling and excavations to be in accordance with Clauses 3.1.1.1/2/3 and figures 3.1.1.1/2 and Table 3.1.1.1
- Agricultural drains to be provided where indicated on drawings to S/W outfall with silt trap as required. All in accordance with Clause 3.1.2.2/3/4
- For slab on ground buildings the finished slab height shall be generally 150mm above the external finished surface
- levels in accordance with Clause 3.1.2.3(b) where applicable
- Grade finished external surfaces around perimeter of building outwards at 50mm over the first 1 meter
- Grade surface levels under timber/suspended floors to obviate ponding
- Stormwater drainage to comply with Clause 3.1.2.5

3.2- FOOTING and SLABS
- Excavation for footings to be in accordance with Clause 3.2.2.1
- Filling and compacting under slabs to be in accordance with Clause 3.2.2.2
- Site classification as per Engineers report. Drawings certified by the consulting engineer detailing to be used by Contractor in all construction work
- All stump footings to be in accordance with Clause 3.2.5.6
- Fireplace footings to be in accordance with Clause 3.2.5.5

3.2.3- CONCRETE and REINFORCING

All to part 3.2.3 and as shown on drawings

3.3- MASONRY
- External walls to be in accordance with AS 3700, AS4773 and Clause 3.3.1.2 and as shown on the drawings
- Internal walls as shown on the drawings
- Isolated piers as shown on the drawings
- Vertical articulation joints to be provided in unreinforced masonry walls for all site classifications except A and S.Joint width to be no less tab 10mm and provided at the following positions. i.e-
  - at 6m crs fro straight,continuous walls having no openings
  - at change in height of wall where the same is greater than 20%
  - at 5m crs where openings occur greater than 900x900 with joint line with opening edge
  - change in wall thickness
  - at control and construction joints in slabs and footings
  - at wall junctions of different masonry materials and at deep chases in walls

NOTE: Vertical articulation joints to be provided also in accordance with cladding manufacturers specifications
- Reinforced masonry to be in accordance with details as shown on drawings.
- Wall ties to be provided at 600 crs vertically and at 600 crs horizontally for cavity construction and 450 crs for stud walls
- Steel lintels to be provided as noted on drawings
- Cavity width of 25mm minimum to be provided for brick veneer and 35-65mm cavity masonry; refer to dimensions shown on drawings
- Provide open perpends (weepholes) at 1200 crs above DPC or flashing
- Flashings to the relevant standard

3.4-FRAMING
- Sub-floor ventilation to Clause 3.4.1.2 and Figure 3.4.1 and to be provided at the rate of 6000mm^2 per meter length of wall
- Maintain 150mm minimum between surface and lowest framing member.This may be reduced if CCA or equivalent timber is used and at the discretion of the local authority
- Steel framing - in accordance with Part 3.4.2 Bearer and floor joist sizes as detailed on drawings
- Steel wall framing in accordance with Part 3.4.2
- All service installation in steel framing to clause 3.4.2.6 and Figures 3.4.2.7 and 3.4.2.8
- Timber framing - all framing to AS1684.2
- Floor framing - all bearers and joists to dimensions and sizes as shown on drawings
- Wall framing - all studs,plates etc to dimensions and sizes as shown on drawings
- Roof framing - all members to dimensions and sizes as shown on drawings
- Trussed roofs to be designed and manufactured by an approved and accredited supplier. Certification of same to be provided Trusses to be installed and braced as per manufacturers directions.
- Tie-downs - all connections to details as shown on the drawings where applicable.Construction details as show on the drawings
- Bracing - to be provided as shown on drawings 3.4.3.20. Construction details as shown on the drawings.
- Structural steel members - in accordance with Part 3.4.4 and to dimensions and sizes shown on the drawings.

3.5-ROOF and WALL FRAMING
- Roof tiling to be in accordance with Clause 3.5.1.2 and Figures 3.5.1.1 and 3.5.1.2 to a maximum pitch of 35 degrees.
- Metal sheet roofing and flashings to be in accordance with Clause 3.5.1.3
- Gutters and downpipes as shown and indicated on the drawings and to be in accordance with Clause in Part 3.5.2. Calculations as shown on the drawings.
- Wall cladding as shown on drawings if applicable and to Clause in Part 3.5.3 window flashing as per Figure 3.5.3.4

BCA Notes

3.6 - GLAZING

All glazing to AS1288 and AS2047
- Manufactured windows,doors and panels to the above Australian Standards and certified accordingly and to Clause 3.6.3 and
- 3.6.4 for human impact safety requirements.

3.7 - FIRE SAFETY

External walls less than 900mm from the allotment boundary to comply with Clause 3.7.1.5 and as shown on the drawings.
- Class 10a buildings located between a Class 1 building and the allotment boundary to comply with Clause 3.7.1.6 and Figures
- 3.7.1.4 to 3.7.1.6

Carport exemptions to comply with Clause 3.7.1.6(d) and Figure 3.7.1.8
- Allowable encroachments in accordance with Clause 3.7.1.7
- Separating walls to comply with Clause 3.7.1.8
- Allowable encroachment to Clause 3.7.1.7
- Roof sarking in Class 1 building to be of a flammability index not greater than 5 and in accordance with Clause 3.7.1.9
- Roof lights in accordance with Clause 3.7.1.10
- Smoke alarms to be installed and located in accordance with Clauses in part 3.7.2 and as shown on the drawings.
- Heating appliances to be in accordance with Clause in part 3.7.3.1, 3.7.3.2 & 3.7.3.3 in locations shown on the drawings.
- Bushfire areas - proposals in designated Bushfire prone areas to be in accordance with Clauses in Part 3.7.4
- Alpine areas - proposals in designated Alpine areas to be in accordance with Clauses in Part 3.7.5

3.8 - HEALTH and AMENITY

All wet areas including showers,baths and wall fixtures to be waterproofed to AS3740 and in accordance with Clauses 3.8.1.1
- to 3.8.1.6 and Table 3.8.1.1

All wall substrates to be MR board or similar including cement sheet with water resistant linings of ceramic tile,s late, stone
- lamipanel or similar wall linings as specified above to be provided to height of 1800 above shower bases, 150 above baths,
- hand basins and other fixtures including washing machines.
- Shower recesses to comply with AS3740
- Wall and fixture junctions to comply with AS3740
- Room heights - as shown on the drawings and in accordance with Clause 3.8.2.2 including stairwell clearances.
- Facilities to be provided and installed in accordance with Clause 3.8.1.1 to 3.8.3.3 and as shown on drawings.
- Doors to sanitary compartments to be in accordance with Clause 3.8.3.3 and as shown on drawings. Clearance of 1200mm to be maintained between closet pan and nearest part of doorway. Where clearance insufficient door to open outwards or slide.
- Light - natural light to be provided at not less than 10% of the floor area of the room and as shown on drawings and to comply with Part 3.8.4
- Artificial light to be provided in accordance with Clause 3.8.4.3.
- Ventilation - to be provided in accordance with Clauses 3.8.5.0 to 3.8.5.2 and not less than 5% of the floor area of the room.
- Sanitary compartments as shown on the drawings and in accordance with Clauses 3.8.5.3
- Sound insulation - separating walls where required to be in accordance with Clauses in Part 3.8.6

3.9 - SAFE MOVEMENT
- Stair construction as noted on drawings and in accordance with Clauses in Part 3.9.1
- Risers and goings as noted on drawings.
- Spiral stairs in accordance with this part.
- Balustrades as noted on drawings and in accordance with Clauses in Part 3.9.2. All balustrades 1000mm minimum height with a maximum aperture of 125mm (except wire balustrade where spacing will comply with Table 3.9.1)
- Loading forces on balustrades to comply with AS1170.1
- Balustrades to stairs to be 865mm above stair nosing and in accordance with Clause 3.9.2.3 and Figure 3.9.2.1 to 3.9.2.3

3.12 - ENERGY EFFICIENCY
- RBM to be installed and in accordance with Clause 3.12.1.1 (b).
- Bulk insulation in accordance with Clause 3.12.1.1(c)
- Roof insulation to comply with with Clause 3.12.1.2 and as noted on the drawings.
- Roof lights to Clause 3.12.1.3
- External wall insulation to be in accordance with Clause 3.12.1.4 and as noted on the drawings.
- Floor insulation to comply with Clause 3.12.1.5.
- External glazing in accordance with Clause 3.12.2.1 and as shown on drawings. Calculation of glazing areas as noted on the drawings.
- Building sealing in accordance with Part 3.12.3 and as noted on the drawings.

FOR CONSTRUCTION

Date: 30/5/19

Client: Sean & Megan Connolly

Site Address: No 199 Nelson Road

File Number: JENARC 2019/6/3

Drawn by: LJ | Checked by: LJ

- CHECK ALL DIMENSIONS AND MEASUREMENTS ON SITE PRIOR TO FABRICATION AND OR CONSTRUCTION.
- DIMENSIONS ARE IN MILLIMETERS "FRAME TO FRAME" AND DO NOT ALLOW FOR INTERIOR LININGS.
- DO NOT SCALE DRAWINGS. IF IN DOUDT ASK.
- ALL WORK IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA (BCA) AS AMENDED, RELEVANT AUSTRALIAN STANDARDS AS CODES AND GOOD BUILDING PRACTICES. DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND SCHEDULES.

ISSUE	DESCRIPTION	DATE

Sheet Original: A-1

Scale: As Shown

Reduced Printing:

Title: Specification & detailing for certification & permit issue of residential construction

map modern architecture practice
Registered Architects

Drawing N° BA12

PROJECT CONSULTANTS | Engineer | Surveyor: Rogerson & Birch ph: 6248 5898 | Contact: Alistair Cole m: 0419 586 869

PLOT DATE: JUNE, 2019

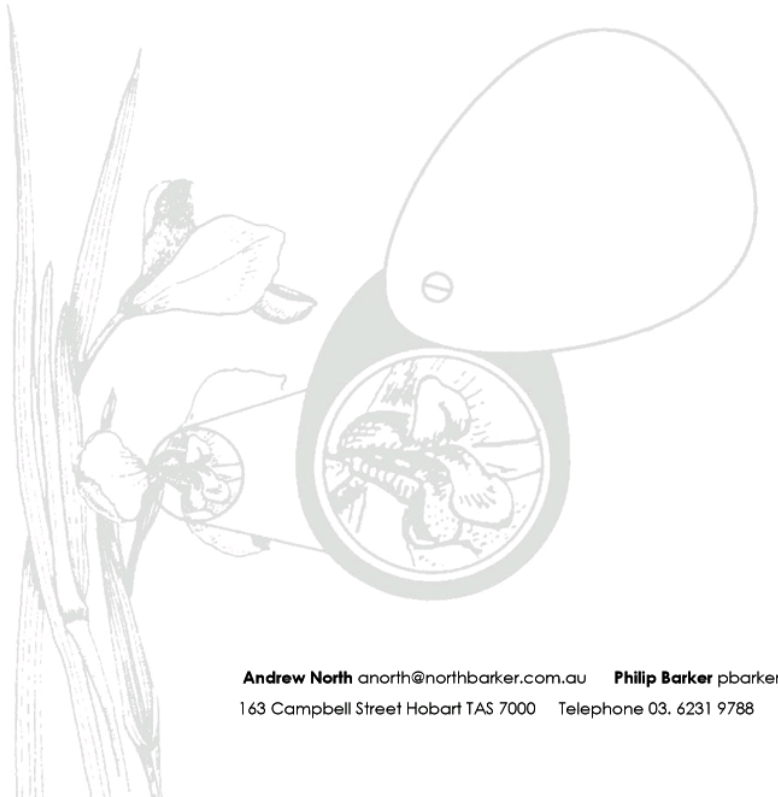
northbarker
ECOSYSTEM SERVICES

199 Nelson Rd, Mt Nelson
(proposed new residence)

Natural Values Assessment

28th November 2019

For Sean and Megan Connolly



Andrew North anorth@northbarker.com.au **Philip Barker** pbarker@northbarker.com.au
163 Campbell Street Hobart TAS 7000 Telephone 03. 6231 9788 Facsimile 03. 6231 9877

1. Project Details

Background: The proponent has submitted an application for a planning permit to develop a single dwelling at 199 Nelson Rd, Mt Nelson. North Barker conducted a natural values assessment of this parcel of land. Since the application was submitted the design of the house has changed and the impact footprint of the house, driveway and amenities has changed. The following report is an amended version of original report (dated 24th July 2017) that includes an updated impact section based on the new design. The primary difference in terms of natural values is that the previous design had a smaller impact footprint. It is understood that the costs of the additional level in the previous design was prohibitively expensive and a design with two levels, but a broader footprint, has been selected. The implications of this are discussed in the impact section.

Under the *Hobart Interim Planning Scheme 2015,* the land is zoned Low Density Residential (zone 12), and is located within a Biodiversity Protection Area, which makes the proposal subject to the provisions within the Biodiversity Code (E10).

Date of Field Survey: 22nd June 2017

Field Survey [a], Report [b] and Photos [c]: Richard White [abc] and Grant Daniels [b]

Methods: Plant species composition of the entire cadastral parcel, with reference to the infrastructure footprint[1], was surveyed using an area search based on the Timed Meander Search Procedure[2]. The position and diameter at breast height (dbh) of all *Eucalyptus* species was recorded. The suitability of habitat for fauna was assessed concurrently. Notably, the potential for window strike impact on the threatened Swift Parrot *Lathamus discolour*, was assessed. This was done in the field for the original design and the potential impact of the updated design was considered by consulting the most recent plans. Vegetation was mapped according to TASVEG 3.0.

Limitations: The field survey was undertaken in winter. Values that are seasonal may have been overlooked or absent; the potential for this is considered where relevant in the discussion. The presence of tree hollows, and the potential for window strikes by Swift Parrot, were assessed for the original design from ground level only.

2. Site Values

Lot Characteristics: 199 Nelson Rd is a 0.15 ha block in a Low Density Residential zone with a Biodiversity Protection Area overlay. The site is located on a moderately steep east-facing slope, rising from 139 to 158 meters above sea level, east to west. The site is flanked by residential properties on the northern, western, and southern boundaries, and by the access road off Nelson road on the eastern side (Figure 1). Surrounding land use is Low Density Residential, and an Environmental Management zone (Lambert's Gully) is ~70 m from the eastern boundary. Geology is Jurassic dolerite.

Vegetation (Figure 2): The vegetation within the property is *Eucalyptus pulchella* dry forest and woodland (DPU). This is in contrast to TASVEG 3.0 mapping that identifies the site as *Eucalyptus globulus* dry forest and woodland (DGL), and Urban area (FUR). This grassy/shrubby *Eucalyptus pulchella* forest is widespread on the hills of Mt Nelson. The canopy species on site consist of a mix of white peppermint *Eucalyptus pulchella* and white gum *Eucalyptus viminalis,* and the occasional black gum *Eucalyptus ovata* (Plate 1). Understorey shrubs and small trees include broadleaf hopbush *Dodonaea viscosa*, prickly box *Bursaria spinosa* and bull oak *Allocasuarina littoralis*. Prominent species in the low shrub and herb layer include native cranberry *Astroloma humifusum*, sagg *Lomandra*

[1] Driveway, dwelling and fire pit based on Contour and Detail Plan by Rogerson & Birch Surveyors (ref: JENKL21)

[2] Goff F. G., Dawson G. A. & Rochow J. J. (1982) Site examination for threatened and endangered plant species. *Environmental Management* 6, 307-16.

longifolia, swordsedge *Lepidosperma* spp., and tussocks grasses from the genera *Poa* and *Austrostipa*. In places, anthropogenic disturbance is evident, including access tracks, and minor clearing of trees and shrubs where weeds have taken hold (e.g. north-west corner, Plates 2-3).

DPU is not listed as a threatened community under the Tasmanian *Nature Conservation Act 2002* (NCA) or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). There are 130,000 ha of the 173,000 pre-1750 extent of DPU remaining within the South-East bioregion with 26.7 % in reserves.

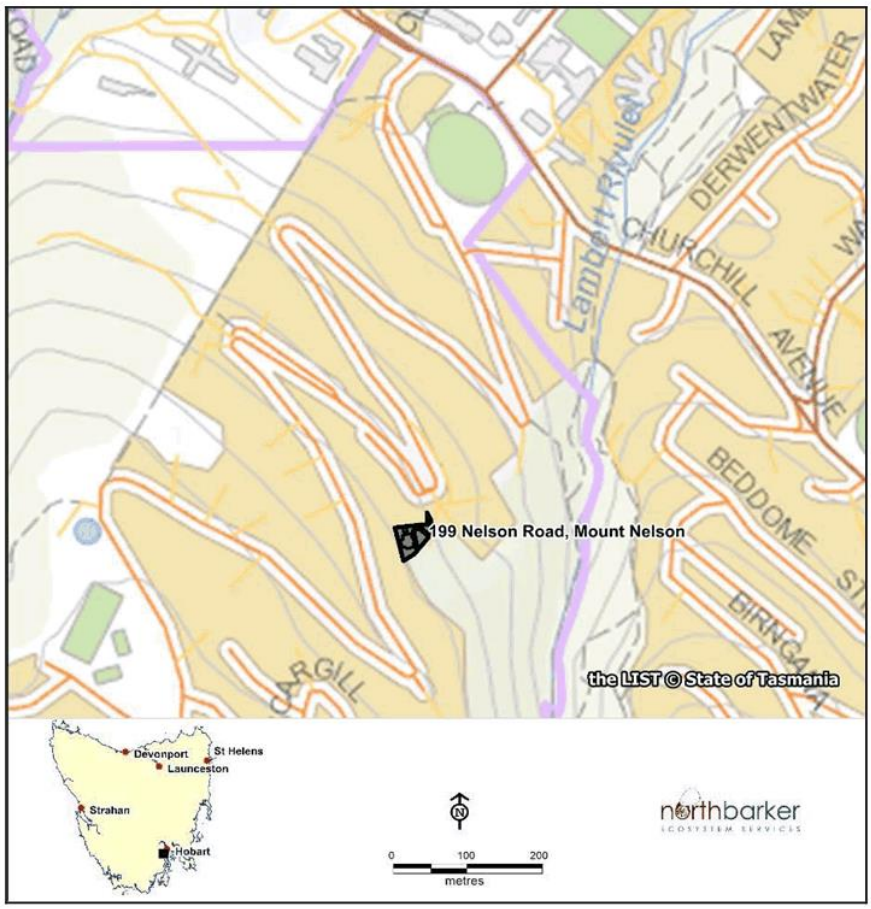


Figure 1: Site location

Plate 1 - DPU vegetation on site with occasional dense patches of *Lomandra longifolia* and *Lepidosperma spp.*

Plate 2 - Some minor access tracks are evident

Plate 3 - The north-west corner where some clearing has occurred and weeds have infested

Plant Species of Conservation Significance: 31 vascular plant taxa were recorded on site with 11 introduced species (Appendix A). No threatened flora species were observed. The Tasmanian *Natural Values Atlas*[3] lists no observations of threatened species within 500 m of the property. Numerous records are known within 5 km, however the majority of these species do not have suitable habitat onsite, or are considered unlikely to be overlooked. Of these threatened species, there is a very low chance prickly woodruff *Asperula scoparia subsp. scoparia* was overlooked due to its relatively inconspicuous appearance and seasonal growth spurts. Tall wallabygrass *Rytidosperma indutum* is unlikely to have been overlooked, but can be difficult to identify outside the spring flowering season. The disturbed and relatively species-poor nature of the site suggests that the habitat for these and other threatened species is sub-optimal.

Weeds and introduced species: No declared weeds under the Tasmanian *Weed Management Act 1999* were recorded on site. One environmental weed was found in a number of locations on site (spear thistle, *Cirsium vulgare*, Plate 4). It is recommended that this species, in addition to other conspicuous weeds (e.g. grey cotoneaster *Cotoneaster franchetii*) are removed to prevent their further spread locally. Additionally, there are a number of introduced garden escapees on the site (e.g. pride of madeira *Echium candicans*), and ubiquitous unlisted weed species (e.g. common centaury *Centaurium erythraea*).

Plate 4 – Spear Thistle *Cirsium vulgare* was found in several locations on site. In summer it will develop a tall flowering stem

[3] Natural Values Report: nvr_2_19-Jun-2017

Figure 2: Map showing the position of introduced species on site and the vegetation communities as per TASVEG 3.0

Threatened Fauna Habitat: Four threatened fauna species are known from within 500 m of the study area: tasmanian wedge-tailed eagle *Aquila audax subsp. fleayi*, white-bellied sea-eagle *Haliaeetus leucogaster*, swift parrot *Lathamus discolor* and forty-spotted pardalote *Pardalotus quadragintus*[4]. Several others have the potential to occur based on predicted range boundaries and habitat mapping as shown below[5]. The majority of these species are highly unlikely to occur in a suburban setting (e.g. Tasmanian devil), or due to their specific habitat requirements (e.g. tussock skink only occurs in *Poa* tussock grassland and *Themeda* grassland without trees). Of these species, eastern barred bandicoot may occur on the site; this species is nationally (EPBCA) listed as vulnerable but is locally common in areas of south-eastern and northern Tasmania. It occurs predominantly in native grasslands, grassy woodland and on cleared grazing land where there is some cover (e.g. remnant bushland, urban fringe, rank grass and weed infestations). The project presents no additional risk to this species.

Threatened fauna within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	14-Apr-2013
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	1	24-Jul-2014
Lathamus discolor	swift parrot	e	CR	mbe	4	09-Oct-1995
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	8	16-Jun-2013

Unverified Records

No unverified records were found!

Threatened fauna within 500 metres

(based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
Discocharopa vigens	ammonite snail	e	CR		1	0	0
Litoria raniformis	green and gold frog	v	VU	n	1	0	0
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	0
Dasyurus maculatus	spotted-tailed quoll	r	VU	n	1	0	0
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	1	0	1
Antipodia chaostola	chaostola skipper	e	EN		1	0	0
Aquila audax	wedge-tailed eagle	pe	PEN	n	1	0	0
Tyto novaehollandiae	masked owl	pe	PVU	n	1	0	1
Perameles gunnii	eastern barred bandicoot		VU	n	1	0	1
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1
Lathamus discolor	swift parrot	e	CR	mbe	1	0	1
Prototroctes maraena	australian grayling	v	VU	n	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	1
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	2	0	0

Species known within 500 m

Four TSPA or EPBCA listed species has previously been reported from within 500 m of the property.

The closed woodland habitat and moderately sized trees on site (< 20 m high) offer no suitable foraging or nesting habitat for either tasmanian wedge-tailed eagle or white-bellied sea-eagle. While white gum (*Euclayptus viminalis*) is an important food plant for forty-spotted pardalote[6], and is present on site, it is co-dominant with white peppermint *Eucalyptus pulchella*. Any occurrence of this bird here is highly unlikely, and transient at best. Given the proximity of blue gum *Eucalyptus globulus* in nearby Lambert's Gully, and the occurrence on site of small black gum *Eucalyptus ovata*, detailed consideration of the potential for impact on Swift Parrot *Lathamus discolour* has been undertaken.

4 Natural Values Report: nvr_2_19-Jun-2017
5 Natural Values Report: nvr_2_19-Jun-2017
6 Forty-spotted Pardalote *Pardalotus quadragintus* Threatened Species Listing Statement

Swift parrot (*Lathamus discolor*)

This small, fast-flying parrot occurs in eucalypt forests in south-eastern Australia and Tasmania. Swift parrots breed in Tasmania and migrate to mainland Australia in autumn, where they are semi-nomadic, foraging on flowering eucalypts in Victoria and New South Wales. In Tasmania, the breeding range is largely restricted to the southeast coast within the range of Tasmanian blue gum (*Eucalyptus globulus*), which is its main nectar food source. They also forage on the nectar of black gum (*Eucalyptus ovata*) flowers. The status of the swift parrot has been upgraded (6 May 2016) to critically endangered under the EPBCA and is listed as endangered under the TSPA. Residential developments in bushland present a risk to the conservation of the species through direct habitat loss by tree removal and from bird collision with house windows and other built structures[7].

Collision Risk: In terms of collisions with windows, risks may be divided into two categories: a) reflections, and b) transparency[8].

a) When seen from the outside of a building, glass often has a reflective quality, mirroring the sky, trees and other features. Some types are worse than others. The reflectivity increases when glass is seen at an oblique angle, regardless of whether the glass is transparent or tinted. Birds do not understand that a reflection is false. Instead, they perceive a continuation of their habitat and try to fly to it, resulting in collisions.

b) Birds cannot differentiate between clear glass and unobstructed airspace; it is invisible to them. Glass lobbies, balconies, windows or glass walls that meet at a corner, or aligned windows (windows installed parallel to each other, on opposite sides of the building) provide an unobstructed view of habitat and sky on the other side of the building and are particularly dangerous: birds perceive a passageway and attempt to fly straight through. Also, transparent window panes mimic tinted reflective panes when little or no light is visible behind them.

The prevention of swift parrot collision has thus become a significant issue for local councils within the Greater Hobart area. Accordingly, the site was assessed for potential foraging and nesting trees, and for potential flight paths though the proposal area. This was done with reference to the original site plans and aerial images of the surrounding area. Assessment of the updated design was done by consulting those plans. In the initial survey, properties adjacent to the site were assessed visually from the site. Figure 3 illustrates the development footprint relative to the approximate locations of the five *Eucalyptus ovata* on site (22, 24, 32, 36 and 38 cm DBH). The lack of tree hollows and trees with a dbh > 70 cm makes this site unsuitable for nesting for this species. The details of the *E. ovata* and all other *Eucalyptus* species on site are presented in Appendix B.

7 Pfennigwerth, S. 2008. Minimising the swift parrot collision threat: guidelines and recommendations for parrot-safe building design. Report prepared for the World Wide Fund for Nature Australia and the Threatened Species Network (Australia).
8 Pfennigwerth, S - as above

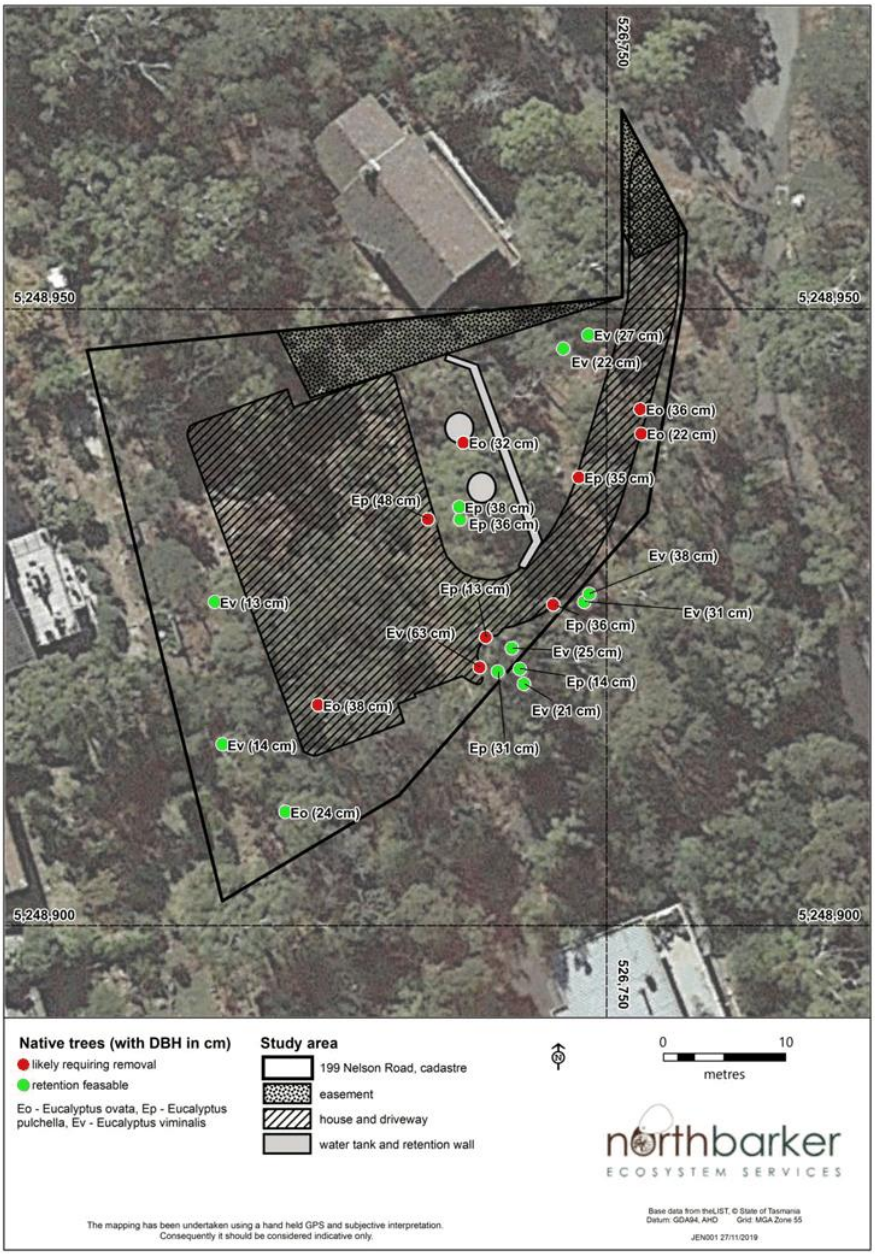


Figure 3. The position and size of the *Eucalyptus* species on site and the development footprint (estimates of retention viability based on proximity to footprint)

3. Impact Assessment and Scope for Mitigation

It is understood that the previous house design was cost prohibitive; accordingly, a new and more cost-effective design has been selected, that has a larger impact footprint on the ground. This increase in impact is not considered significant in the context of the area: this is a developed residential area, and although larger areas of native vegetation remain in places nearby, the current development location is hemmed by residences on all sides (Figure 4).

Figure 4 Aerial image showing the location of 199 Nelson Road relative to surrounding residences

Vegetation Communities

Eucalyptus pulchella forest and woodland (DPU) is not listed as threatened under either State or federal legislation; the proposal will have no impact on threatened vegetation communities and will impact a negligible extent of DPU.

Threatened Flora Species

No threatened species were found on site nor are likely to be present.

Threatened Fauna Habitat and Trees

Swift parrot

Potential threats for swift parrot are assessed in terms of 1) the loss of *Eucalyptus ovata* as a potential foraging resource; and 2) the collision risk posed by the building.

1) The loss of *Eucalyptus ovata*

Of the five *Eucalyptus ovata* on the site, it is expected that four will require removal (22, 32, 36 and 38 cm DBH). This in contrast to the original plan where a single tree was expected to be removed. The largest of the trees planned for removal has a DBH of 38 cm (calculated from twin trunks of 32 and 21 cm) and is showing signs of senescence. The FPA guidelines consider potential *E. ovata* foraging habitat for the swift parrot to primarily be those trees with a DBH ≥ 40 cm, and categorise habitat with trees smaller than this as negligible for foraging (although these do represent potential future foraging

trees)[9]. This low number of small to medium sized *E. ovata* is therefore unlikely to be a feeding site of significance for swift parrot, and the loss of these trees is highly unlikely to have a significant impact on this species.

2) Collision risk for swift parrot

It has been determined that the development will pose a low collision risk for birds moving across the site. In the previous design, some consideration was given to the potential for collision for birds to move between the *E. ovata* on the site. Given these trees will are now planned for removal this risk has been eliminated. Regardless, birds may still fly across the site and some consideration of the collision risk posed by the building must be considered.

The presence of >1 m wide eaves over the glazed areas on the eastern side of the building (Figure 5) are in line with accepted methods of muting reflections and mitigating collision risk[10]. The risk of collision for birds from the west is negligible as the building is set into bank on the western side. The southern side of the house only has windows on the lower level, and this is not expected to pose a significant risk. Windows on upper level on the northern side are not covered by eaves and do potentially pose some risk of collision from reflectivity. Given the number of dwellings to the north and northeast this however may not be a regular flight path; regardless, the inclusion of eaves or other methods (see below) over these windows would reduce the risk of collision.

The overall risks of collision are also considered low as no suitable habitat trees were noted to potentially draw birds across the site in the immediate surrounds (within ~ 100 m of the site). More distant *Eucalyptus* were visible from the southwest corner, but the alignment of the windows facing this direction is such that transparency risks are negligible should birds ever traverse the site from these trees. Trees visible from the northern boundary may draw birds across the site from that direction, and the suggested use of eaves or other methods over windows (see below) on the upper north-facing side will reduce the risk of collision from this direction.

Figure 5. The building design of the east (front) showing the extent of the pergolas and eaves over glazed areas (from Modern Architecture Practice, ref: BA01)

Overall, the collision risk for swift parrot for this development is low. The alignment of windows, with reference to surrounding trees and the potential for movement of birds, is such that the risk is low to negligible. The windows on the upper north-facing side do however pose some collision risk potential due to the lack of eaves on this side. To further

[9] Forest Practices Authority Fauna Technical Note No. 3: Identifying swift parrot breeding habitat
[10] Pfennigwerth – as above

reduce the risk associated with this face, the proponent should consider one of the following measures for this window[11]:

- Use acid-etched, opaque patterned, translucent, frosted, sandblasted, ribbed, corrugated, printed, stippled or fritted glass, or translucent polycarbonate sheets;
- Use tinted/coloured glass, or leadlight ('stained') glass windows;
- Use glass with diachroic or plastic film coatings;
- Attach external screens to operable windows;
- Attach exterior decorative grilles, provided the sections are less than 28 cm wide (10 cm/handprint width being optimal);
- Install internal screens as close to the glass as possible so as to maximise the noise projected through the window (this technique works best on non-reflective glass); and/or
- Use smaller panes of glass, multiple-paned glass or glass bricks. The horizontal and vertical glazing and bars will create a matrix visible to birds, provided the panes are no more than 28 cm wide (10 cm/handprint width being optimal).

Additional trees for removal

In addition to the four *Eucalyptus ovata*, three *E. pulchella* (35, 48 and 13 cm DBH), and one *E. viminalis* (63 cm) will be removed (and a single dead *E. pulchella*). None of these contained hollows or are considered likely to offer habitat for threatened species.

Weeds

Earthworks on site are likely to stimulate germination of weeds. The use of machinery and vehicles during construction also brings an increased risk of spreading existing weeds within the locality. Post construction works, if weed infestations still occur they should be managed to prevent their spread.

4. *Hobart Interim Planning Scheme 2015*

The property is zoned low density residential and is subject to the Biodiversity Code E10.

Biodiversity Code E10

As the property occurs within the Biodiversity Protection Area the proposal must meet provisions of Biodiversity Code E10, which applies to development involving clearance and conversion or disturbance of native vegetation. The proposal does not meet any of the criteria providing exemption from this code.

Vegetation community: The vegetation on 199 Nelson Rd accords to *Eucalyptus pulchella* forest (DPU). This conforms to the definition of a **Low Priority Biodiversity Value** under vegetation communities in Table E10.1 (Priority Biodiversity Values) of the code, being one of 'all other native vegetation communities".

Fauna habitat: Five foraging trees (black gums) for swift parrot, a species listed as endangered at the State level and critically endangered nationally (EPBCA), were found on site. There are numerous observation records of this bird species from the broader vicinity[12], so it is quite likely that birds would utilise the black gums from time to time when they are flowering. While the number of *E. ovata* on site is relatively low, and the trees are

11 Pfennigwerth, S. 2008. Minimising the swift parrot collision threat: guidelines and recommendations for parrot-safe building design. Report prepared for the World Wide Fund for Nature Australia and the Threatened Species Network (Australia).
12 Natural Values Report: nvr_2_19-Jun-2017

only small to medium in size (only two of the four healthy trees have a diameter at breast height > 30 cm), the species is nonetheless a food source for the swift parrot[13]. Accordingly, applying Table 10.1 from the Code, the black gums on site constitute a **Moderate Priority Biodiversity Value** for fauna habitat.

In terms of compliance, and given these biodiversity values, **Acceptable Solutions** in the Code are detailed as follows:

Clearance and conversion or disturbance must comply with **one** of the following:

(a) be within a Building Area on a plan of subdivision approved under this planning scheme.

(b) the development is for a single dwelling on an existing lot within the Low Density Residential Zone, Rural Living Zone or Environmental Living Zone and:

i. clearance and conversion or disturbance is **confined to Low Priority Biodiversity Values**;

ii. the area of clearance and conversion is no more than 3,000 m2;

iii. the area of disturbance is no more than 3,000 m2;

(c) the development is other than for a single dwelling on an existing lot within the Low Density Residential Zone, Rural Living Zone or Environmental Living Zone and:

i. clearance and conversion or disturbance is confined to Low Priority Biodiversity Values;

ii. the area of clearance and conversion is no more than 1,000 m2;

iii. the area of disturbance is no more than 1,000 m2;

The proposed single dwelling does not meet the specifications of **(a)** or **(c)**, and given the values on site exceed what is specified in **(b) i**, the proposal does not comply with any of the Acceptable Solutions.

The development must therefore meet the "Performance Criteria" P1 for the clearance and conversion or disturbance of Moderate Priority Biodiversity Values in the form of the five *E. ovata*, as well as the criteria for Low Priority Values in relation to the DPU. The relevant criteria are listed below, with explanations as to how each criterion is met in italics – note criteria i and ii apply to both *E. ovata* and DPU, but criterion iii only applies to *E. ovata*:

i. development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;

The relatively small lot provides very limited opportunity for alternative cost-effective footprints that could be located in such a way as to avoid impact to the priority values on the site. It is understood that the previous design, that had a smaller footprint (but an additional level) and impacted only one E. ovata, *was prohibitively expensive. In addition, the extra level on the house came with the potential for increased risk of bird collision with windows. Given the relatively small lot size, options to avoid priority biodiversity values are therefore constrained by the additional cost of building an additional level. Additionally, the topography is relatively steep requiring upslope and downslope works that limits the potential to reduce the size of the footprint. In the context of the cost constraints of the development and the topography this development is able to satisfy this criterion.*

13 Webb, M.H., Holdsworth, M.C. & Webb, J. (2012) Nesting requirements of the endangered Swift Parrot (*Lathamus discolor*). Emu, 112, 181-188.

ii. impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;

Bushfire hazard management on site does not require the removal of all trees within the property. Thus, it is possible to reduce impacts to the moderate priority value by avoiding removal of the remaining E. ovata (and potentially other trees beyond the direct development footprint). The obvious signs of anthropogenic disturbance and presence of introduced species in the understorey means that fuel reduction at this level will not additionally impact the quality of the extant DPU to a meaningful degree. Thus, the prescribed requirements for bushfire hazard management on site will not contravene this criterion in relation to minimising impacts to E. ovata and DPU.

iii. remaining moderate priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values;

In order to meet this criterion, the remaining E. ovata beyond the direct impact footprint must be retained during works and bushfire hazard management. To prevent inadvertent impacts during works, this tree should be specified on contractors plans and, if necessary, marked as an exclusion zone on ground, taking into consideration any potential impacts within the root protection zone (12 x dbh).

Appendix A: Vascular Plant Species List

Species list - project: JEN001

Status codes:

ORIGIN	NATIONAL SCHEDULE	STATE SCHEDULE
i - introduced	EPBC Act 1999	TSP Act 1995
d - declared weed WM Act	CR - critically endangered	e - endangered
en - endemic to Tasmania	EN - endangered	v - vulnerable
t - within Australia, occurs only in Tas.	VU - vulnerable	r - rare

Sites:

1 DPU - E526730, N5248934 22-06-2017 Richard White

Site	Name	Common name	Status
	DICOTYLEDONAE		
	ASTERACEAE		
1	*Bedfordia salicina*	tasmanian blanketleaf	en
1	*Cirsium vulgare*	spear thistle	i
1	*Senecio minimus*	shrubby fireweed	
	BORAGINACEAE		
1	*Echium candicans*	pride of madeira	i
1	*Myosotis sylvatica*	garden forgetmenot	i
	CASUARINACEAE		
1	*Allocasuarina verticillata*	drooping sheoak	
	EPACRIDACEAE		
1	*Astroloma humifusum*	native cranberry	
	EUPHORBIACEAE		
1	*Beyeria viscosa*	pinkwood	
	GENTIANACEAE		
1	*Centaurium erythraea*	common centaury	i
	MIMOSACEAE		
1	*Acacia mearnsii*	black wattle	
1	*Acacia melanoxylon*	blackwood	
	MYRTACEAE		
1	*Eucalyptus ovata var. ovata*	black gum	
1	*Eucalyptus pulchella*	white peppermint	en
1	*Eucalyptus viminalis subsp. viminalis*	white gum	
1	*Melaleuca diosmifolia*	green honey myrtle	i
1	*Melaleuca hypericifolia*	red-flowering paperbark	i
	PITTOSPORACEAE		
1	*Bursaria spinosa subsp. spinosa*	prickly box	
	POLYGALACEAE		
1	*Polygala myrtifolia*	myrtleleaf milkwort	i
	PROTEACEAE		
1	*Grevillea arenaria*	spider flower	i
1	*Grevillea rosmarinifolia*	grevillea	i

	ROSACEAE		
1	*Cotoneaster franchetii*	grey cotoneaster	i
	SANTALACEAE		
1	*Exocarpos cupressiformis*	common native-cherry	
	SAPINDACEAE		
1	*Dodonaea viscosa subsp. spatulata*	broadleaf hopbush	
	MONOCOTYLEDONAE		
	CYPERACEAE		
1	*Lepidosperma laterale*	variable swordsedge	
1	*Lepidosperma sp.*	sword sedge	
	LILIACEAE		
1	*Agapanthus praecox subsp. orientalis*	agapanthus	i
	POACEAE		
1	*Austrostipa sp.*	speargrass	
1	*Poa sp.*	poa	
1	*Themeda triandra*	kangaroo grass	
	XANTHORRHOEACEAE		
1	*Lomandra longifolia*	sagg	

Appendix B: Details of *Eucalyptus* species found on site (bold font indicates individuals located too close to footprint for viable retention[14]

Species	DBH (cm)*	Notes	Easting	Northing
Eucalyptus ovata	**22**		**526753**	**5248940**
Eucalyptus ovata	**36**		**526753**	**5248942**
Eucalyptus ovata	**32**		**526738**	**5248939**
Eucalyptus ovata	**38**	**double trunk, signs of senescence**	**526727**	**5248918**
Eucalyptus ovata	24		526724	5248909
Eucalyptus pulchella	**35**		**526748**	**5248936**
Eucalyptus pulchella	**36**	**dead stump**	**526746**	**5248926**
Eucalyptus pulchella	36		526738	5248933
Eucalyptus pulchella	38		526738	5248934
Eucalyptus pulchella	**48**		**526736**	**5248933**
Eucalyptus pulchella	**13**	**double trunk**	**526740**	**5248923**
Eucalyptus pulchella	31		526741	5248921

[14] Based on our field inspection and not an arborists expert opinion

Eucalyptus pulchella	14		526743	5248921
Eucalyptus viminalis	22		526747	5248947
Eucalyptus viminalis	27		526749	5248948
Eucalyptus viminalis	31		526748	5248926
Eucalyptus viminalis	38	double trunk	526749	5248927
Eucalyptus viminalis	25		526742	5248923
Eucalyptus viminalis	21		526743	5248920
Eucalyptus viminalis	**63**		**526740**	**5248921**
Eucalyptus viminalis	13		526718	5248926
Eucalyptus viminalis	14		526719	5248915
Eucalyptus sp.	38	Dead	526739	5248939
Eucalyptus sp.	37	Dead	526734	5248909

*DBH (cm) is the diameter at breast height measured in centimetres.

Bushfire Attack Level (BAL) Report

Proposed Residence
199 Nelson Road
Mount Nelson, 7007

Date: 13 December 2019

Prepared For: S.F. & M.A. Connolly
1/28 Marlborough Street
SANDY BAY 7005

Prepared By: Andrew Strugnell
Another Perspective Pty. Ltd.
Level 1, 67 Letitia Street
North Hobart, TAS 7000
Ph. (03) 6231-4122
Accreditation No: BFP-136 (1, 2, 3A)

Table of Contents

Version	Prepared By	Signature	Date
1	Andrew Strugnell		17/07/2017
2	Andrew Strugnell		13/12/2019

Project Number: BAL2017-103

Disclaimer

It should be noted that the measures contained in AS3959-2009, used and referenced in this report, cannot and do not guarantee that a building will survive a bushfire event. This is due to the unpredictability of bushfire and variability of conditions at the time of any bushfire event.

All reasonable steps have been taken to ensure that the information gathered for, and contained in, this report is accurate and reflects the conditions at, and around, the time the assessment was carried out.

This report was prepared by Andrew Strugnell of Another Perspective Pty. Ltd. and contains information sourced from LIST (DPIPWE), photos by Another Perspective Pty. Ltd. and other information provided by the client.

EXECUTIVE SUMMARY

Site Details

Title Reference	CT143020/1
Property ID	3389752
Address	199 Nelson Road, MOUNT NELSON 7007
Owner	S.F. & M.A. Connolly
Planning Scheme	Hobart Interim Planning Scheme 2015
Municipality	City of Hobart
Area	+/- 1504 sqm
Zoning	12.0 Low Density Residential
Surrounding Zoning	12.0 Low Density Residential (surrounding) 29.0 Environmental Management (E, SE)

The site assessment, BAL report and BHMP have been revised for this project due to a substantial change in the design.

The purpose of this assessment is to provide a BAL (Bushfire Attack Level) and a Bushfire Hazard Management Plan for the proposed class 1a residence (revised design) to be constructed at 199 Nelson Road in Mount Nelson.

At the time of writing this report the development site is deemed to be in a bushfire prone area based on the classified bushfire prone vegetation within 100m of the property boundary.

The proposed residence has been assessed as having a bushfire attack level of **BAL 29** given the setbacks to the assessed vegetation. The proposed residence is to comply with the construction requirements specified in Section 7 of AS3959:2009.

A reticulated firefighting water source is available from the lower side of the driveway accessing no's 201-213 Nelson Road with the closest hydrant complying with the required 120m hose lay.

There are no specific design or construction requirements for property access as per table 4.2A of the "*Directors Determination – Requirements for Building in Bushfire-Prone Areas – Building Act 2016*".

INTRODUCTION

This report has been prepared in accordance with methods and procedures defined in AS3959-2009 *Construction of Buildings in Bushfire Prone Areas*. The report describes the subject land, the surrounding land and defines the slope and vegetation on the areas of land that may provide a bushfire threat to life and property within this proposed development. Recommendations have been made, where appropriate, to assist in meeting the acceptable development solutions specified in the *Building Act 2016* – Directors *Determination – Requirements for Building in Bushfire-Prone Areas V2, Dated 23 February 2017.*

SITE LOCATION & DESCRIPTION

The proposed development site is located at 199 Nelson Road, Mount Nelson in the City of Hobart municipality. The lot is approximately 1504 sqm in area, is zoned 12.0 Low Density Residential under the City of Hobart Interim Planning Scheme 2015. The site is access by a formed public bitumen road (Nelson Road) and has a north easterly aspect. The site is surrounded by other land zoned 12.0 Low Density Residential with an area of bushland reserve zoned 29.0 Environmental Management to the east and south east. There is a reticulated firefighting water supply available to the site. There is a managed firebreak (approx. 10m wide separating the reserve from the Low-Density Residential land.

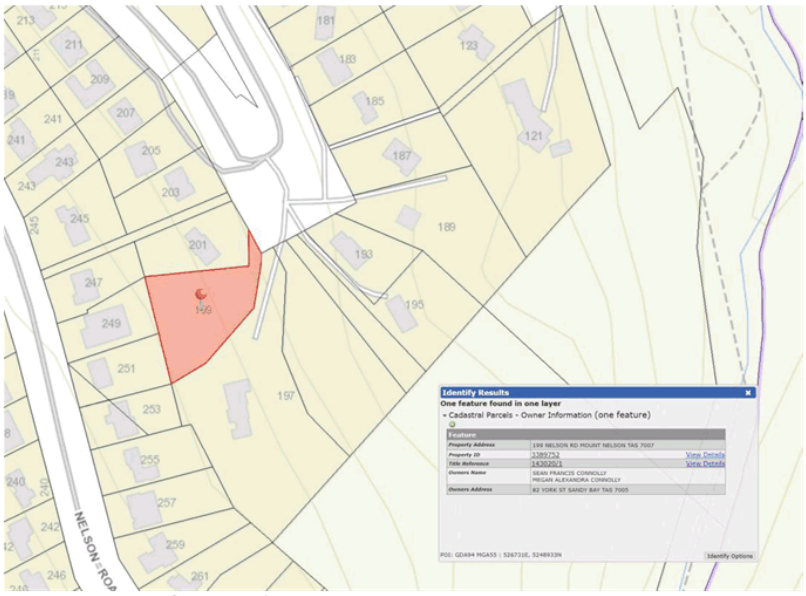


Figure 1. Location of CT143020/1

THE PROPOSED DEVELOPMENT

The proposal is for a class 1a residence (revised design) to be constructed at the site known as 199 Nelson Road in Mount Nelson.

BUSHFIRE ATTACK LEVEL (B.A.L.) ASSESSMENT

The aerial photo shown below (Figure 2) shows the extent of vegetation on the development site and the adjacent properties with 100m of the development site.

Figure 2. Aerial Image of Vegetation on development site & adjacent land

The bushfire prone vegetation types outside of the proposed development area were assessed (refer to Table 1) and described as Grassland (G22), Open Scrub (D14), Woodland (B05) and Open Forest (A03). The vegetation has been classified in accordance with AS3959-2009 Section 2, Table 2.3 and figure 2.3 for vegetation within 100m of the development site boundary.

Table 1 – Classified vegetation with 100m of the proposed dwelling as determined during site visit conducted on 27/06/2017, 10/07/2017, 3/12/2019 & 10/12/2019.

199 Nelson Road, MOUNT NELSON					MINIMUM BAL 29	version 2
	DISTANCE	VEGETATION	SLOPE UNDER	ASSESSED BAL	SETBACK	
AZIMUTH	TO VEG.	CLASSIFICATION	VEG. (US/DS)		REQUIRED	NOTES
NORTH	0-7m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	7-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
NORTH EAST	0-9m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	9-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
EAST	0-17m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	17-43m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
	43-70m	Open Forest (A03)	20° D/S	BAL 29	37m	
	70-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
SOUTH EAST	0-5m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	5-38m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
	38-75m	Woodland (B05)	8° D/S	BAL 12.5	15m	
	75-84m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 f - Fire Break
	84-100m	Open Forest (A03)	<5° D/S	BAL 12.5	19m	
SOUTH	0-9m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	9-13m	Grassland (G22)	U/S	BAL 29	6m	
	13-33m	Open Scrub (D14)	U/S	BAL 29	13m	
	33-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
SOUTH WEST	0-12m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	12-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
WEST	0-9m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	9-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed
NORTH WEST	0-10m	Low Threat	N/A	BAL LOW - Hazard Management Area	N/A	2.2.3.2 e,f - H.M.A.
	10-15m	Grassland (G22)	U/S	BAL 19	6m	
	15-100m	Low Threat	N/A	BAL LOW - Managed	N/A	2.2.3.2 e,f - Managed

Legend: U/S = upslope, D/S = Downslope

As per table 2.1 of AS3959-2009 the fire index of 50 (FDI50) used to determine the bushfire attack levels for this proposal. In accordance with Clause 2.2.6 and Table 2.4.4 of AS3959-2009 the bushfire attack levels for each azimuth were determined.

CONCLUSIONS & RECOMMENDATIONS

The proposed class 1a dwelling (revised design), has been assessed as having a bushfire attack level of BAL 29, the setbacks to the assessed vegetation. The dwelling is to comply with the construction requirements specified in Section 7 of AS3959:2009.

The "Hazard Management Area" shown in red on the Bushfire Hazard Management Plan is to be maintained to "minimal fuel condition" as specified in section 2.2.3.2 (f) of AS3959:2009.

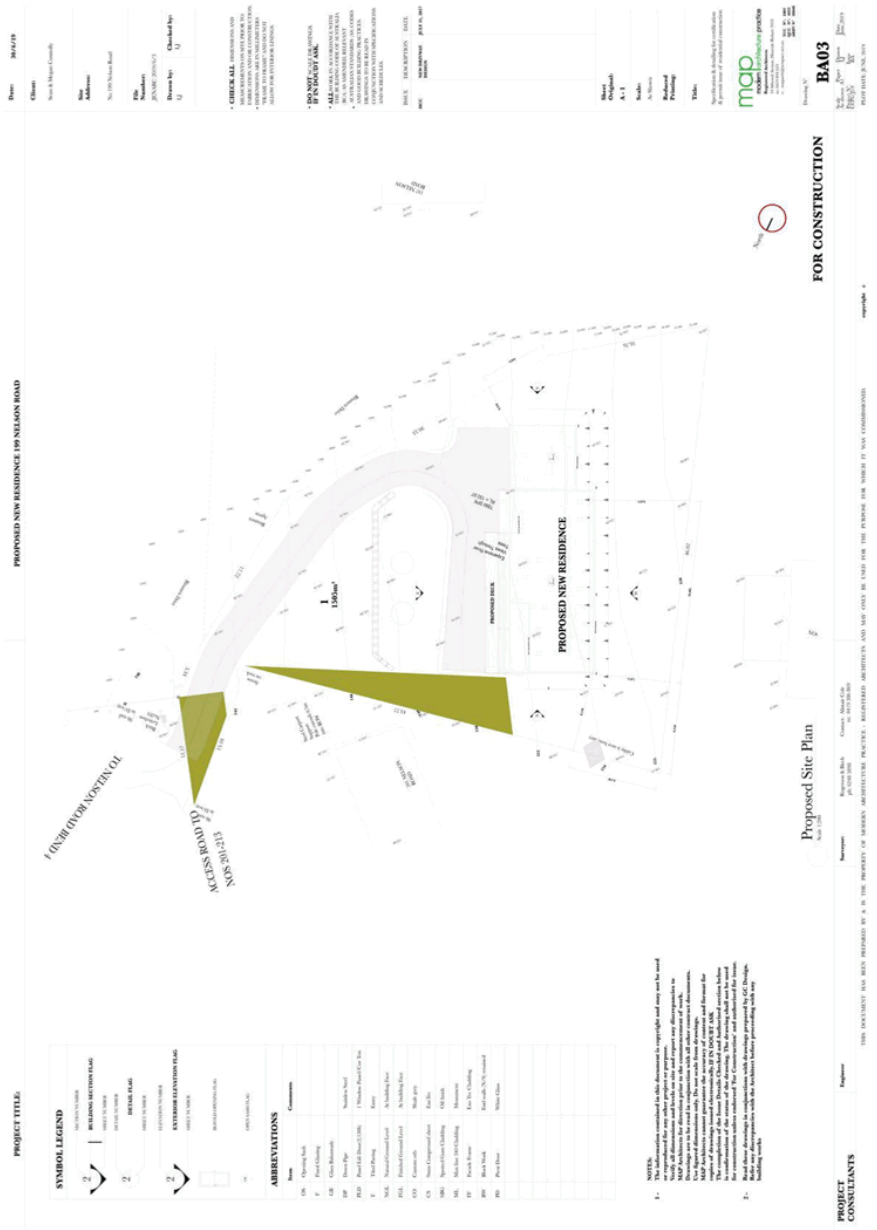
The following details outline some of the things that can be done to maintain the site.

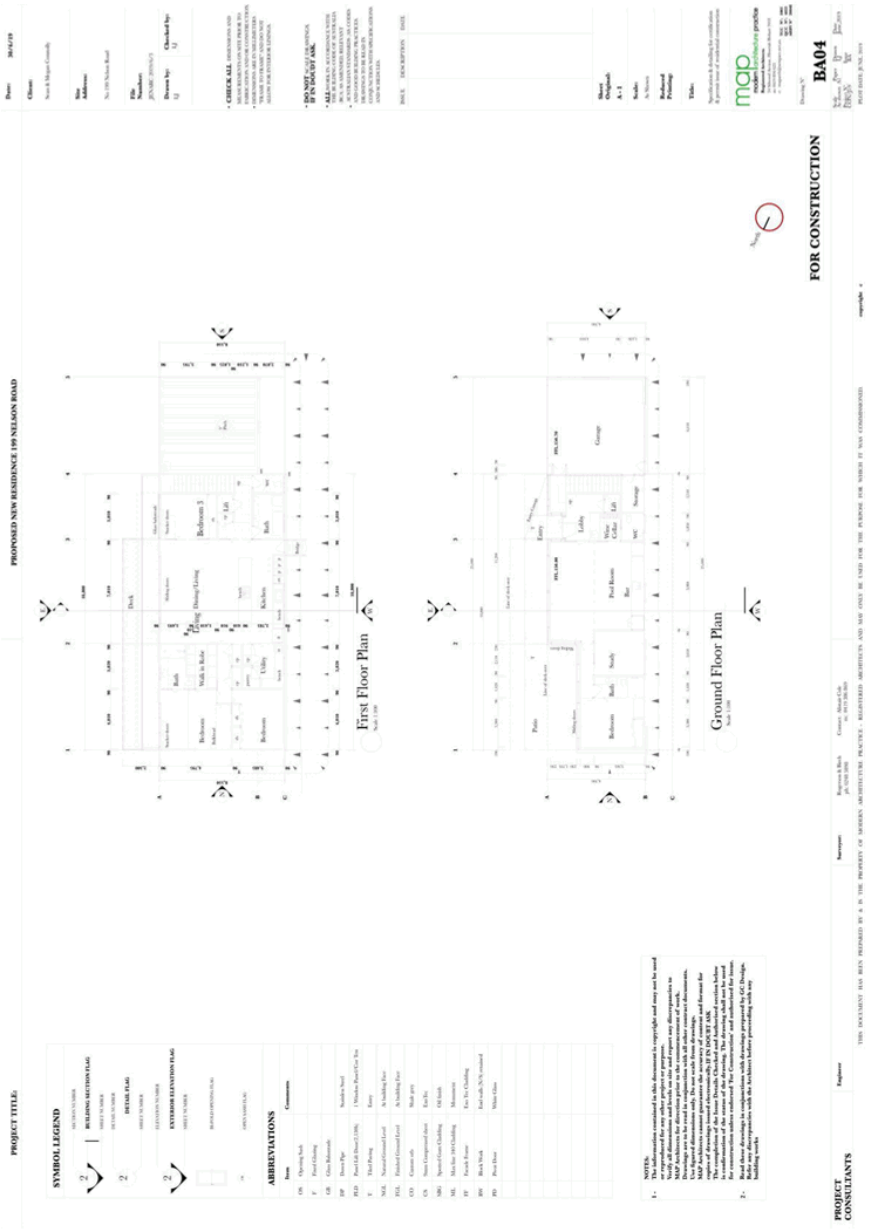
- Eliminate where possible any flammable material immediately adjacent to the proposed structure, such as flammable plants, mulch & wood chips, wood piles etc.
- Include non-flammable areas such as paths driveways and well-kept short grass areas.
- Create windbreaks and radiation shields where appropriate using no combustible materials and low flammability hedges and plants. Not all trees in a low fuel area need to be removed as some will provide natural wind breaks and some shielding from direct heat radiation.
- Maintain vertical separation of tree canopies from the ground through appropriate pruning of vegetation and removal of dead and dry fallen leaves / bark & twigs.

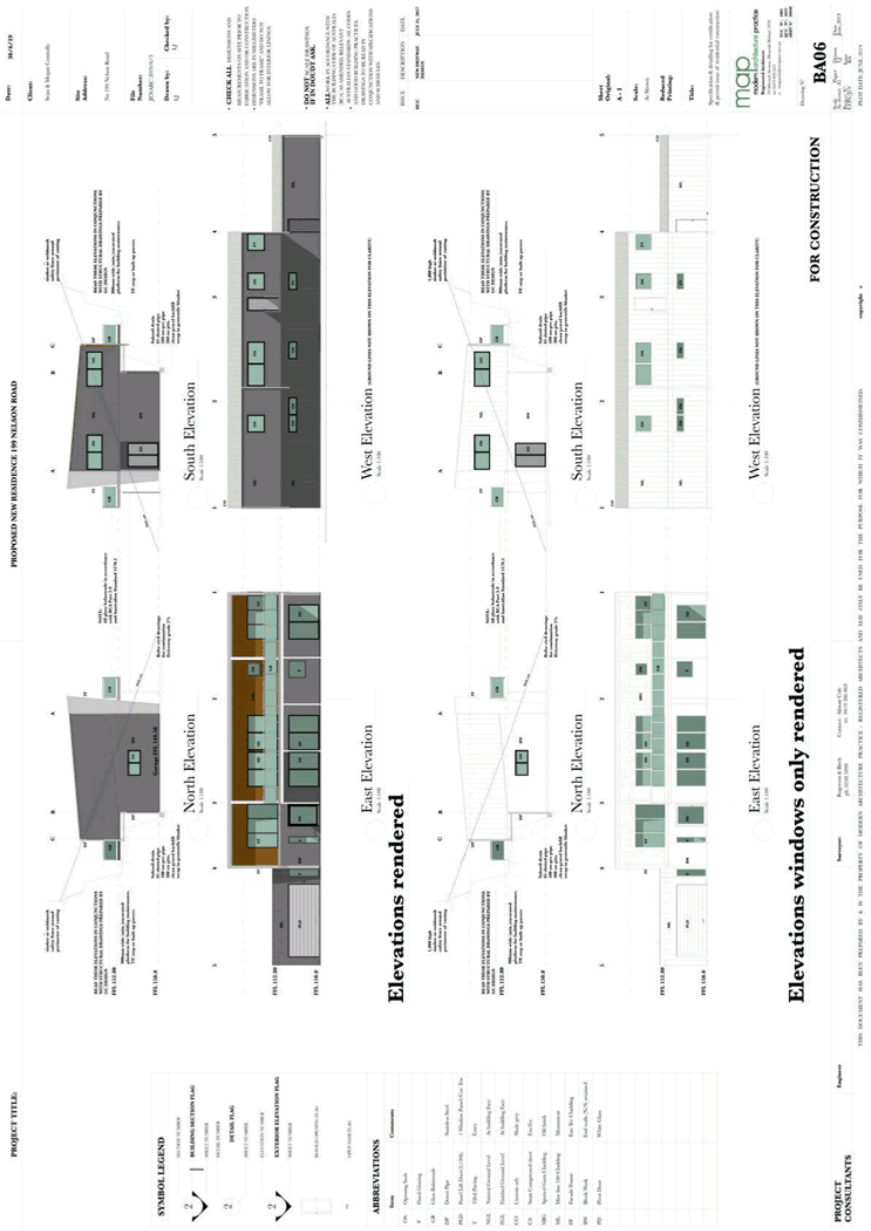
A reticulated firefighting water source is available in Nelson Road with the closest hydrant complying with the required 120m hose lay.

There are no specific design or construction requirements for property access as per table 4.2A of the "*Directors Determination – Requirements for Building in Bushfire-Prone Areas – Building Act 2016*".

Appendix 1 – Plans




PROPOSED NEW RESIDENCE 199 NELSON ROAD
First Floor Plan
Ground Floor Plan
FOR CONSTRUCTION
BA04


PROPOSED NEW RESIDENCE 199 NELSON ROAD
Elevations rendered
Elevations windows only rendered
FOR CONSTRUCTION
BA06
North Elevation
South Elevation
East Elevation
West Elevation
SYMBOL LEGEND
ABBREVIATIONS

Appendix 2 – Vegetation Classification Images

Photo 1 – NORTH

Photo 2 – NORTH

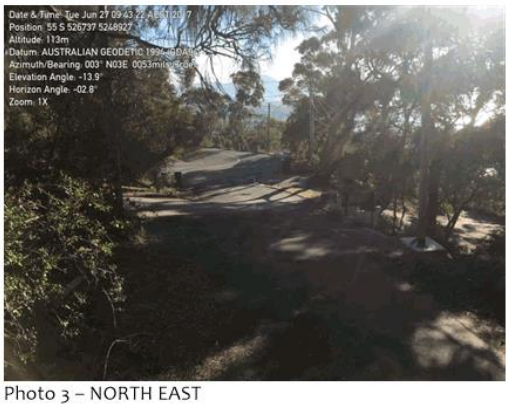


Photo 3 – NORTH EAST

Photo 4 – NORTH EAST


Photo 5 – NORTH EAST


Photo 6 – EAST

Photo 7 – EAST


Photo 8 – EAST


Photo 9 – EAST

Photo 10 – EAST

Photo 11 – SOUTH EAST

Photo 12 – SOUTH EAST

Photo 13 – SOUTH EAST

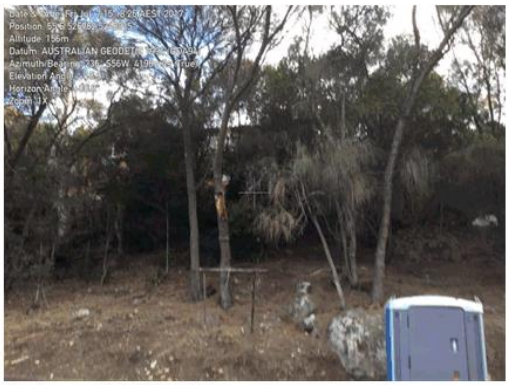


Photo 14 – SOUTH EAST

Photo 15 – SOUTH EAST

Photo 16 – SOUTH EAST

Photo 17 – SOUTH EAST

Photo 18 – SOUTH EAST

Photo 19 – SOUTH

Photo 20 – SOUTH

Photo 21 – SOUTH WEST

Photo 22 – WEST

Photo 23 – NORTH WEST

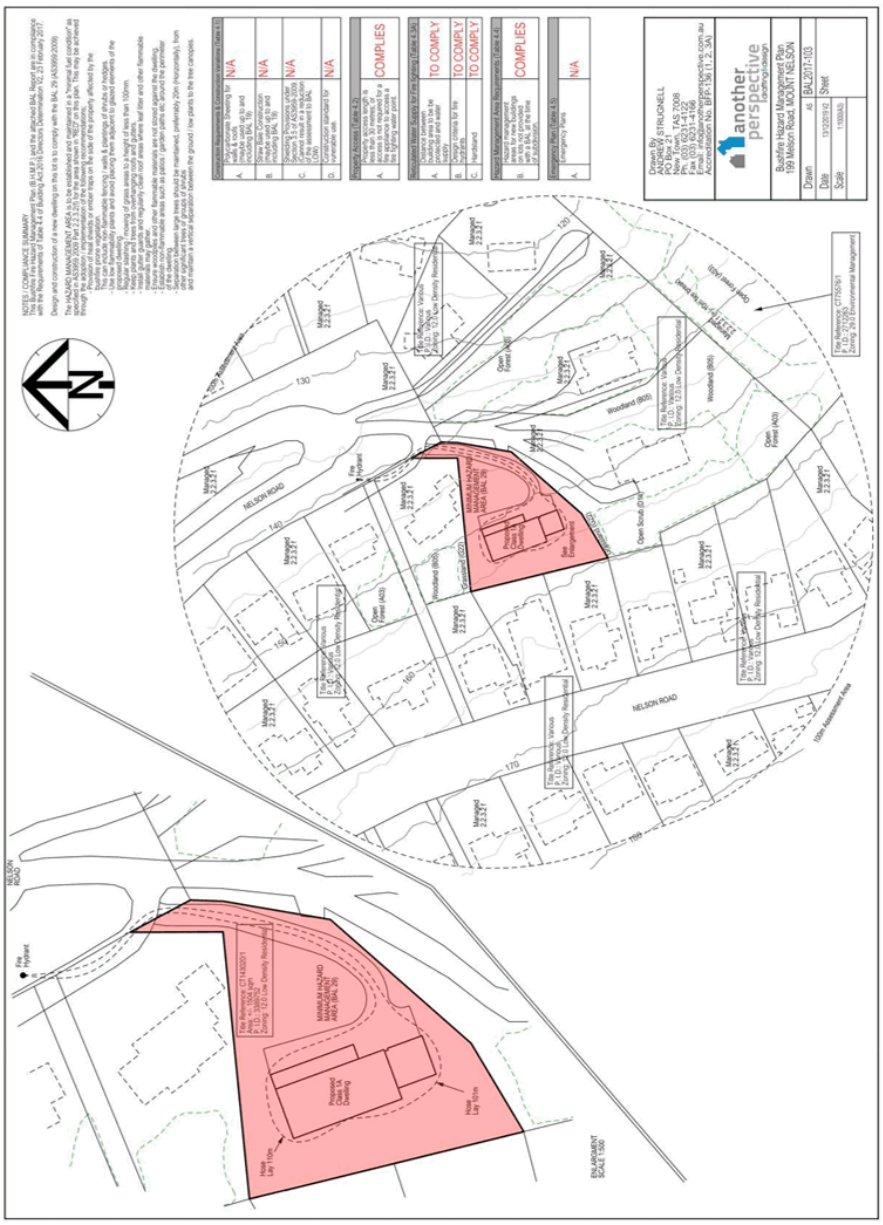
Photo 24 – ACCESS

Photo 25 – HYDRANT


Photo 26 – HYDRANT


Photo 27 – HYDRANT

Appendix 3 – Bushfire Hazard Management Plan (B.H.M.P.)



REFERENCES

"*AS3959-2009 – Construction of buildings in bushfire prone areas*" (incorporating amendments 1, 2 & 3)

"*Building for Bushfire – Planning and Building in Bushfire-Prone Areas for Owners & Builders*" – (TFS Dec. 2013)

"*Guidelines for Development in Bushfire Prone Areas of Tasmania*" – (TFS)

"*Bushfire-Prone Areas Advisory Note 01-2014*" – (TFS – V2 - April 2014)

"*Bushfire-Prone Areas Advisory Note 02-2014*" – (TFS – V2 - April 2014)

"*Bushfire-Prone Areas Advisory Note 03-2014*" – (TFS – V1 September 2014)

"*Bushfire Hazard Advisory Note 04-2016*" – (TFS - V2 February 2017)

"*Bushfire Hazard Advisory Note 05-2017*" – (TFS – V1 February 2017)

"*Bushfire Emergency Planning Guidelines*" – (TFS – V1 March 2016)

"*Building Act 2016 – Directors Determination – Requirements for Building in Bushfire-Prone Areas*" – (Director of Building Control –V2 Dated 23 February 2017)

"*Tasmanian Fire Service Water Supply Signage Guideline*" – (TFS – V1 Dated February 2017)

"*Part 1A – Tasmanian Building Regulations 2014*"

"*Building Act 2016*"

Form 55 – Certificate of Qualified Person

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: S.F. & M.A. Connolly *Owner /Agent*
1/28 Marlborough Street *Address*
SANDY BAY 7005 *Suburb/postcode*

Qualified person details:

Qualified person: Andrew Strugnell
Address: PO Box 21 Phone No: 03 6231-4122
NEW TOWN 7008 Fax No: 03 6231-4166
Licence No: BFP-136 (1, 2, 3A) Email address: info@anotherperspective.com.au

Qualifications and Insurance details: Certificate of Attainment – "Development and Building in Bushfire Prone Areas Short Course" – UTS:CLG (Centre for Local Government)
Professional Indemnity Insurer – Aon Risk Services – Catlin Australia P/L
Policy No. 1252594
(description from Column 3 of the Director of Building Control's Determination)

Speciality area of expertise: Bushfire Hazard Assessment *(description from Column 4 of the Director of Building Control's Determination)*

Details of work:

Address: 199 Nelson Road Lot No: 1
MOUNT NELSON 7007 Certificate of title No: 143020

The assessable item related to this certificate: Bushfire Attack Level (BAL) assessment And Bushfire Hazard Management Plans (B.H.M.P.)
(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: Bushfire Hazard *(description from Column 1 of Schedule 1 of the Director of Building Control's Determination)*

This certificate is in relation to the above assessable item, at any stage, as part of - *(tick one)*

building work, plumbing work or plumbing installation or demolition work: [x]

or

a building, temporary structure or plumbing installation: [ ]

In issuing this certificate the following matters are relevant –

Documents:	BAL2017-103 Report V2 dated 13/12/2019 BAL2017-103 B.H.M.P. V2 dated 13/12/2019
Relevant	Bushfire Attack Levels (BAL) in accordance with AS3959-2009 Section 2
References:	*Australian Standard AS3959-2009* *Building Act 2016 Directors Determination – Requirements for Building in Bushfire-Prone Areas – V2 23 February 2017* (Director of Building Control) *Guidelines for Development in Bushfire Prone Areas of Tasmania* (TFS) *Bushfire Prone Areas Advisory Notes 01-2014, 02-2014, 03-2014* (TFS) *Bushfire Hazard Advisory Note 04-2016, 05-2017* (TFS) *Bushfire Emergency Planning Guidelines* (TFS March 2016) *"Tasmanian Fire Service Water Supply Signage Guideline"* – (TFS February 2017) *Part 1A – Tasmanian Building Regulations 2014*

Substance of Certificate: (what it is that is being certified)

Assessment of the Bushfire Attack Level (BAL) to AS3959-2009 resulting in a BAL 29

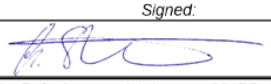
Scope and/or Limitations

Scope:
This report was requested to identify the Bushfire Attack Level (BAL) for a class 1a residence at 199 Nelson Road in Mount Nelson. All information, advice and fire suppression measures are in relation to compliance with *Building Act 2016 Directors Determination – Requirements for Building in Bushfire-Prone Areas V2 dated 23 February 2017* issued by the Director of Building Control, *Australian Standards AS3959-2009, Construction of buildings in bushfire-prone areas*, *Bushfire Prone Areas Advisory Notes 01-2014, 02-2014, 03-2014, Bushfire Hazard Advisory Note 04-2016, 05-2017, "Tasmanian Fire Service Water Supply Signage Guidelines"* issued by Chief Officer Tasmanian Fire Service (TFS) and *Part 1A of the Tasmanian Building Regulations 2014*.

Limitations:
The inspection and resulting report were untaken on the understanding that

- The report deals only with the potential bushfire risk and that all other statutory assessments are outside the scope of the attached report.
- The attached report only identifies and classifies the vegetation at the time of the site inspection and cannot be relied upon for any other / future development.
- The possible impacts of any future development or changes in vegetation have not been taken into consideration.

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		BAL2017-103-v2	13/12/2019

Director of Building Control – Date Approved 1 January 2017*Building Act 2016* - Approved Form No. 55

• STRUCTURAL • CIVIL • BUILDING SURVEYING • GEOTECHNICAL • HYDRAULICS • BRIDGES • HERITAGE

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PO BOX 143 NORTH HOBART TAS 7002

REF NO: SR1896

DATE : 21ST AUGUST 2017

AS2870 SITE CLASSIFICATION REPORT

PROJECT: 199 NELSON ROAD, MOUNT NELSON

CLIENT : Sean & Megan Connolley - (Greg Carpenter)

GENERAL OBSERVATIONS

The site has a steep slope of 20^0-25^0.
The site cover is bush and trees
The weather on the day was fine.

CORE LOG

Soil profile for natural ground is:
One type of soil were found:
Type A – Layer of top soil and rock fragments approximately 0.30m thick.

Our bores terminated on highly weathered dolerite approximately 0.30m below natural ground level.

GEOLOGY – JURASSIC : Dolerite, fine to medium grained, hard, often strongly jointed.
Dominant Clays - Brown clay, medium to high plasticity.

SOIL PROPERTIES
LIQUID LIMIT.....50 – 80 %
PLASTICITY INDEX.....27 – 50 %
LINEAR SHRINKAGE..... 14 – 23 %

CLASSIFICATION

Natural site is classified in accordance with AS 2870 to be class A, we recommend footings bear on natural dolerite.

WIND CLASSIFICATION

The site is classified in accordance with the AS 1170 part 2 and the residential wind code AS4055 to be class N3 with a design wind velocity of 41 m/s.

GEOGRAPHIC REGION – A
TERRAIN CATEGORY – TC2.5
SHIELDING – PS
TOPOGRAPHIC CLASSIFICATION – T3

SLOPE STABILITY

I have checked the publicly available records and have obtained that site falls within a medium hazard due to debris flow susceptibility (mountain source) concerning reported instability problems in the immediate area of the site.

EROSION

The clay materials which underline the site are dispersive in nature and therefore are susceptible to erosion. However the site in general has a good grass covering. No evidence of erosion was observed at the proposed house site. If vegetation is stripped erosion will take place.

SITE MAINTENANCE RECOMMENDATION

The future performance of the structure can be affected by unsuitable garden practices. Please refer to the enclosed copy of the C.S.I.R.O Information Services Brochure No BTF-18, for information.
We recommend a cut off drain be provided around the proposed structure.

CAUTION

This report is based on site as inspected. Changes to the site such as major excavation or fill will alter its classification.

Representative samples of the soil were taken for assessment. However, it is possible for significant site variation to be encountered during construction. If such does occur, further assessment will be required.

Consult the writer if any of the above occur.

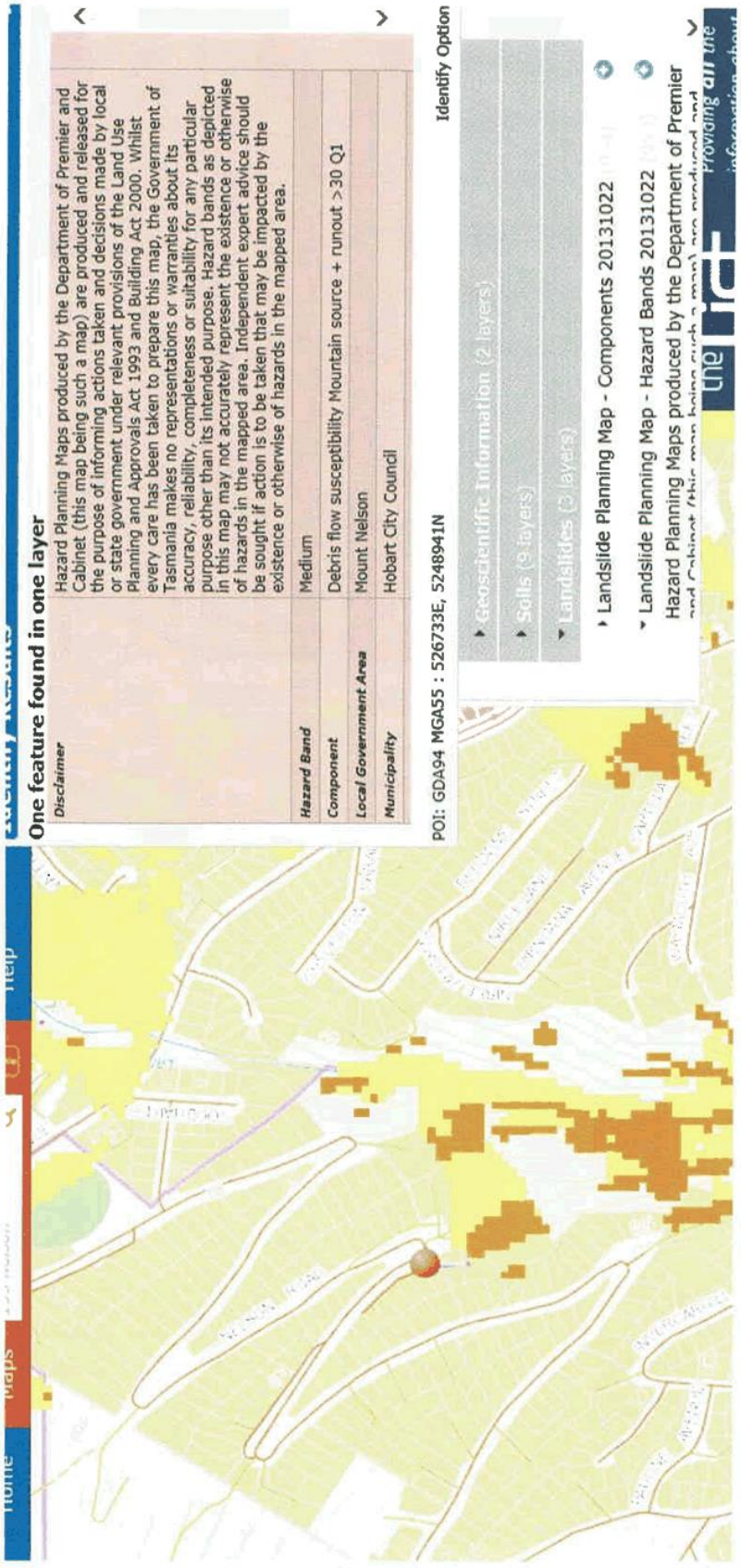
CONCLUSION

The subject land is suitable from stability point of view for the proposed development subject to the recommendations included in this report being carried out. The proposed development will not cause or accelerate instability on the site or adjoining land if attention to erosion is provided.

This site classification is valid for one year from date of issue only.

J.Mamic
B.E.MASc M.I.E.Aust. M.I.A.B.S

REFERENCES:
AS 1726 – 1993 Geotechnical site investigation
AS2870 – 2011 Residential slabs & footings
AS4055 – 2006 Wind loads for housing
AS1170 – 2011 Part 2 Wind loads
Institution of Engineers Australia (Tasmanian Branch) publication – Recommended Practice for Site Classification to AS2870 in Tasmania.


Home
Maps
Help
One feature found in one layer
Disclaimer
Hazard Planning Maps produced by the Department of Premier and Cabinet (this map being such a map) are produced and released for the purpose of informing actions taken and decisions made by local or state government under relevant provisions of the Land Use Planning and Approvals Act 1993 and Building Act 2000. Whilst every care has been taken to prepare this map, the Government of Tasmania makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose other than its intended purpose. Hazard bands as depicted in this map may not accurately represent the existence or otherwise of hazards in the mapped area. Independent expert advice should be sought if action is to be taken that may be impacted by the existence or otherwise of hazards in the mapped area.
Hazard Band
Medium
Component
Debris flow susceptibility Mountain source + runout >30 Q1
Local Government Area
Mount Nelson
Municipality
Hobart City Council
POI: GDA94 MGA55 : 526733E, 5248941N
Identify Option
Geoscientific Information (2 layers)
Soils (9 layers)
Landslides (3 layers)
Landslide Planning Map - Components 20131022
Landslide Planning Map - Hazard Bands 20131022
Hazard Planning Maps produced by the Department of Premier

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

CSIRO

BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction
There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion
All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation
This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil
All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure
This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth
Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation
Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

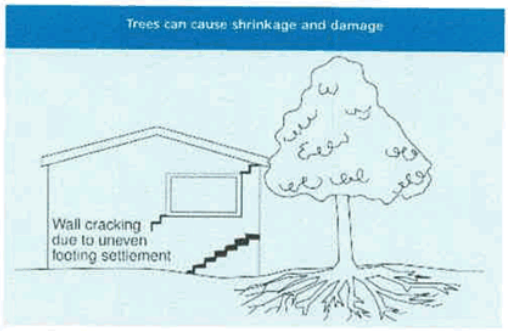
- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots
In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself
Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures
Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures
Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures
Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem.
Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil.

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing
Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage
In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

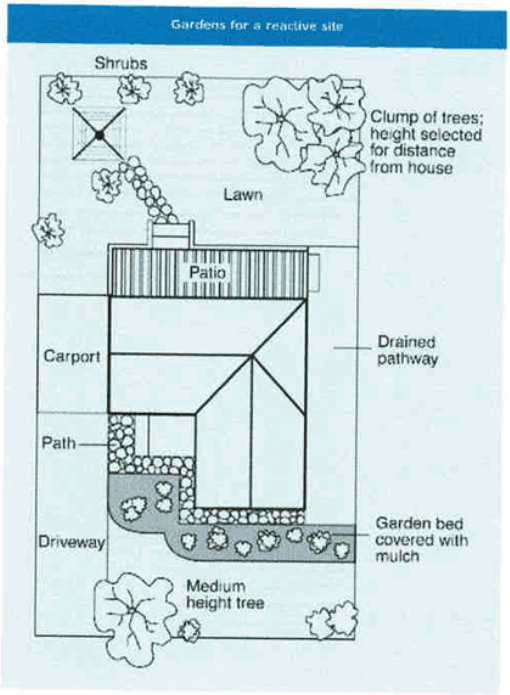
It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4



should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation
In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden
The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees
Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs
State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation
Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

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Soil Description Explanation Sheet(1of 2)

DEFINITION:

In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Classification System (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 µm to 2.36 mm
	medium	200 µm to 600 µm
	Fine	75 µm to 200 µm

MOISTURE CONDITION

Dry Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Moist Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.

Wet As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 - 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 - 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 - 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 - 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	–	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 - 35
Medium Dense	35 - 65
Dense	65 - 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING		CEMENTING	
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous layers of lenticular shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely weathered material	Structure and fabric of parent rock visible.
Residual soil	Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil	Deposited by wind.
Alluvial soil	Deposited by streams and rivers.
Colluvial soil	Deposited on slopes (transported downslope by gravity).
Fill	Man made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.
Lacustrine soil	Deposited by lakes.
Marine soil	Deposited in ocean basins, bays, beaches and estuaries.

Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 60 mm and basing fractions on estimated mass)							USC	PRIMARY NAME
COARSE GRAINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm	(About the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than 2.0 mm	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.			GW	GRAVEL
				Predominantly one size or a range of sizes with more intermediate sizes missing.			GP	GRAVEL
			GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)			GM	SILTY GRAVEL
				Plastic fines (for identification procedures see CL below)			GC	CLAYEY GRAVEL
		SANDS More than half of coarse fraction is smaller than 2.0 mm	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate sizes missing			SW	SAND
				Predominantly one size or a range of sizes with some intermediate sizes missing.			SP	SAND
			SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).			SM	SILTY SAND
				Plastic fines (for identification procedures see CL below).			SC	CLAYEY SAND
			IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm.					
FINE GRAINED SOILS More than 50% of Material less than 63 mm is smaller than 0.075 mm		SILTS & CLAYS Liquid limit less than 50	DRY STRENGTH	DILATANCY	TOUGHNESS			
			None to Low	Quick to slow	None		ML	SILT
			Medium to High	None	Medium		CL	CLAY
			Low to medium	Slow to very slow	Low		OL	ORGANIC SILT
		SILTS & CLAYS Liquid limit greater than 50	Low to medium	Slow to very slow	Low to medium		MH	SILT
			High	None	High		CH	CLAY
			Medium to High	None	Low to medium		OH	ORGANIC CLAY
HIGHLY ORGANIC SOILS			Readily identified by colour, odour, spongy feel and frequently by fibrous texture.				Pt	PEAT

• Low plasticity – Liquid Limit WL less than 35%. • Medium plasticity – WL between 35% and 50%.

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length.	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.	

TERM	DEFINITION	DIAGRAM
SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter	
TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	

Borehole Log Explanation Sheet

Method

TERM	Description
AS	Auger Screwing*
AD	Auger Drilling*
RR	Roller / Tricone
W	Washbore
CT	Cable Tool
HA	Hand Auger
DT	Diatube
B	Blank Bit
V	V Bit
T	TC Bit

* Bit shown by suffix e.g. ADT

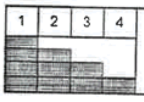
Support

TERM	Description
M	Mud
N	Nil
C	Casing

Notes, samples, tests

TERM	Description
U_{50}	Undisturbed sample 50 mm diameter
U_{63}	Undisturbed sample 63 mm diameter
D	Disturbed sample
N	Standard Penetration Test (SPT)
N*	SPT – sample recovered
N_C	SPT with solid cone
V	Vane Shear
PP	Pocket Penetrometer
P	Pressumeter
B_S	Bulk sample
E	Environmental Sample
R	Refusal

Penetration



No resistance ranging to refusal

Water

Symbol	Description
	Water inflow
	Water outflow
	17/3/08 water on date shown

Classification symbols and soil description

Based on unified classification system

Moisture

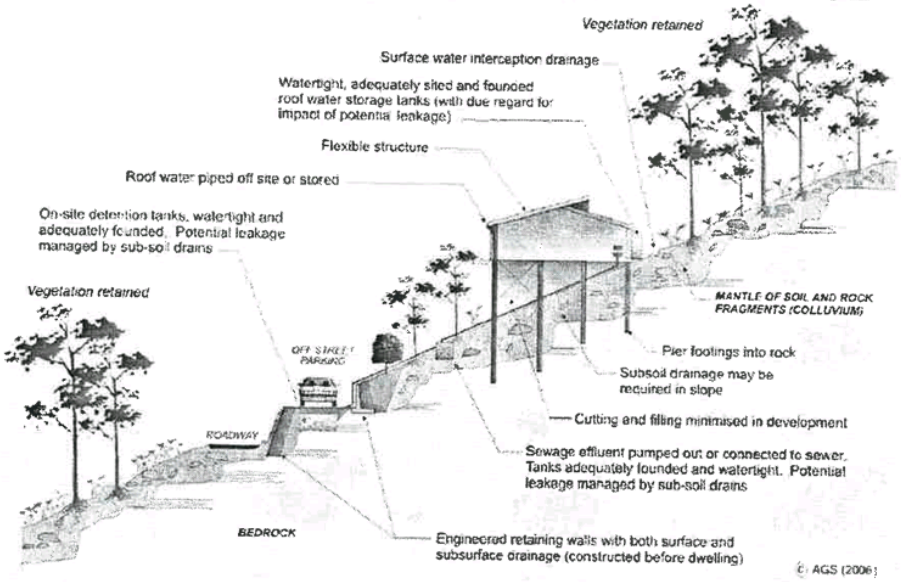
TERM	Description
D	Dry
M	Moist
W	Wet
W_P	Plastic Limit
W_L	Liquid Limit

Consistency/Density index

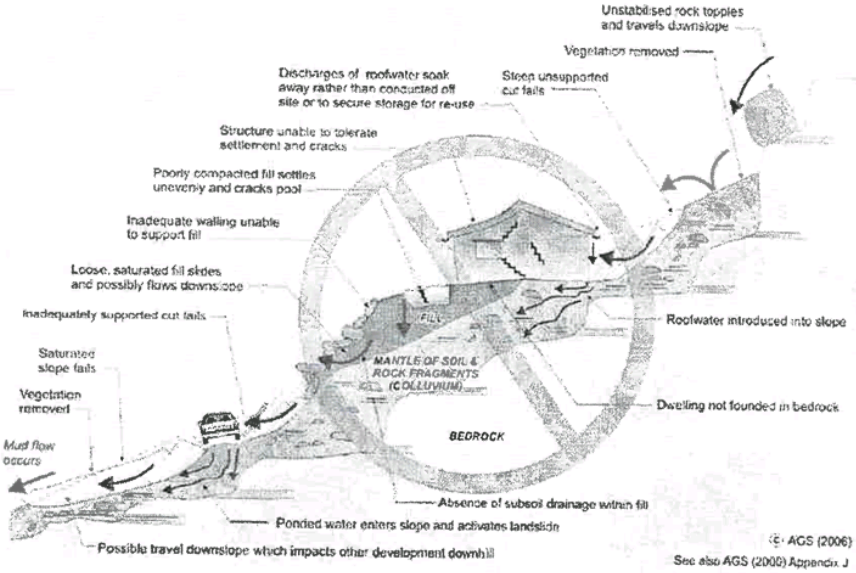
TERM	Description
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	Very dense

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

EXAMPLES OF GOOD HILLSIDE PRACTICE



EXAMPLES OF POOR HILLSIDE PRACTICE



From: **Leon Jenkins** maparch@netspace.net.au
Subject: 199 NELSON RD.
Date: 24 December 2019 at 2:19 pm
To: moorero@hobartcity.com.au

Hello Rowan,

We confirm the only works within the landslip area is a surface driveway with excavation less than 10m3.

Best regards,

Leon Jenkins
ARCHITECT

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
143020	3
EDITION	DATE OF ISSUE
2	27-Jul-2015

SEARCH DATE : 08-Nov-2019
SEARCH TIME : 03.38 PM

DESCRIPTION OF LAND

City of HOBART
Lot 3 on Sealed Plan 143020
Derivation : Part of 50 Acres Granted to George Flexmore
Prior CT 12411/1

SCHEDULE 1

C406521 & M526706 TRANSFER to PETER PAUL GALLIGAN
Registered 27-Jul-2015 at 12.01 PM

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP143020 EASEMENTS in Schedule of Easements
SP143020 FENCING PROVISION in Schedule of Easements
45/9487 CONVEYANCE Made Subject to Boundary Fences Condition
C703750 AGREEMENT pursuant to Section 71 of the Land Use Planning and Approvals Act 1993 Registered 18-Jul-2006 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 Peter Paul Galligan & Ingrid Aaltje Frederika Van Der Mei, The Lord Mayor Aldermen and Citizens of the City of Hobart.
FOLIO REFERENCE C.T.12411-1, C.T.40617-1
GRANTEE Part of 50 Acres, Granted to George Flexmore.

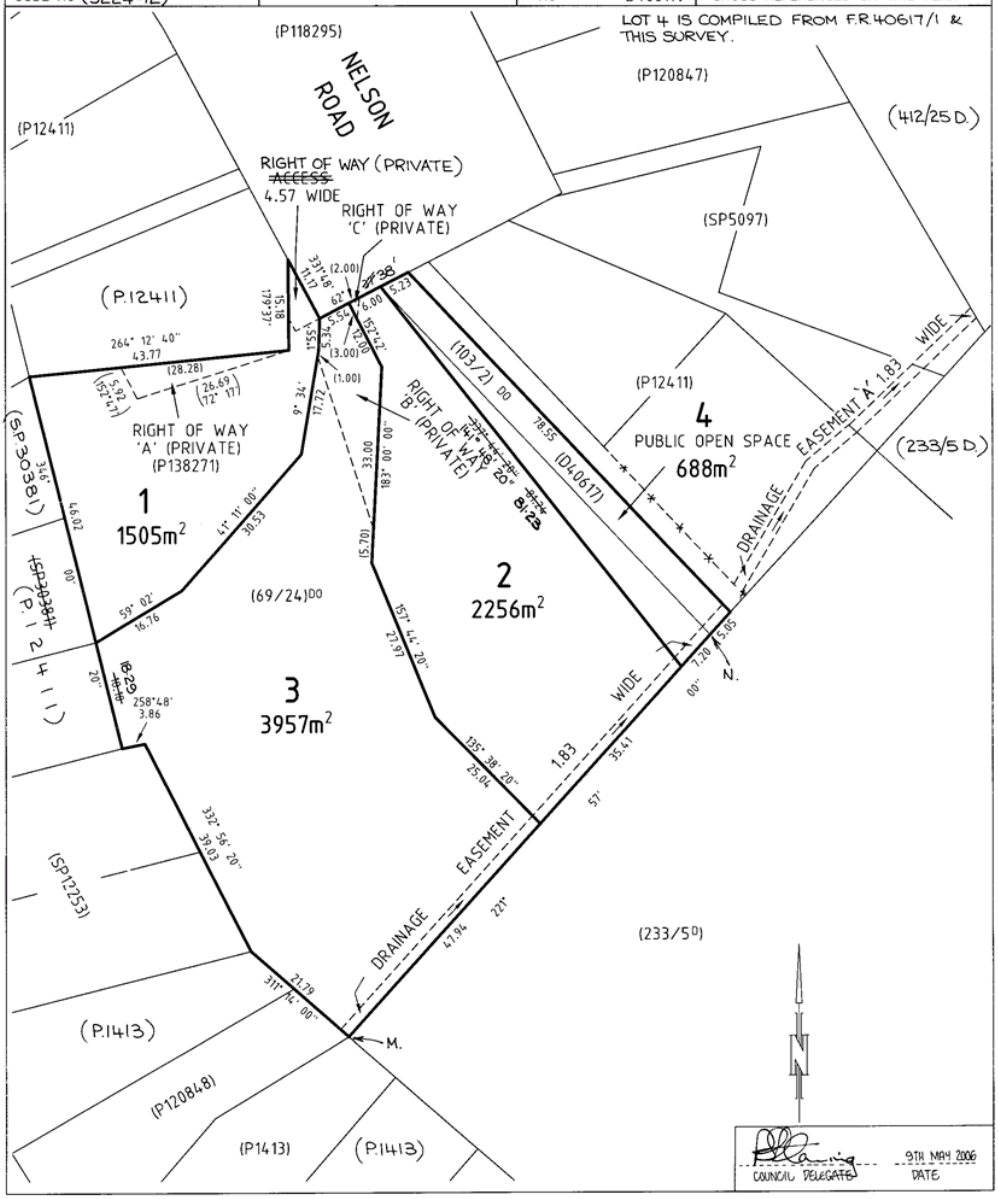
PLAN OF SURVEY

BY SURVEYOR A.M.Peacock of PEACOCK, DARCEY & ANDERSON PTY LTD AUTHORISED SURVEYORS 127 BATHURST STREET, HOBART
LOCATION CITY OF HOBART
SCALE 1:600 LENGTHS IN METRES

REGISTERED NUMBER **SP143020**

APPROVED EFFECTIVE FROM 18 JUL 2006
Alice Kawa Recorder of Titles

MAPSHEET MUNICIPAL CODE No (5224-12) 114 | LAST UPI No GLJ23 | LAST PLAN No P12411, D40617. | ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN



SCHEDULE OF EASEMENTS

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SCHEDULE OF EASEMENTS	Registered Number
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	SP 143020

EASEMENTS AND PROFITS

Each lot on the plan is together with:-
(1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
(2) any easements or profits a prendre described hereunder.
Each lot on the plan is subject to:-
(1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
(2) any easements or profits a prendre described hereunder.
The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

FENCING PROVISION

1. In respect to each Lot shown on the Plan the Vendors Peter Paul Galligan and Ingrid Aaltje Frederika Van Der Mei shall not be required to fence.

EASEMENTS

2. Lot 1 is subject to a right of carriageway (appurtenant to Lot 100 on Plan 12411) over the "Right of Way 'A' (Private)" shown on the plan.

3. Lot 1 is subject to a right of carriageway (appurtenant to Lots 100, 101 and 102 on Plan 12411 and Lots 103 to 106 inclusive on Plan 1413) over the "~~Access~~ 4.57 wide" shown on the plan. Right of Way (Private)

4. Lots 2, 3 and ~~that portion of Lot~~ 4 ~~formerly comprising Lot 1 on P 12411~~ are subject to a right of drainage (appurtenant to Lots 123-126 inclusive and Lot 134 on Plan 1413) over such portion of the drainage easement 1.83 wide ~~shown~~ marked M.N. on the plan ~~and passing~~ as passes through such lots. Each

5. Lots 1, 2, 3 and that portion of Lot 4 formerly comprising Lot 1 on P 12411 are together with a right of drainage over the drainage easement ~~six feet wide~~ shown ~~passing through Lot 96 on Plan 12411 and Lot 94 on Deeds Office Survey Diagram 69/24~~. on the plan 'A' 1.83 wide

6. Lot 2 is together with a right of carriageway over the "Right of Way 'B' (Private)" shown passing through Lot 3 on the plan.

7. Lot 2 is subject to a right of carriageway (appurtenant to Lot 3) over the "Right of Way 'C' (Private)" shown on the plan.

8. Lot 3 is together with a right of carriageway over the "Right of Way 'C' (Private)" shown passing through Lot 2 on the plan.

9. Lot 3 is subject to a right of carriageway (appurtenant to Lot 2) over the "Right of Way 'B' (Private)" shown on the plan.

(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: P P GALLIGAN, I A F VAN DER MEI & HOBART CITY COUNCIL	PLAN SEALED BY: HOBART CITY COUNCIL
FOLIO REF: 12411/1 & 40617/1	DATE: 9TH MAY 2006
SOLICITOR & REFERENCE: Bradfields 030147	707.39 REF NO.
	Council Delegate

NOTE: The Council Delegate must sign the Certificate for the purposes of identification.

SCHEDULE OF EASEMENTS

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 2 OF 2 PAGES	Registered Number SP143020
SUBDIVIDER: P P GALLIGAN, I A F VAN DER MEI & HOBART CITY COUNCIL FOLIO REFERENCE: 12411/1 & 40617/1	

SIGNED BY PETER PAUL GALLIGAN in the presence of:-

Witness Signature:
Witness Full Name: Graeme Bradfield
Witness Address: 141 Argyle St, Hbt
Witness Occupation: Solicitor

SIGNED BY INGRID AALTJE FREDERIAK VAN DER MEI in the presence of:-

Witness Signature:
Witness Full Name: Graeme Bradfield
Witness Address: 141 Argyle St, Hbt
Witness Occupation: Solicitor

SIGNED BY THE HOBART CITY COUNCIL in the presence of:-i

Witness Signature:
Witness Full Name:
Witness Address:
Witness Occupation

SIGNED BY CONNECT CREDIT UNION OF TASMANIA LIMITED in the presence of:-

Witness Signature:
Witness Full Name:
Witness Address:
Witness Occupation

SIGNED by CONNECT CREDIT UNION OF TASMANIA LIMITED by its attorney, GEOFFREY WILLIAM SAUNDERS under Power No. 714690 (who declares that he has received no notice of revocation of this power) in the presence of:

witness

Shelley Scott
Securities Supervisor
Level 8, 39 Murray St
Hobart

NOTE: Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
143020	1
EDITION	DATE OF ISSUE
3	29-Jun-2016

SEARCH DATE : 08-Nov-2019
SEARCH TIME : 04.05 PM

DESCRIPTION OF LAND

City of HOBART
Lot 1 on Sealed Plan 143020
Derivation : Part of 50 Acres Granted to George Flexmore
Prior CT 12411/1

SCHEDULE 1

M577488 TRANSFER to SEAN FRANCIS CONNOLLY and MEGAN ALEXANDRA CONNOLLY Registered 29-Jun-2016 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP143020 EASEMENTS in Schedule of Easements
SP143020 FENCING PROVISION in Schedule of Easements
45/9487 CONVEYANCE Made Subject to Boundary Fences Condition
C703750 AGREEMENT pursuant to Section 71 of the Land Use Planning and Approvals Act 1993 Registered 18-Jul-2006 at noon
E50093 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 29-Jun-2016 at 12.01 PM

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

OWNER Peter Paul Galligan & Ingrid Aaltje Frederika Van Der Mei, The Lord Mayor Aldermen and Citizens of the City of Hobart.
FOLIO REFERENCE C.T.12411-1, C.T.40617-1
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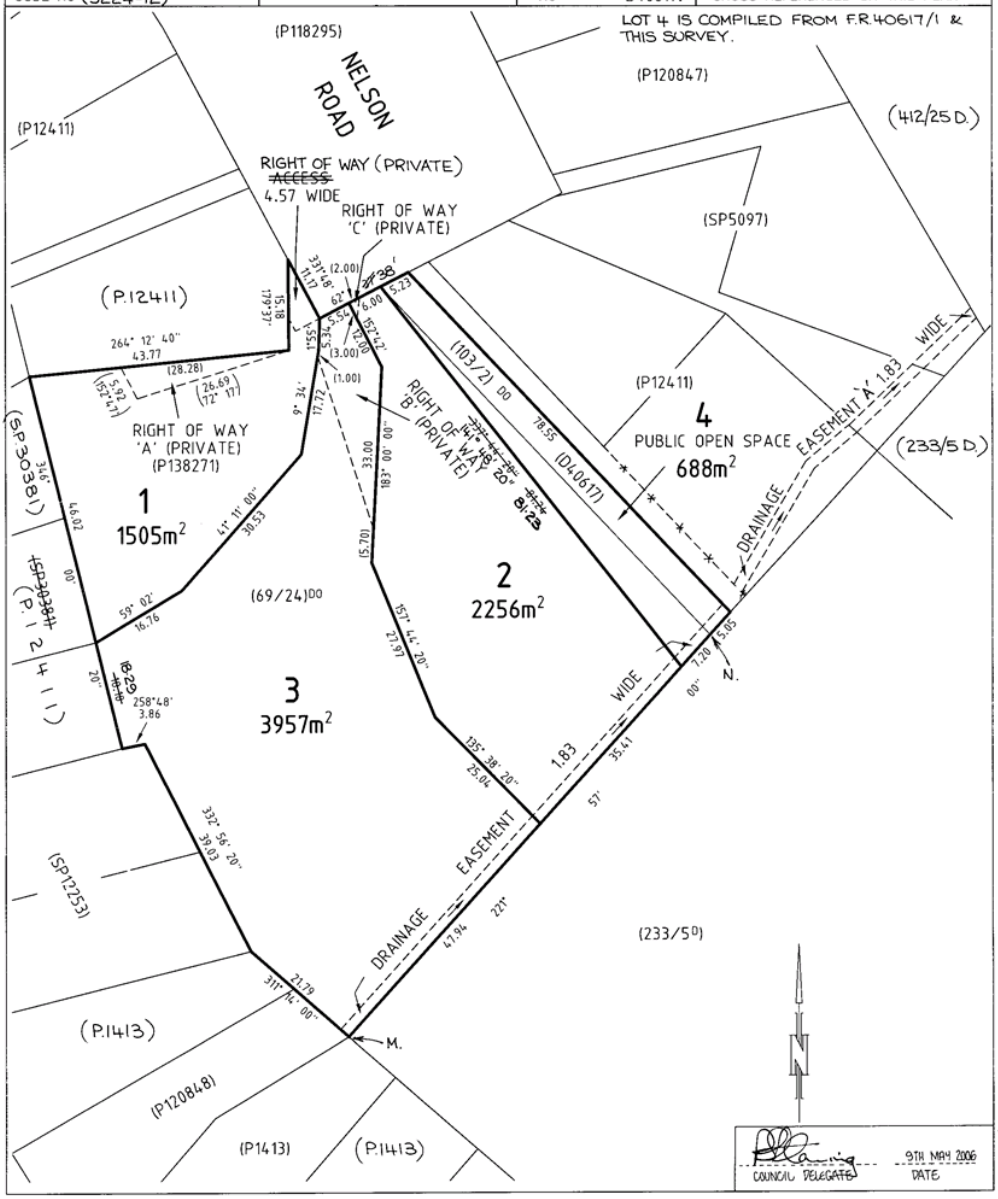
BY SURVEYOR A.M.Peacock of PEACOCK, DARCEY & ANDERSON PTY LTD AUTHORISED SURVEYORS 127 BATHURST STREET, HOBART
LOCATION CITY OF HOBART
SCALE 1:600 LENGTHS IN METRES

REGISTERED NUMBER **SP143020**

APPROVED EFFECTIVE FROM 18 JUL 2006
Alice Kawa Recorder of Titles

MAPSHEET MUNICIPAL CODE No (5224-12) 114 | LAST UPI No GLJ23 | LAST PLAN No P12411, D40617. | ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN



SCHEDULE OF EASEMENTS

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SCHEDULE OF EASEMENTS	Registered Number
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(USE ANNEXURE PAGES FOR CONTINUATION)

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FOLIO REF: 12411/1 & 40617/1	DATE: 9TH MAY 2006
SOLICITOR & REFERENCE: Bradfields 030147	707.39 REF NO.
	Council Delegate

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SCHEDULE OF EASEMENTS

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 2 OF 2 PAGES	Registered Number SP143020
SUBDIVIDER: P P GALLIGAN, I A F VAN DER MEI & HOBART CITY COUNCIL FOLIO REFERENCE: 12411/1 & 40617/1	

SIGNED BY PETER PAUL GALLIGAN in the presence of:-

Witness Signature:
Witness Full Name: Graeme Bradfield
Witness Address: 141 Argyle St, Hbt
Witness Occupation: Solicitor

SIGNED BY INGRID AALTJE FREDERIAK VAN DER MEI in the presence of:-

Witness Signature:
Witness Full Name: Graeme Bradfield
Witness Address: 141 Argyle St, Hbt
Witness Occupation: Solicitor

SIGNED BY THE HOBART CITY COUNCIL in the presence of:-i

Witness Signature:
Witness Full Name:
Witness Address:
Witness Occupation

SIGNED BY CONNECT CREDIT UNION OF TASMANIA LIMITED in the presence of:-

Witness Signature:
Witness Full Name:
Witness Address:
Witness Occupation

SIGNED by CONNECT CREDIT UNION OF TASMANIA LIMITED by its attorney, GEOFFREY WILLIAM SAUNDERS under Power No. 714690 (who declares that he has received no notice of revocation of this power) in the presence of:

witness

Shelley Scott
Securities Supervisor
Level 8, 39 Murray St
Hobart

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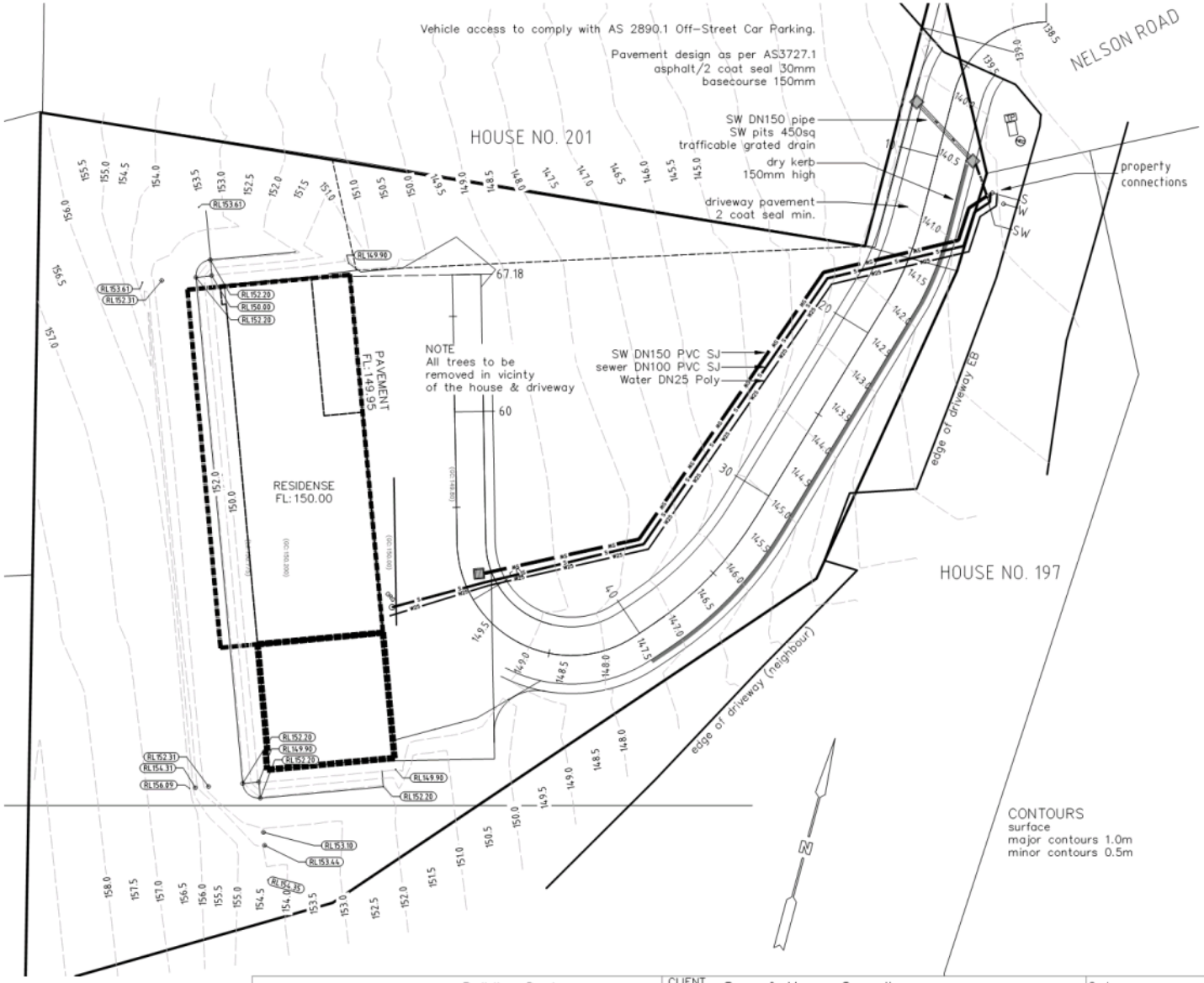


GC DESIGN

Building Design
Civil & Structural Drafting
3 Vernon Avenue
MONTROSE TAS 7010
Accreditation No: CC82L
Greg Carpenter
m 0417 506 525
e gregis@gldc.com.au

CLIENT Sean & Megan Connolly

PROJECT 199 Nelson Road MT NELSON
DRIVEWAY DESIGN

DRAWING Plan View – Contoured Rev.C

Scale 1:200

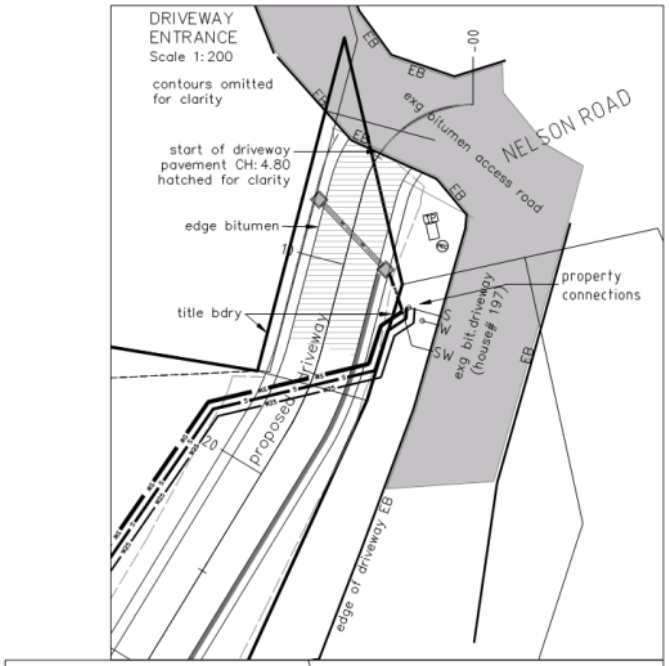
Date 23/02/17

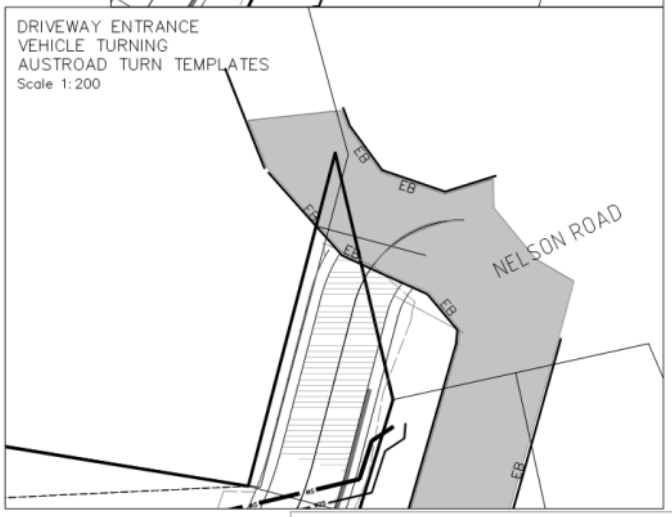
Job no: 17-010 Dwg no: C1

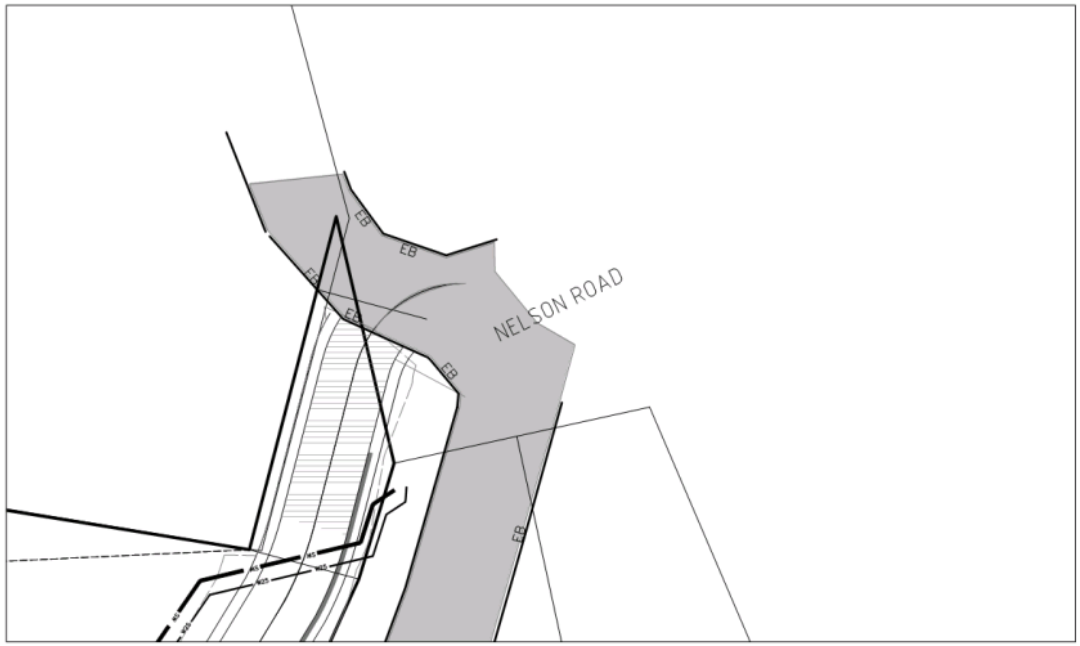
Drawn GC
Design GC
Checked

A3

REV.	AMENDMENTS	DRWN	DATE
C	Adjust house site	GC	08/07/19
B	Issue for construction	GC	08/05/18
A2	design check: driveway & road	GC	27/9/17
A2	clarify start of driveway & road	GC	02/08/17
A1	Add notes access & SW design	GC	02/08/17
A	alternative driveway alignment	GC	28/7/17







ROAD/DRIVEWAY CHECK PLAN
CAR TURN (B85)
Scale 1:200

Scale as per Template 1:200 page 63 AS 2890.1

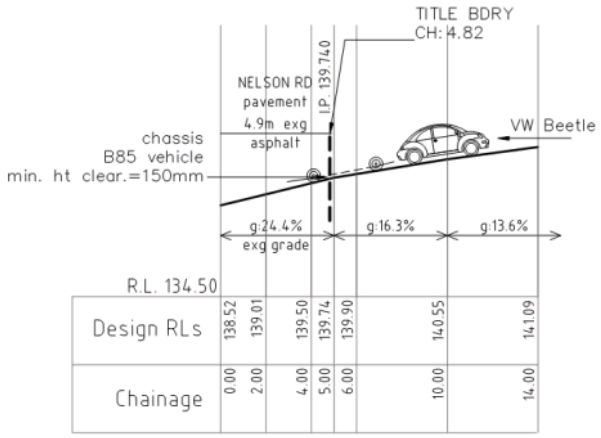
GC DESIGN
Building Design
Civil & Structural Drafting
3 Vernon Avenue
MONTROSE TAS 7010
Accreditation No: CC82L
Greg Carpenter
m 0417 506 525
e gregis@gldc.com.au

CLIENT Sean & Megan Connolly
PROJECT 199 Nelson Road MT NELSON
DRIVEWAY DESIGN
DRAWING DRIVEWAY ACCESS Rev.B

Scale 1:200
Date 23/02/17
Job no: 17-010 Dwg no: C1a

Drawn GC
Design GC
Checked
A3

REV.	AMENDMENTS	DRWN	DATE
B	Issue for construction	GC	08/05/18
A2	design check: driveway & road	GC	27/9/17
A2	clarify start of driveway & road	GC	02/08/17
A1	Add notes access & SW design	GC	02/08/17
A	alternative driveway alignment	GC	28/7/17



LONG SECTION - DRIVEWAY CHECK

Horz Scale 200
Vert Scale 200
Vert Exaggeration NIL

LONG SECTION - DRIVEWAY

Horz Scale 200
Vert Scale 100
Vert Exaggeration 2x

GC DESIGN

Building Design
Civil & Structural Drafting
3 Vernon Avenue
MONTROSE TAS 7010
Accreditation No: CC82L
Greg Carpenter
m 0417 506 525
e gregis@gldc.com.au

CLIENT Sean & Megan Connolly

PROJECT 199 Nelson Road MT NELSON
DRIVEWAY DESIGN

DRAWING Long Section Rev.B

Scale 1:100

Date 23/02/17

Job no: 17-010 Dwg no: C2

Drawn GC

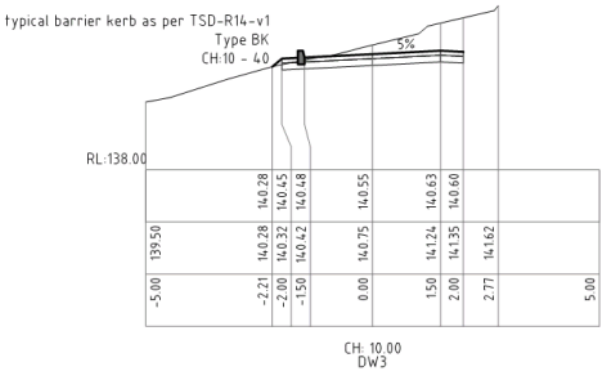
Design GC

Checked

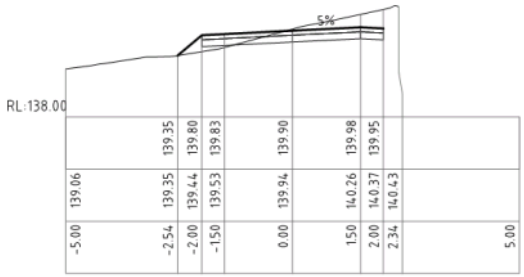
A3

REV.	AMENDMENTS	DRWN	DATE
B	Issue for construction	GC	08/05/18
A2	design check: driveway & road	GC	27/9/17
A1	I.D front title bdry	GC	02/08/17
A	alternative driveway alignment	GC	28/7/17

typical barrier kerb as per TSD-R14-v1
Type BK
CH:10 - 40



CH: 10.00
DW3



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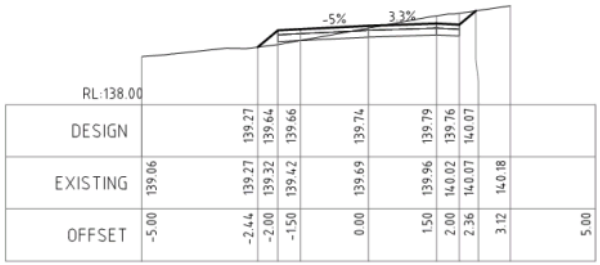

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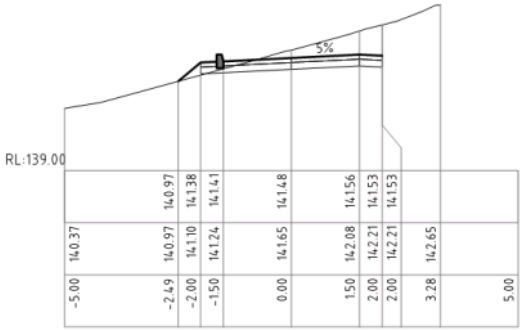

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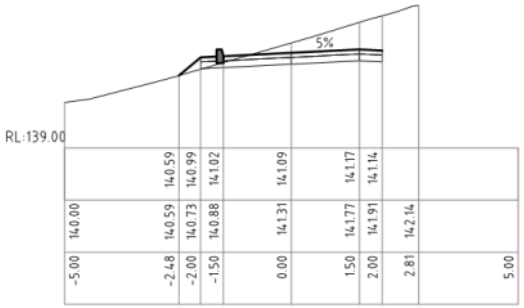

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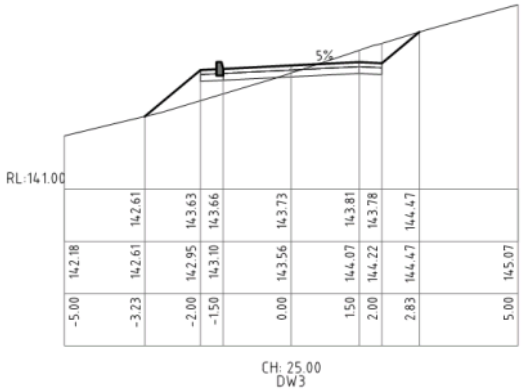
DW3



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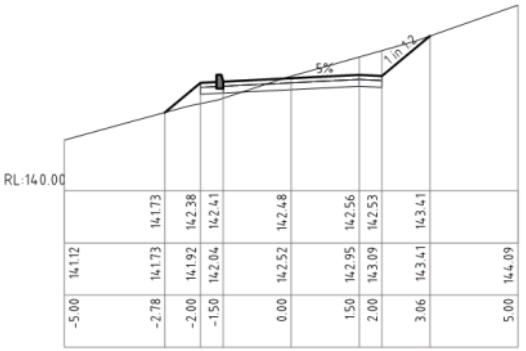
DW3



CH: 20.00
DW3

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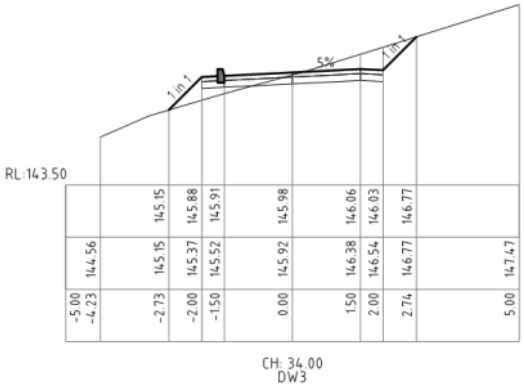
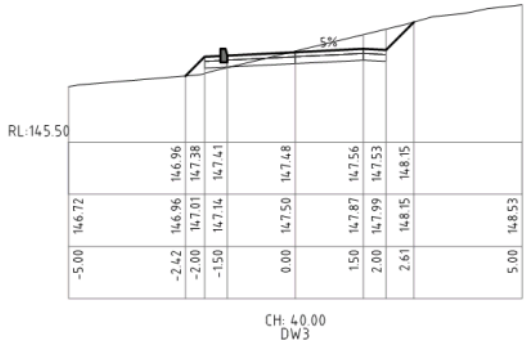
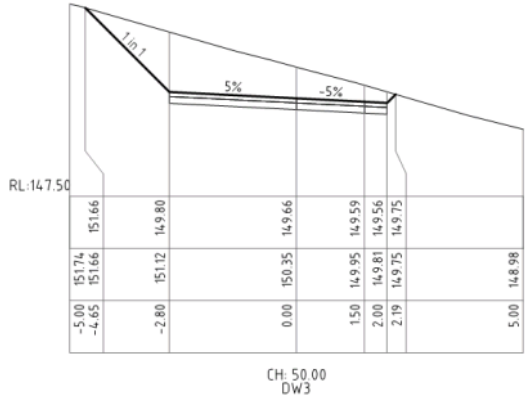
Civil & Structural Drafting
3 Vernon Avenue
MONTROSE TAS 7010
Accreditation No: CC82L
Greg Carpenter
m 0417 506 525
e gregis@gldc.com.au

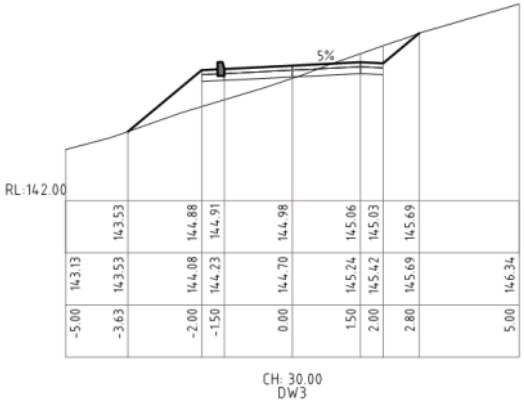
CLIENT	Sean & Megan Connolly
PROJECT	199 Nelson Road MT NELSON DRIVEWAY DESIGN
DRAWING	Long Section Driveway Cross Sections Rev.B
Scale	1:100
Date	23/02/17
Job no:	17-010
Dwg no:	C3
Drawn	GC
Design	GC
Checked	
	A3

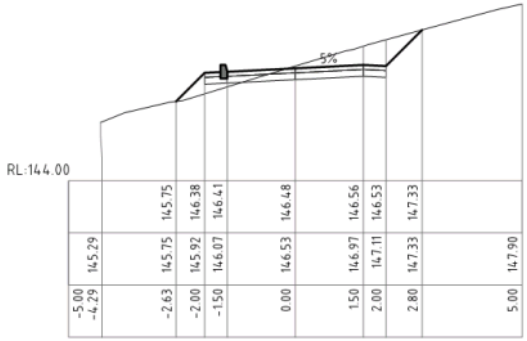
REV.	AMENDMENTS	DRWN	DATE
B	Issue for construction	GC	08/05/18
A	alternative driveway alignment	GC	28/7/17

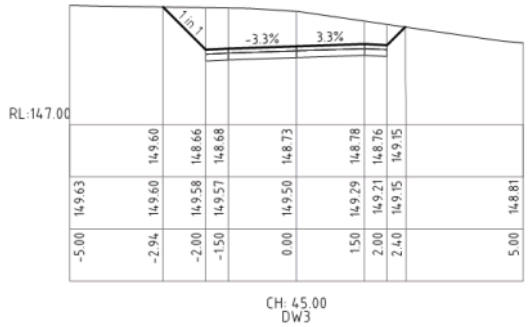












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Accreditation No: CC82L
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e gregis@gldc.com.au

CLIENT Sean & Megan Connolly

PROJECT 199 Nelson Road MT NELSON
DRIVEWAY DESIGN

DRAWING Driveway Cross Sections Rev.B

Scale 1:100

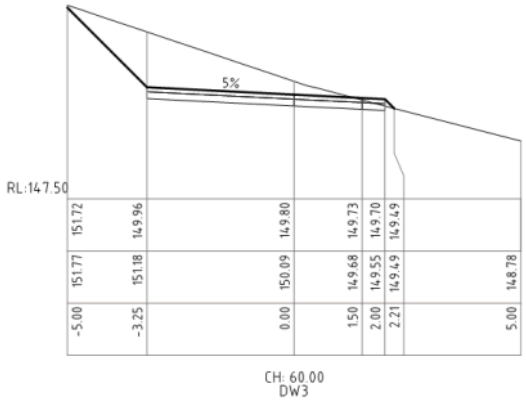
Date 23/02/17

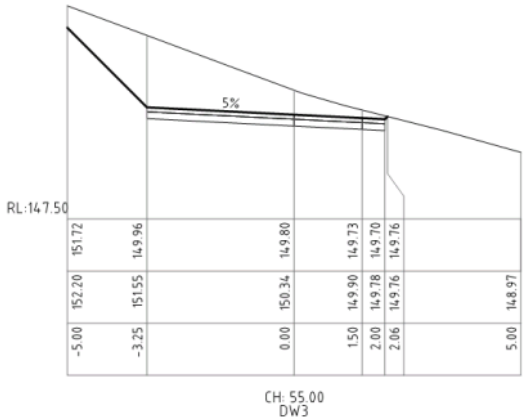
Job no: 17-010 Dwg no: C4

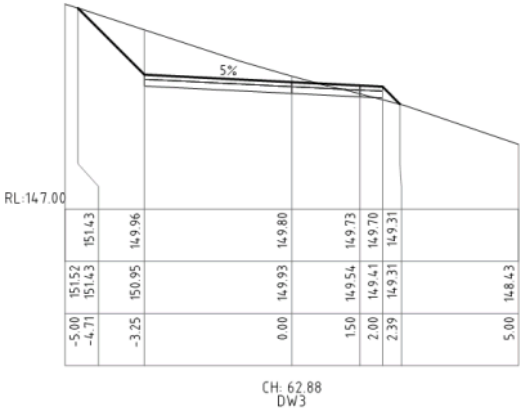
Drawn GC
Design GC
Checked

A3

REV.	AMENDMENTS	DRWN	DATE
B	Issue for construction	GC	08/05/18
A	alternative driveway alignment	GC	28/7/17







GC DESIGN

Building Design
Civil & Structural Drafting
3 Vernon Avenue
MONTROSE TAS 7010
Accreditation No: CC82L
Greg Carpenter
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CLIENT Sean & Megan Connolly

PROJECT 199 Nelson Road MT NELSON
DRIVEWAY DESIGN

DRAWING Driveway Cross Sections Rev.B

Scale 1:100
Date 23/02/17
Job no: 17-010 Dwg no: C5
A3

Drawn GC
Design GC
Checked

REV.	AMENDMENTS	DRWN	DATE
B	Issue for construction	GC	08/05/18
A	alternative driveway alignment	GC	28/7/17

Planning: #191533

Property

199 NELSON ROAD MOUNT NELSON TAS 7007

People

Applicant
*

Sean Connolly
1/28 Marlborough Street
SANDY BAY TAS 7005
0419 309 322
sean.connolly@internode.on.net

Owner
*

Sean Connolly
1/18 Marlborough Street
SANDY BAY TAS 7005
0419 309 322
sean.connolly@internode.on.net

Entered By
LEON JENKINS
0419894623
maparch@netspace.net.au

Use

Single dwelling

Details

Have you obtained pre application advice?

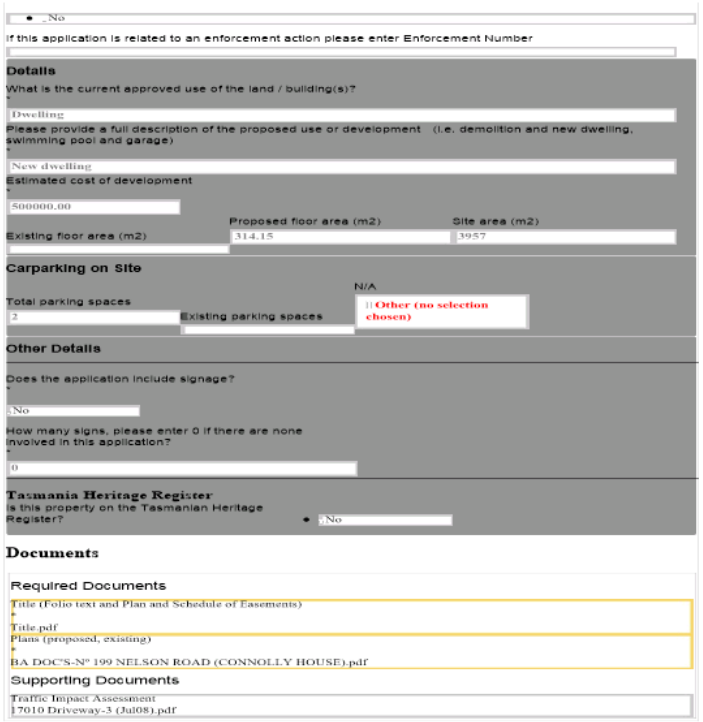
- No

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)?
*
Dwelling

Please provide a full description of the proposed use or development (i.e. demolition and new dwelling, swimming pool and garage)
*
New dwelling

Estimated cost of development
*
500000.00

Existing floor area (m2)	Proposed floor area (m2)	Site area (m2)
	314.15	3957

Carparking on Site

Total parking spaces	Existing parking spaces	N/A
2		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

Documents

Required Documents

Title (Folio text and Plan and Schedule of Easements)
*
Title.pdf

Plans (proposed, existing)
*
BA DOC'S-N° 199 NELSON ROAD (CONNOLLY HOUSE).pdf

Supporting Documents

Traffic Impact Assessment
17010 Driveway-3 (Jul08).pdf

Application Referral Environmental Development Planner - Response

From:	Rowan Moore Environmental Development Planner 12 February 2020
Recommendation:	Proposal is acceptable subject to conditions.
Date Completed:	
Address:	199 NELSON ROAD, MOUNT NELSON ADJACENT ROAD RESERVE
Proposal:	Dwelling
Application No:	PLN-19-783
Assessment Officer:	Helen Ayers,

Referral Officer comments:

Codes Applicable:

Code	Applicable	Exempt	Permitted	Discretionary
E1.0 Bushfire-Prone Areas	No			
E3.0 Landslide	**Yes**	**No**	**Yes - No applicable standards**	
E9.0 Attenuation	No			
E10.0 Biodiversity	**Yes**	**No**	**No**	**Yes**
E11.0 Waterway & Coastal	No			
E15.0 Inundation Prone Areas	No			
E16.0 Coastal Erosion	No			
E18.0 Wind & Solar Energy	No			
E20.0 Acid Sulfate Soils	No			

Assessment:

Approval is sought for a 314m^2 dwelling on a vacant 3957m^2 lot at 199 Nelson Road, Mt Nelson.

The owners of the land are subject to Part 5 Agreement C703750.

Landslide Code

The Landslide Code applies because development is proposed within a Landslide Hazard Area (low and medium). A portion of the driveway and vegetation clearing are proposed within

the LHA.

The proposed works within the LHA do not constitute 'major works' under the Code and therefore no Code standards apply to the proposed development.

Biodiversity Code

The Biodiversity Code applies because the removal of native vegetation is proposed within a Biodiversity Protection Area. No exemptions are applicable.

The submitted Natural Values Assessment indicates that there are 18 trees present on the lot. The Natural Values Assessment (NVA) indicates that 9 of these trees are likely to require removal to facilitate the development, and the retention of 9 trees would be feasible. However, the submitted plans indicate that one of the trees identified for removal in the NVA can be kept (feature is a temporary soil stockpile not a water tank) and that a further 4 trees could be jeopardised by works in the vicinity including hydraulic services and the driveway cut embankment.

The bushfire hazard management plan submitted with the application includes the following prescriptions for the proposed hazard management area (whole of lot):

The HAZARD MANAGEMENT AREA is to be established and maintained in a "minimal fuel condition" as specified in AS3959 2009 Part 2.2.3.2(f) for the area shown in "RED" on this plan. This may be achieved through the adoption / implementation of the following recommendations;

- Provision of heat shields or ember traps on the side of the property affected by the bushfire prone vegetation.
  This can include non-flammable fencing / walls & plantings of shrubs or hedges.
- Use low flammability plants and avoid placing them adjacent to glazed elements of the proposed dwelling.
- Regular slashing / mowing of grass areas to a height of less than 100mm.
- Keep plants and trees from overhanging roofs and gutters.
- Install gutter guards and regularly clean roof areas where leaf litter and other flammable materials may gather.
- Ensure woodpiles and other flammable materials are not stored against the dwelling.
- Establish non-flammable areas such as patios / garden paths etc around the perimeter of the dwelling.
- Separation between large trees should be maintained, preferrably 20m (Horizontally), from other significant trees or groups of shrubs
  and maintain a vertical separation between the ground / low plants to the tree canopies.

A Natural Values Assessment was submitted with the application. The findings of the NVA include:

- the vegetation within the property is '*Eucalyptus pulchella* dry forest and woodland' (DPU);
- no threatened flora species were recorded;
- 5 small black gums (*Eucalyptus ovata*) are present on the site and constitute 'moderate biodiversity value' as foraging habitat for Swift Parrots;
- The lack of tree hollows and trees with a dbh > 70 cm make this site unsuitable for swift parrot nesting;
- remaining vegetation on the site is classified as being of 'low priority biodiversity value'.

The relevant standards are contained in section E10.7.1 'Buildings and Works'. The application does not comply with acceptable solution A1 as vegetation of moderate priority biodiversity value is proposed to be removed (*E. ovata* trees). The relevant performance

criterion, P1, states the following:

Clearance and conversion or disturbance must satisfy the following:

(a) if low priority biodiversity values:

(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;

(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;

(b) if moderate priority biodiversity values:

(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;

(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;

(iii) remaining moderate priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values...

There is limited opportunity to retain substantial areas of vegetation on site given the need for an adequate bushfire hazard management area and vehicular access. BAL-29 construction has been proposed, which is the maximum allowable BAL level as a deemed-to-comply solution under the Building Regulations. Given the vegetation on the site is predominantly of low biodiversity value, this is considered acceptable given site restrictions and the needs of the development.

With regard to the moderate priority biodiversity values (*E. ovata* trees), it is disappointing that only 2 of the 5 present would be retained under the proposal. While one of these trees could potentially be retained with a house re-design, the two other trees would be impacted by the proposed driveway which would be very difficult to re-site. Given that swift parrot foraging trees are generally considered to be those with a diameter of >40cm, and all of the trees to be removed have a diameter of less than 40cm, impacts are considered acceptable.

There is little that can be done to protect the *E. ovata* trees other than ensuring the trees and their root zones are protected during the development and any future works on the property such as landscaping. Conditions to this effect are recommended for any permit granted. The same condition should protect the other trees identified for retention.

Given that some of the assumptions about the retention and removal of trees made in the NVA are questionable, it is recommended that a condition be applied to any permit granted requiring the submission, approval and implementation of a tree retention plan.

Part 5 Agreement

Part 5 Agreement C703750 applies to the owners of the property, and was required as a condition of approval of the subdivision permit under which the lot was created. The Agreement requires:

- the lot to be maintained as a bushfire building protection zone;
- no planting of invasive species;
- weed management;
- machinery washdown;

- approval of a landscaping plan;
- care taken during construction to ensure large boulders are not allowed to roll downslope; and
- if boulders, soil or or weathered dolerite are found at depths of >1.5m, any excavation should be adequately retained by drained retaining structures.

Conditions and advice are recommended to ensure the owners comply with, or are aware of, the Part 5 Agreement requirements.

Representations/Construction Management

Issue Raised	Response
The application proposes significant excavation of around 1240m^3. The submitted plans mentioned that coring was not possible at any test site beyond a short depth due to the underlying dolerite. This will mean significant jack hammering and/or explosives for a long time. Jack-hammering will be very disruptive, and if used, there should be restrictions as to the number of hours per day of hammering allowed.	Clause 8.11.3 of the Planning Scheme allows the planning authority to impose conditions on a permit to minimise the impact from construction works arising from erosion and sediment transfer, the spread of weeds and pathogens, waste and traffic. This clause does not give the planning authority the power to apply conditions to minimise other construction impacts such as noise and vibration. Noise nuisance is regulated under the *Environmental management and Pollution Control Act 1994* and the *EMPC (Noise) Regulations 2016*. The use of explosives would require a licence from WorkSafe Tasmania. Potential impacts to buildings are regulated under the *Building Act 2016* or are civil matters.
The use of explosives risks damage to surrounding properties, most of which are brick construction, and thus more susceptible to such damage than timber buildings.	It is assumed that risk of damage to surrounding properties is considered in the assessment of applications for explosive licences.
The steep hillside in this area is already subject to slippage, and with the extremely dry weather, extensive cracking is already present on the slope. I saw no serious analysis of the proposed means of excavation for this project in the documents on the Council website, and this must be undertaken before any approvals are given.	There are no relevant provisions in the planning scheme that would allow Council to request this information.
Before any explosives are used on the site, the Council should require a substantial bond to be posted so any property owners whose residences incur damage can receive prompt compensation.	There are no relevant provisions in the planning scheme that would allow Council to require this.
Is 1 m high enough for the safety fence at the top pf the excavation given the total drop of about 6m?	There are no relevant provisions in the planning scheme that would allow Council to require a particular type of fencing above the excavation, and it is understood that a safety fence is not required under the *Building Act 2016*.

The route of the drive will require many trees to be removed. There is a note on the drive plan saying: "all trees to be removed in the vicinity of the house and driveway" with no real definition as to what constitutes 'vicinity'. This seems excessive, especially given the bush nature of the existing block and that of many of the blocks in the area.	A condition is recommended requiring the implementation of an approved tree retention plan. To be approved, the tree retention plan will need to demonstrate that the maximum number of trees will be retained that is reasonably feasible given the general design.
What pre and post excavation surveys, building assessment reports and photo's of neighbouring properties will be conducted? I am very concerned who will 'make good' any damage to my property?	This would be determined by the Building Surveyor.
Can a bond be posted to cover damage to neighbouring properties?	There are no relevant provisions in the planning scheme that would allow Council to require this.
Who will pay for damage to neighbouring properties?	That is a legal matter.
I run a short-term accommodation business so these works are intrusive to my business especially if starting before 9.30am. I will get complaints requesting refunds for noise and disruption.	Noise is an unavoidable consequence of development. The *EMPC (Noise) Regulations 2016* restrict the use of construction vehicles and machinery to certain hours, if the noise emitted is likely to be audible in a habitable room of a residential premises. Under the Regulations, work may be conducted from 7am Mon-Fri, 8am Saturdays and 10am Sundays.

Recommended Conditions:

SWMP

Tree retention plan

Recommended Advice:

Bird Collision risk

Part 5 Agreement

Dispersive soils