



DEVELOPMENT APPLICATION

PDPLANPMTD-2026/058468

PROPOSAL: Additions & Alterations (Single Dwelling)

LOCATION: 20 Tradewind Terrace, Sandford

RELEVANT PLANNING SCHEME: Tasmanian Planning Scheme - Clarence

ADVERTISING EXPIRY DATE: 02/03/2026

The relevant plans and documents can be inspected at the Council offices, 38 Bligh Street, Rosny Park, during normal office hours until 02/03/2026. In addition to legislative requirements, plans and documents can also be viewed at www.ccc.tas.gov.au during these times.

Any person may make representations about the application to the Chief Executive Officer, by writing to PO Box 96, Rosny Park, 7018 or by electronic mail to clarence@ccc.tas.gov.au. Representations must be received by Council on or before 02/03/2026.

To enable Council to contact you if necessary, would you please also include a day time contact number in any correspondence you may forward.

Any personal information submitted is covered by Council's privacy policy, available at www.ccc.tas.gov.au or at the Council offices.



Application for Development / Use or Subdivision

Use this form to obtain planning approval for developing or using land, including subdividing it into smaller lots or lot consolidation.

Proposal: *RENOVATION / EXTENSION TO RESIDENTIAL DWELLING*

Location: **20 Tradewind Terrace Sandford 7020**

Personal Information Removed

Is the property on the Tasmanian Heritage Register? Yes No

If yes, we recommend you discuss your proposal with Heritage Tasmania prior to lodgement as exemptions may apply which may save you time on your proposal.

If you had pre-application discussions with City of Clarence, please provide planner's name:

Current use of site: **residential**

Does the proposal involve land administered or owned by the Crown or Council? Yes No

Declaration

- I have read the Certificate of Title and Schedule of Easements for the land and am satisfied that this application is not prevented by any restrictions, easements or covenants.
- I authorise the provision of a copy of any documents relating to this application to any person for the purposes of assessment or public consultation. I agree to arrange for the permission of the copyright owner of any part of this application to be obtained. I have arranged permission for Council's representatives to enter the land to assess this application
- I declare that, in accordance with Section 52 of the Land Use Planning and Approvals Act 1993, that I have notified the owner of the intention to make this application. Where the subject property is owned or controlled by Council or the Crown, their signed consent is attached.
- I declare that the information in this declaration is true and correct.

Acknowledgement

- I acknowledge that the documentation submitted in support of my application will become a public record held by Council and may be reproduced by Council in both electronic and hard copy format in order to facilitate the assessment process; for display purposes during public consultation; and to fulfil its statutory obligations. I further acknowledge that following

Personal Information Removed

Please refer to the development/use and subdivision checklist on the following pages to determine what documentation must be submitted with your application.



Development/use or subdivision checklist

Mandatory Documents

This information is required for the application to be valid. We are unable to proceed with an application without these documents.

- Details of the location of the proposed use or development.
- A copy of the current Certificate of Title, Sealed Plan, Plan or Diagram and Schedule of Easements and other restrictions for each parcel of land on which the use or development is proposed.
- Full description of the proposed use or development.
- Description of the proposed operation. May include where appropriate: staff/student/customer numbers; operating hours; truck movements; and loading/unloading requirements; waste generation and disposal; equipment used; pollution, including noise, fumes, smoke or vibration and mitigation/management measures.
- Declaration the owner has been notified if the applicant is not the owner.
- Crown or Council consent (if publically-owned land).
- Any reports, plans or other information required by the relevant zone or code.
- Fees prescribed by the City of Clarence.

Application fees (please phone 03 6217 9550 to determine what fees apply). An invoice will be emailed upon lodgement.

Additional Documents

In addition to the mandatory information required above, Council may, to enable it to consider an application, request further information it considers necessary to ensure that the proposed use or development will comply with any relevant standards and purpose statements in the zone, codes or specific area plan, applicable to the use or development.

- Site analysis and site plan, including where relevant:
 - Existing and proposed use(s) on site.
 - Boundaries and dimensions of the site.
 - Topography, including contours showing AHD levels and major site features.
 - Natural drainage lines, watercourses and wetlands on or adjacent to the site.
 - Soil type.
 - Vegetation types and distribution, and trees and vegetation to be removed.
-



- Location and capacity of any existing services or easements on/to the site.
 - Existing pedestrian and vehicle access to the site.
 - Location of existing and proposed buildings on the site.
 - Location of existing adjoining properties, adjacent buildings and their uses.
 - Any natural hazards that may affect use or development on the site.
 - Proposed roads, driveways, car parking areas and footpaths within the site.
 - Any proposed open space, communal space, or facilities on the site.
 - Main utility service connection points and easements.
 - Proposed subdivision lot boundaries.
- Where it is proposed to erect buildings, detailed plans with dimensions at a scale of 1:100 or 1:200 showing:
- Internal layout of each building on the site.
 - Private open space for each dwelling.
 - External storage spaces.
 - Car parking space location and layout.
 - Major elevations of every building to be erected.
 - Shadow diagrams of the proposed buildings and adjacent structures demonstrating the extent of shading of adjacent private open spaces and external windows of buildings on adjacent sites.
 - Relationship of the elevations to natural ground level, showing any proposed cut or fill.
 - Materials and colours to be used on rooves and external walls.
- Where it is proposed to erect buildings, a plan of the proposed landscaping showing:
- Planting concepts.
 - Paving materials and drainage treatments and lighting for vehicle areas and footpaths.
 - Plantings proposed for screening from adjacent sites or public places.
- Any additional reports, plans or other information required by the relevant zone or code.

This list is not comprehensive for all possible situations. If you require further information about what may be required as part of your application documentation, please contact City of Clarence Planning team on (03) 6217 9550.



SEARCH OF TORRENS TITLE

VOLUME 43698	FOLIO 73
EDITION 8	DATE OF ISSUE 31-Mar-2020

SEARCH DATE : 26-Aug-2021

SEARCH TIME : 12.08 PM

DESCRIPTION OF LAND

City of CLARENCE

Lot 73 on Sealed Plan 43698

Derivation : Part of 1453 Acres Gtd. to G.B. Robinson, Part of
60 Acres Gtd. to J. Joseph and Part of 50 Acres Gtd. to S. Free
Prior CT 4667/38SCHEDULE 1M809425 TRANSFER to BELINDA CAROLINE COOK and ANDREW ALLAN
BRUCE BOICO Registered 31-Mar-2020 at 12.01 PMSCHEDULE 2

Reservations and conditions in the Crown Grant if any

SP 43698 COVENANTS in Schedule of Easements

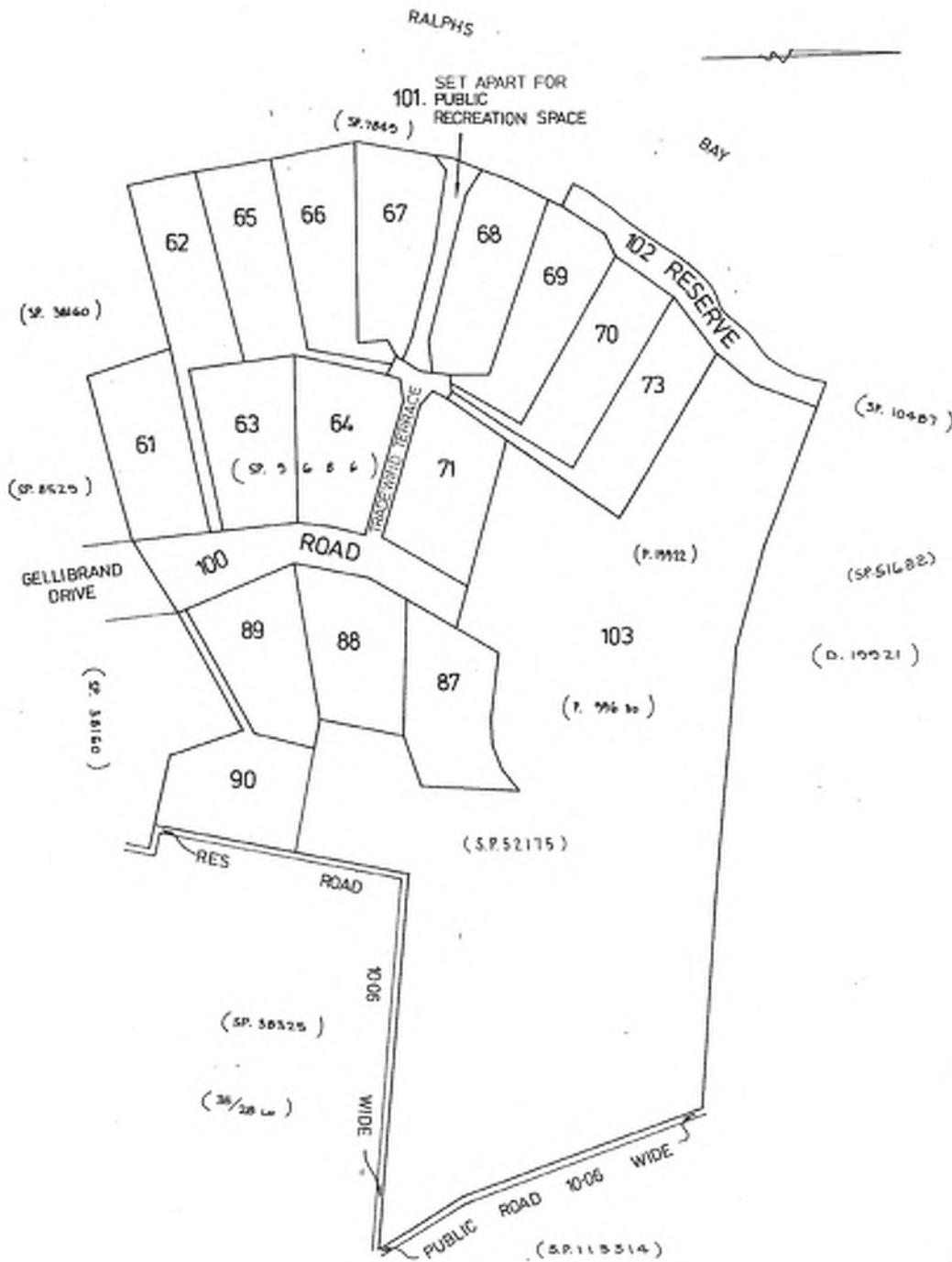
SP 43698 FENCING PROVISION in Schedule of Easements

SP 43698 COUNCIL NOTIFICATION under Section 468(12) of the
Local Government Act 1962E213672 MORTGAGE to Australia and New Zealand Banking Group
Limited Registered 31-Mar-2020 at 12.02 PMUNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

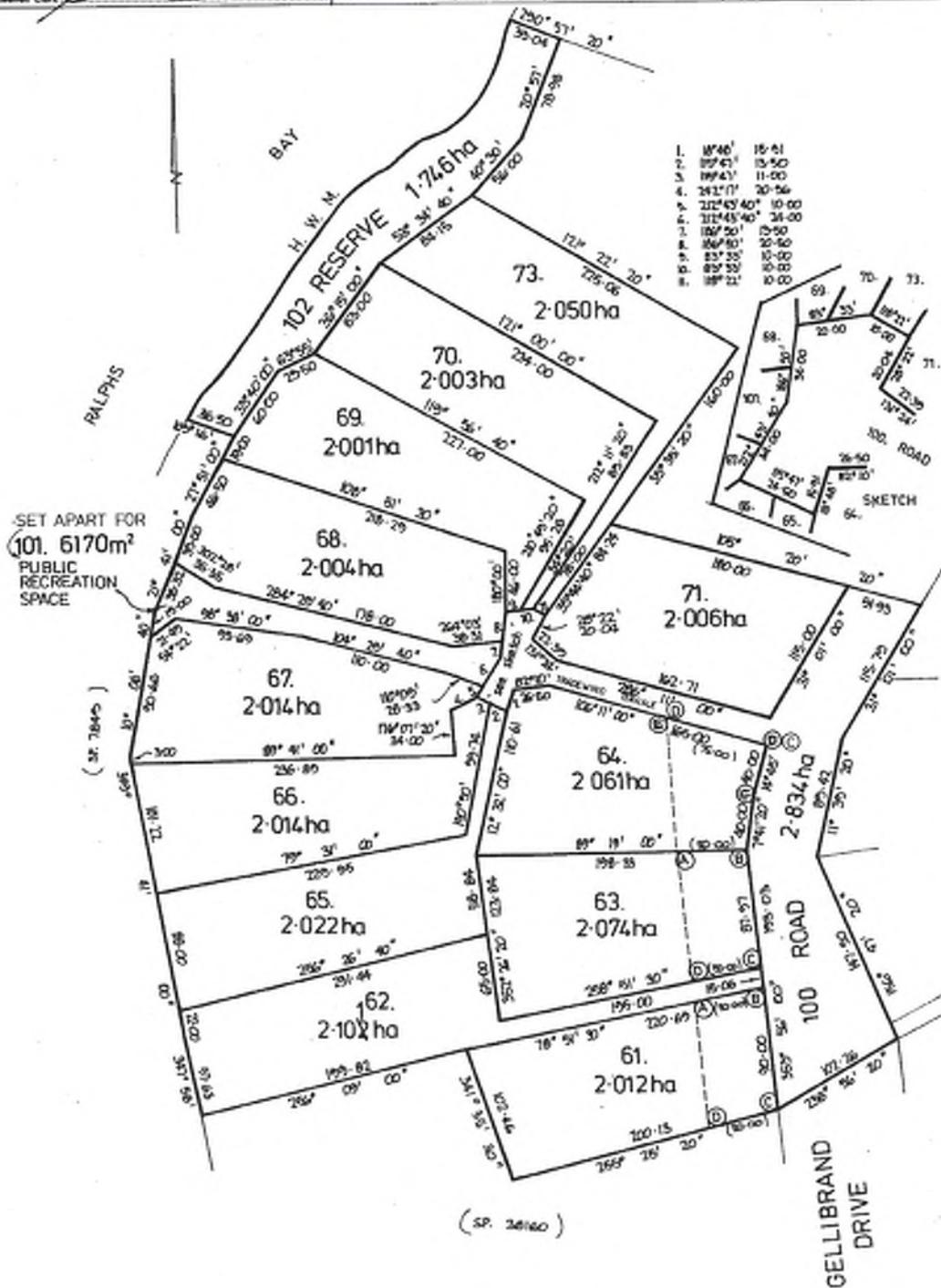
Owner: KINGSTON HOLDINGS P/L	PLAN OF SURVEY by Surveyor.....D. J. MURPHY..... of land situated in the	Registered Number: 5543698 Approved - 1 JUN 1990 Effective from <i>Mark John</i> Recorder of Titles
Title Reference: C's T. 4528-II, 4045-30	CITY OF CLARENCE	
Grantee: PART OF MESA, OR. OF. GTD TO SIR GEORGE BEST ROBINSON, PART OF GOAL LOCATED TO J. JOSEPH PART OF ROAD GTD TO S. FRENCH.	SCALE 1: 5000 MEASUREMENTS IN METRES	

UKR S.C. 90-90



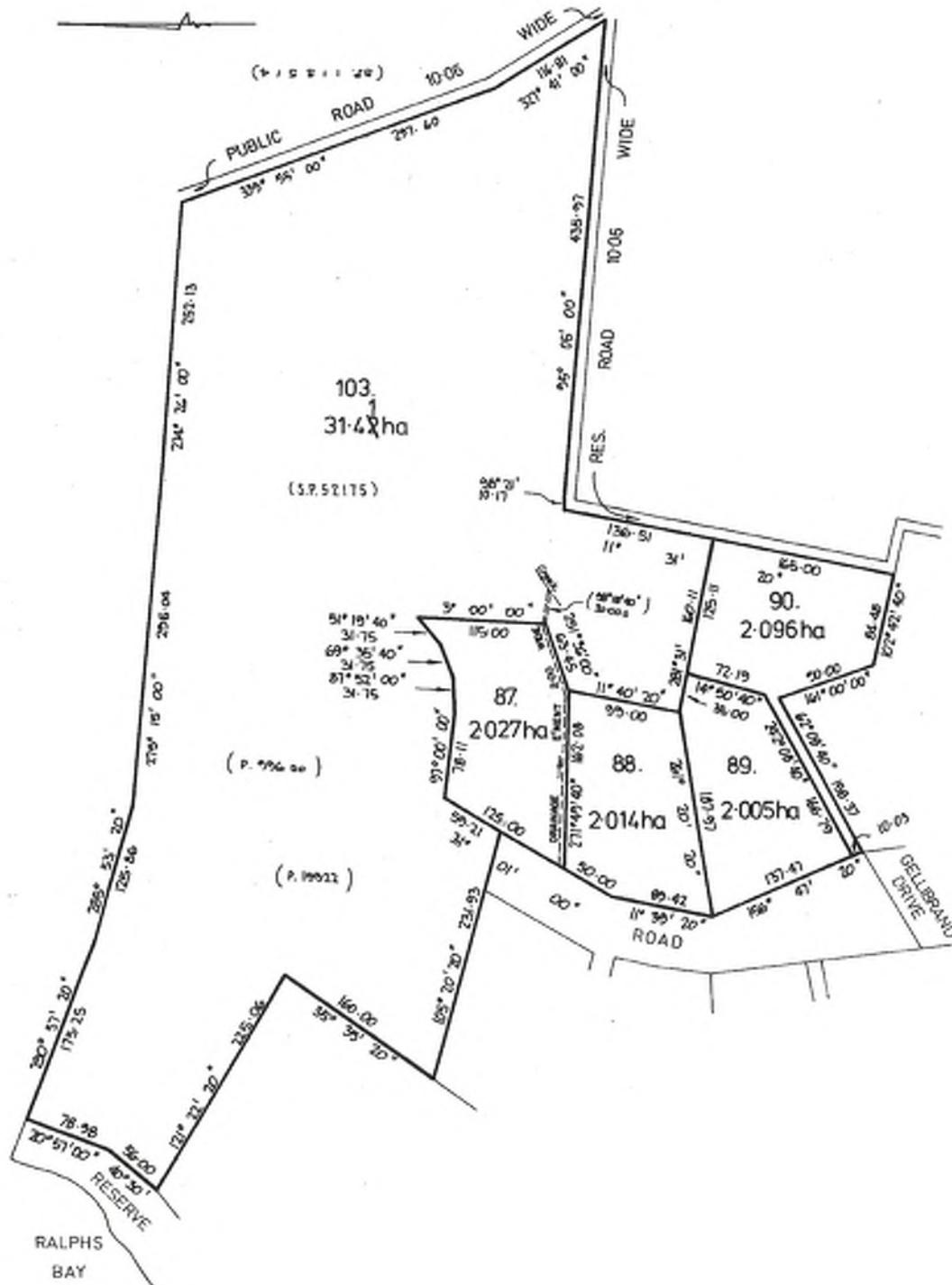
04-1-108

ANNEXURE SHEET No. 1 of 2 annexed to plan by Surveyor Signed for the purposes of identification 	This sheet contains detailed drawings of parcels shown on the index plan to which it is attached, which plan is verified by my certificate dated 13-3-'20 and that certificate extends to the detail shown on this sheet. Surveyor: <i>D. J. MANDY</i> Owner: KINGSTON HOLDINGS PT. LTD. Title Reference: C's T. 4528-II, 4045-30	Registered Number: SP43698 Scale 1: 2500 Measurements in Metres
	(SP. 26160)	



04/1/2021

<p>ANNEXURE SHEET No. 2, of 2, annexed to plan by Surveyor</p>	<p>This sheet contains detailed drawings of parcels shown on the index plan to which it is attached, which plan is verified by my certificate dated 15-1-20 and that certificate extends to the detail shown on this sheet.</p>	<p>Registered Number: SP43698</p>
<p>Signed for the purposes of identification <i>[Signature]</i> Deputy Clerk</p>	<p>Surveyor: D. J. M'ADAM Owner: KINGSIDE HOLDINGS PTY LTD Title Reference: C's T 4528-11, 4045-30</p>	<p>Scale 1: 2000 Measurements in Metres</p>



SCHEDULE OF EASEMENTS

PLAN NO.

NOTE:—The Town Clerk or Council Clerk must sign the certificate on the back page for the purpose of identification.

The Schedule must be signed by the owners and mortgagees of the land affected. Signatures should be attested.

SP43698EASEMENTS 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 à 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 à prendre described hereunder.

The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

COVENANTS:

The Owners of each Lot except Lots 100, 101 and 102 on the said plan covenant with Kingston Holdings Pty. Ltd. and the owner or owners for the time being of every other Lot except Lots 100, 101 and 102 shown on the plan to the extent that the burden of these covenants may run with and bind the covenantor's lot and every part thereof and that the benefit thereof shall be annexed to and devolved with each and every part of every other lot except Lots 100, 101 and 102 shown on the said plan to observe the following stipulations:

- (a) Not without the consent of the corporation to cut down lop or destroy on such lot any tree shrub or growth of the like character PROVIDED ALWAYS this covenant shall not apply to cutting down lopping topping destruction or removal of any trees shrubs or growths of the like character for the purposes of obtaining access to such lot building thereon installation of services or by reason of consideration of safety.

43698

The Owners of Lots 61, 63 and 64 on the said plan covenant with Kingston Holdings Pty. Ltd. and the owner or owners for the time being of every other Lot shown on the plan to the extent that the burden of these covenants may run with and bind the covenantor's lot and every part thereof and that the benefit thereof shall be annexed to and devolved with each and every part of every other Lot shown on the said plan to observe the following stipulations:

- (a) Not to construct any dwelling or buildings, whatsoever within the area marked A B C D on the plan hereon.

INTERPRETATION:

"Corporation" means the Mayor Aldermen and Citizens of the City of Clarence.

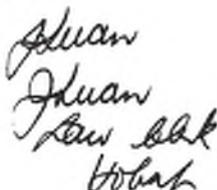
FENCING PROVISION:

In respect of each Lot except Lots 100, 101 & 102 shown on the plan the Vendor (Kingston Holdings Pty. Ltd.) shall not be required to fence.

THE COMMON SEAL of KINGSTON HOLDINGS PTY. LTD. was affixed hereto as the registered proprietor of the land comprised in folio of the Register volume 4528 folio II in the presence of:



SIGNED by KENNETH MURDOCH DRAKE and ROBERT JOHN BADENACH as Mortgagees under Memorandum of Mortgage No. B8291 in the presence of:

43698

This is the schedule of easements attached to the plan of
(Insert Subdivider's Full Name)
..... affecting land in
.....
(Insert Title Reference)

Scaled by **CITY OF CLARENCE**

on 20 MARCH 1990

Solicitor's Reference



Council Clerk/Town Clerk

Agent Authorisation Request

To Whom it May Concern,

We are writing to confirm that as the owner of (ADDRESS)

*20 TRADENING TERRACE
SUNSHORE TOWN 7010*

We authorise Matt Kennedy Drafting & Design to be the agent and act on my behalf for the submission of documentation for the proposed construction at the above address.

Should you need further information, please do not hesitate to contact me.

Yours Sincerely,

Personal Information Removed

BUILDING WORK

Use this form for:

- Notice of Work
- Application for a Certificate of Likely Compliance
- Application for a Building Permit

Section 97
Section 130
Section 139

To: *Permit Authority / Building Surveyor*
 Address
 Suburb/postcode

Form **2**

Application for: Permit CLC Notice of Work *(X ones applicable)*
 Certificate of Completion *(X to grant approval for certificate to be issued following the final inspection)*

NOTE: Standard of Work Certificate and applicable fees must be submitted prior to Certificate of Completion being issued, in accordance with section 153 or section 104 of the *Building Act 2016*

Building Surveyor details:

Building Surveyor: Category:
 Address: Phone No:
 Fax No:
 Licence No: Email:

Applicant / Owner details:

Note: Only an owner or agent of the owner may make an application

Owner: Contact person:
 Address: Phone No:
 Fax No:
 Email address:
Owner builder: Yes: *(X if applicable)* Registration number:
 Names: Contact person:
 Contact address: Phone No:
 Fax No:
 Email address:
Agent: Contact person:
 Address: Phone No:
 Fax No:
 Email address:

Note: Agents to be authorised in writing by the owner

Details of building work:

Type of work: Permit work Notifiable work *(X one applicable)*

Address: Lot No:
 Certificate of title No:
 Type of work: *(new building / alteration / addition / repair / removal / re-erection / other)*
 Use of building: *(main use)* Building class(es):

Other details:

Area: m² existing building floor: new floor: land:

Material: floor: walls: roof: frame:

Value of work: \$ contract price: estimate: No. of dwelling units:

[inclusive of GST]

Licensed Building Service Provider details:

Building - Designer: Category:

Business name:

Business address: Phone No:
 Fax No:

Licence No: Email address:

Engineer - Designer: Category:

Business name:

Business address: Phone No:
 Fax No:

Licence No: Email address:

Builder: Category:

Business name:

Business address: Phone No:
 Fax No:

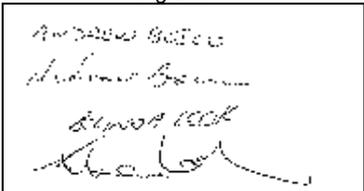
Licence No: Email address:

Documents and certificates provided:

The following specified documents and certificates are provided with this application -

<i>Document or certificate description:</i>	<i>Prepared by: (Licence No. if applicable)</i>
Certificate of Likely Compliance: Documents specified in the Director's Specified List	Freestone Building Surveying

The building work will be carried out in accordance with the **Building Act 2016**, the **Building Regulations 2016** and the **National Construction Code**.

<i>Name: [print]</i>	<i>Signed</i>	<i>Date</i>
Owner / Agent: <input type="text" value="Belinda Cook & Andrew Boico"/>		<input type="text" value="23/01/24"/>

PLUMBING WORK

Use this form for:

- Notice of Work
- Application for a Certificate of Likely Compliance
- Application for a Plumbing Permit

Section 108
Section 156
Section 165

Form **3**

To: Permit Authority
 Address
 Suburb/postcode

Application for: Permit CLC Notice of Work (X ones applicable)
 Certificate of Completion (X to grant approval for certificate to be issued following the final inspection)

NOTE: Standard of Work Certificate and applicable fees must be submitted prior to Certificate of Completion being issued, in accordance with section 178 or section 115 of the Building Act 2016

Applicant / Owner details:

Note: Only an owner or agent of the owner may make an application

Owner: Contact person:
 Address: Phone No:
 Fax No:
 Email address:
Agent: Contact person:
 Address: Phone No:
 Fax No:
 Email address:

Note: Agents to be authorised in writing by the owner

Details of plumbing work:

Type of work: Permit work Notifiable work Planning approval granted
(X one applicable) *(if applicable)*
 Address: Lot No:
 Certificate of title No:
 Type of work: *(new building / alteration / addition / repair / removal / re-erection / other)*
 Use of building: *(main use)* Building class(es):

Plumber details:

Name: Category:
Address:
 Phone No:
 Fax No:
Licence No. **Email address:**

Plumbing designer details:

Building - Designer: Category:
Business name:
Business address: Phone No:

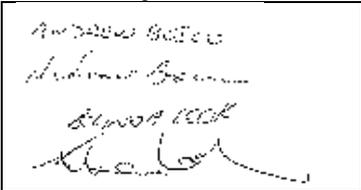
	Mornington, TAS	7018	Fax No:	
Licence No:	189009392	Email address:	admin@matt-kennedy.com.au	
Engineer - Designer:	Daniel Gardner	Category:	Engineer - Designer	
Business name:	Aldanmark Pty Ltd			
Business address:	199 Macquarie Street	Phone No:	6234 8666	
	Hobart, TAS	7000	Fax No:	
Licence No:	CC5147U	Email address:	mail@aldanmark.com.au	

Documents provided:

The following documents are provided with this application -

<i>Document description:</i>	<i>Prepared by:</i>
Documents as specified in Schedule 2 of the Director's Specified List:	Freestone Building Surveying

The plumbing work will be carried out in accordance with the *Building Act 2016, the Building Regulations 2016* and the National Construction Code.

	<i>Name: [print]</i>	<i>Signed</i>	<i>Date</i>
Owner / Agent: <i>(Delete one not applicable)</i>	Belinda Cook & Andrew Boico		23/01/24

CERTIFICATE OF LIKELY COMPLIANCE – BUILDING WORK

**Section 134
Section 98**

To: Owner /Agent
 Address
 Suburb/postcode

Form
11A

Applicant / Owner/ Owner builder details:

Note: Only an owner or agent of the owner may make an application

Owner: Contact person:
Address: Phone No:
 Fax No:
Email address:

Owner builder: Yes: (X if applicable) Registration number:
Names: Contact person:
Contact address: Phone No:
 Fax No:
Email address:

Agent: Contact person:
Address: Phone No:
 Fax No:
Email address:

Note: Agents to be authorised in writing by the owner

Building Surveyor details:

Building Surveyor: Category:
Address: Phone No:
 Fax No:
Licence No: Email address:

Details of building work:

Type of work: Permit work **Notifiable work** (X one applicable)
Address: Lot No:
 Certificate of title No:
Type of work: (new building / alteration / addition / repair / removal / re-erection / other)
Use of building: (main use) **Building class(es):**

Other details:

Area: m² existing building floor: new floor: land:
Material: floor: walls: roof: frame:
Value of work: \$ contract price: estimate: No. of dwelling units:
[inclusive of GST]

Licensed Building Service Provider details:

Building - Designer:	Matt Kennedy	Category:	Building - Designer
Business name:	Matt Kennedy Drafting & Design		
Business address:	5 McIntyre St	Phone No:	0472 655 173
	Mornington, TAS	7018	Fax No:
Licence No:	189009392	Email address:	admin@matt-kennedy.com.au
Engineer - Designer:	Daniel Gardner	Category:	Engineer - Designer
Business name:	Aldanmark Pty Ltd		
Business address:	199 Macquarie Street	Phone No:	6234 8666
	Hobart, TAS	7000	Fax No:
Licence No:	CC5147U	Email address:	mail@aldanmark.com.au
Builder:	TBA	Category:	
Business name:			
Business address:		Phone No:	
			Fax No:
Licence No:		Email address:	

Certificate details:

In considering this application the following documents and matters were taken into account (s98; s132) -
Details: Prepared by:

Required documents:	Drawing Nos. Cover, A.01 to 23; MK Drafting & Design E.01 to 08; SH.01 to 04
Required certificates:	Drawing Nos. EN.01 to 04 Aldanmark Form 35 Matt Kennedy Form 35 Daniel Gardner Form 55 Daniel Gardner Form 55 David Kearney Form 55 Richard Doyle Form 55 Samuel Walters
Required Reports:	Energy Assessment David Kearney Site Assessment Doyle Soil Consulting Natural Values report Enviro-dynamics BAL Assessment & BHMP Bushfire Tasmania
Food Premises Verification Analysis:	
Certificates provided:	
Notifications by FCA:	
If historical or farm building:	
Relevant permit or consent requirements under other Acts:	Planning Permit Clarence City Council

Relevant approvals considered: Planning Plumbing CLC (X if applicable)

This certificate is granted subject to the following conditions –

1. The Building Code of Australia (BCA), National Construction Code (NCC) 2022 Volume 2 is effective from 1 May 2023. Transitional arrangements may be relied upon for all developments that were substantially progressed through the design and planning phases prior to 1 May 2023. In these cases, BCA NCC Volume 2 2019 continues to apply.
2. **Planning Permit / Development / Use Permit.** This development is subject to all Conditions on the approved DA PDPLAMPMTD-2022/031639 issued on 7 Dec 2022 by the Clarence City Council.

3. The Builder is to submit a Building Start Work Notice – Form 39 to **Freestone Building Surveying (FBS)**. The builder must receive confirmation from FBS that works can commence on site. Section 99, Building Act 2016. Building Regulations 2016, No.29.
4. **Manufactured Roof Trusses:** Please forward a copy of the Truss Install Plan and Certification of the Trusses, prior to the Framing Inspection.
5. The following certificates must be received by FBS for consideration prior to Occupancy or use of the Building;
 - a. **Glazing Certificate:** The Certificate must state that the Windows and Doors are compliant with AS 1288 and AS 2047. If applicable the certificate **must** show compliance with the wind rating for the site and Bushfire Attack Level (BAL) AS 3959.
 - b. If your **Structural Engineer** has undertaken Site Inspection/s, they are to provide a full copy of their inspection record as well as a **Form 55 Certificate of Others**.
 - c. **Form 71A – Standard of Work Certificate.**
 - d. **Form 71B – Roof Plumber** to provide if the structure has a Bushfire Attack Level (BAL) AS3959
6. **Drainage.** All drainage must comply with NCC 2022 Volume Two Housing Provisions Part 3.2.
7. **Sub-Floor Ventilation.** Sub-Floor Spaces must comply with NCC 2022 Volume Two Housing Provisions Part 6.2
8. **Wall Cladding.** To comply with NCC 2022 Volume Two Housing Provisions Part 7 and Part 10.8. If specific wall cladding types have not been identified on the drawings or changes are proposed to be made, approval for the type of cladding is to be secured from Freestone Building Surveying prior to installation. All wall cladding is to have either appropriate vertical battens or if battens are fixed horizontally, a cavity system to ensure airflow for condensation management is to be utilised. No cladding shall be direct fixed to stud work. This condition has authority over any designer's notes that instructs cladding to manufacturer's specification. Note the requirement for vapour permeable membranes in wall construction. Treated pine or better to be used for cavity battens outside of wall membrane.
9. **The minimum clearance from the bottom of the wall cladding** to the adjoining finished ground level for Class 1 buildings must comply with the NCC 2022 Volume Two Housing Provisions Part 7.5.7 **Clearance between cladding and ground.** Concrete must not be placed against the cladding.
10. **Fire Safety: Smoke Alarms:** Smoke Alarms are to be installed in accordance with NCC 2022 Volume Two Housing Provisions Part 9.
11. **Health and Amenity.** Project must comply with all provisions of NCC 2022 Volume Two Housing Provisions Part 10.
12. **Safe Movement and Access.** Project must comply with all provisions of NCC 2022 Volume Two Housing Provisions Part 11.
13. **Construction of Sanitary Compartments.** The door to a fully enclosed sanitary compartment must.
 - a. open outwards; or
 - b. slide; or
 - c. be readily removable from the outside of the compartment,
 - d. unless there is a clear space of at least 1.2m., measured in accordance with Figure 10.4.2, NCC 2022 Vol 2 Housing Provisions, between the closet pan within the sanitary compartment and the doorway.
14. **Corrosion Protection:** This Project development is occurring in a,
 - **Medium** corrosive environment (More than 1 km from breaking surf or aggressive industrial areas or more than 50 m from sheltered bays)
 - Protective Coatings for Steelwork must comply with all provisions of NCC 2022 Volume Two Housing Provisions Part 6.3.9.

15. **Condensation Management.** Project to comply with all provisions of NCC 2022 Volume Two Housing Provisions Part 10.8. In addition, this project should meet the requirements of Condensation in Buildings – Tasmanian Designers Guide – Version 2”.
16. The proposed project has been assessed as having a **Bushfire Attack Level** of 19 (Addition & Deck 1) & 29 (Deck 2). The building works must comply will AS 3959 for this BAL. In addition to the BAL construction notes the following applies:
- Occupancy is conditional on the requirements of the Bushfire Hazard Management Plan being met.

The following mandatory notification stages apply to this building work –

(X applicable one.)

Covering in the foundations:	x	Other: <i>(Specify)</i>	
Pouring structural concrete:	x		
Cladding or building-in structural frame:	x		
Completing the building work:	x		

(X if applicable.)

Building work referred to in this certificate has been assessed as an alternative solution under the NCC

Details of alternative solution:

I certify that after assessment of the application submitted to me, I am satisfied that the building work to which this certificate applies is likely to comply with the *Building Act 2016*, the *Building Regulations 2016* and the National Construction Code.

	<i>Signed:</i>	<i>Date:</i>	<i>Certificate No.</i>
Building Surveyor Limited:	Mark Schmidt 	24/01/2024	230629

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Owner name
 Address
 Suburb/postcode

Designer details:

Name: Category:
 Business name: Phone No:
 Business address:
 Fax No:
 Licence No: Email address:

Details of the proposed work:

Owner/Applicant Designer's project reference No.
Address: Lot No:

Type of work: Building work Plumbing work (X all applicable)

Description of work:

Addition/Alteration to existing dwelling & new shed Sewer to existing AWTS Stormwater to existing & to new swale drain	<i>(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)</i>
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Description of the Design Work (Scope, limitations or exclusions): (X all applicable certificates)

Certificate Type:	Certificate	Responsible Practitioner
	<input checked="" type="checkbox"/> Building design	Architect or Building Designer
	<input type="checkbox"/> Structural design	Engineer or Civil Designer
	<input type="checkbox"/> Fire Safety design	Fire Engineer
	<input type="checkbox"/> Civil design	Civil Engineer or Civil Designer
	<input type="checkbox"/> Hydraulic design	Building Services Designer
	<input type="checkbox"/> Fire service design	Building Services Designer
	<input checked="" type="checkbox"/> Electrical design	Building Services Designer
	<input type="checkbox"/> Mechanical design	Building Service Designer
	<input checked="" type="checkbox"/> Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	<input type="checkbox"/> Other (specify)	

Deemed-to-Satisfy: Performance Solution: (X the appropriate box)

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers: A0.1 - A.23, E.01 - E.07, SH01-SH03	Prepared by: Matt Kennedy	Date: 09/05/2023 06/12/2023
Schedules:	Prepared by:	Date:
Specifications:	Prepared by:	Date:
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by:	Date:

Standards, codes or guidelines relied on in design process:	
AS/NZ1170.0:2002, AS/NZ1170.1:2002, AS1684:2010, AS2870:2011, AS3600:2009, AS4100:1998, AS4678:2002	

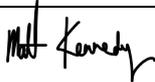
Drawings: 2153 - E.01 - E.07 by Matt Kennedy Drafting and Design, certified by Aldanmark Engineers on 11/12/23 Drawings: 2153 - SH.04 - by Matt Kennedy Drafting & Design, certified by Aldanmark Engineers on 11/12/23	

Attribution as designer:

I, MATT KENNEDY am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Matt Kennedy		11/12/23
Licence No:	189009392		

Assessment of Certifiable Works: (TasWater)

Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.
If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.
TasWater must then be contacted to determine if the proposed works are Certifiable Works.

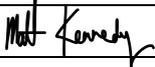
I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:

- The works will not increase the demand for water supplied by TasWater
- The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- The works will not damage or interfere with TasWater's works
- The works will not adversely affect TasWater's operations
- The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- I have checked the LISTMap to confirm the location of TasWater infrastructure
- If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

Certification:

I, MATT KENNEDY being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008*, that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: the Guidelines for TasWater Certification of Certifiable Works Assessments are available at: www.taswater.com.au

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Matt Kennedy		11/12/23



CERTIFICATE OF THE RESPONSIBLE DESIGNER

Form **35**

To: *Owner name*

Address

Suburb / Postcode

Designer Details:

Name: *Category:*

Business Name: *Phone No:*

Address:

Licence No: *Email address:*

Details of Proposed Work:

Owner: *Project Ref No:*

Address: *Lot No:*

Type of Work Building Work Plumbing Work

Description of work:

(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)

Description of the Design Work (Scope, limitations or exclusions):

Certificate Type:	Certificate	Responsible Practitioner
	<input type="checkbox"/> Building design	Architect or Building Services Designer
	<input checked="" type="checkbox"/> Structural design	Structural Engineer
	<input type="checkbox"/> Civil design	Civil Engineer
	<input type="checkbox"/> Hydraulic design	Building Services Designer
	<input type="checkbox"/> Fire service design	Building Services Designer
	<input type="checkbox"/> Other (specify)	

Deemed-to-Satisfy: Performance Solution:

Scope: Footings, structural steel framing, bracing and timber framing.

Limitations: Engineering design is based on the following documents:

- Architectural documents by Matt Kennedy Drafting & Design dated 6/12/2023
- Site and soil investigation by Doyle Soil Consulting dated 22/07/22

Exclusions: Timber trusses, waterproofing, timber-framed stairs, balustrades, driveway and parking, sewerage, stormwater, water and retaining walls.

The building surveyor or a suitably qualified and competent professional should be engaged to conduct engineering inspections during construction and to confirm the suitability of the engineering design for the site conditions encountered. Aldanmark should be contacted if variations in site conditions are encountered or if the suitable person is unsure about the suitability of the engineering design. Alternatively Aldanmark can be engaged to conduct these inspections on behalf of the building surveyor.

Design Documents Provided	
----------------------------------	--

The following documents are provided with this certificate -

Drawing Numbers:	Prepared By:	
	Date:	
Schedules:	Prepared By:	
	Date:	
Specifications: EN.01 to EN.04 Rev 0 by Aldanmark	Prepared By:	Daniel Gardner
	Date:	12/12/2023
Computations:	Prepared By:	
	Date:	
Performance Solution Proposals:	Prepared By:	
	Date:	
Test Reports:	Prepared By:	
	Date:	

Standards, codes or guidelines relied on in design process:	
--	--

AS 1170.0, AS 1170.1, AS 1684.2, AS 2870, AS 3798, AS 4055, AS 4100 and all other relevant Australian Standards and codes.

Any other relevant documentation	
---	--

Attribution as designer:	
---------------------------------	--

I, Daniel Gardner am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance of this design with the requirements of the National Construction Code.

Designer:	Name: (print)	Signed:	Date:
	Daniel Gardner		12/12/2023
	Licence No:	Project Ref No:	Certificate No:
	CC5147U	22 E 103 - 26	A 106738

CERTIFICATE OF QUALIFIED PERSON ASSESSABLE ITEM



To:

Andrew Boico & Belinda Cook		
20 Tradewind Terrace		
Sandford	TAS	7020

 Owner/Agent
Address
Suburb / Postcode

Form 55
Section 321

Qualified Person details:

Qualified Person:

Daniel Gardner		
----------------	--	--

Address:

LG, 199 Macquarie St		
Hobart	TAS	7000

 Phone No:

03 6234 8666

Licence No:

CC5147U

 Email address:

mail@aldanmark.com.au

Qualifications and Insurance Details (description from Column 3 of the Director of Building Control's Determination)

Engineer - Civil

Speciality area of expertise (description from Column 4 of the Director of Building Control's Determination)

Structural & Civil Engineer

Details of work:

Address:

20 Tradewind Terrace		
Sandford	TAS	7020

 Lot No:

--

Certificate of Title No:

--

The assessable item relating to this cert

Proposed dwelling

Certificate details:

Certificate Type (description from Column 1 of Schedule 1 of the Director of Building Control's Determination)

Structural Engineering

This certificate is in relation to the above assessable item, at any stage, as part of building work, plumbing work or plumbing installation or demolition work:

OR a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant -

Documents:

Drawings: 2153 sheets E.01 to E.05, E.07 and E.08 by Matt Kennedy Drafting and Design dated 09/05/2023 Certified by Aldanmark on 11/12/2023

Relevant Calculations:

References:

AS 1170.0, AS 1170.1, AS 1684.2, AS 2870, AS 3798, AS 4055, AS 4100 and all other relevant Australian Standards and codes.

Substance of Certificate:

Footings, structural steel framing, bracing and timber framing.

Scope or Limitations:

Limitations: Engineering design is based on the following documents:

- Architectural documents by Matt Kennedy Drafting and Design dated 09/05/23
- Site and soil investigation by Doyle Soil Consulting dated 22/07/22

Exclusions: Timber trusses, waterproofing, timber-framed stairs, balustrades, retaining walls, driveway and parking, sewerage, stormwater and water.

The building surveyor or a suitably qualified and competent professional should be engaged to conduct engineering inspections during construction and to confirm the suitability of the engineering design for the site conditions encountered. Aldanmark should be contacted if variations in site conditions are encountered or if the suitable person is unsure about the suitability of the engineering design. Alternatively Aldanmark can be engaged to conduct these inspections on behalf of the building surveyor.

I certify the matter described in this certificate.

Certifier:	Signed: 	Date: 11/12/2023	Job Ref: 22 E 103 - 26	Certificate No. BP 106731
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CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

ANDREW BOICO & BELINDA COOK

Owner /Agent

20 TRADEWIND TERRACE

Address

SANDFORD

7020

Suburb/postcode

Form **55**

Qualified person details:

Qualified person: David Kearney

Address: Po box 133

Phone No: 0404571877

Lauderdale

7020

Fax No:

Licence No: 10186

Email address: admin@buildassesstas.com.au

Qualifications and Insurance details: Certificate IV Nathers Assessment Professional Indemnity Cover HERA.

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Speciality area of expertise: Thermal Performance Assessment

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work: 20

Address: TRADEWIND TERRANCE

SANDFORD

7020

Certificate of title No: 140003/15

The assessable item related to this certificate: The Energy efficiency of the above address - New Residence

(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: Thermal Performance

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

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

building work, plumbing work or plumbing installation or demolition work

OR

a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:

Thermal Performance star rating – see attached

Relevant
calculations:

Refer to report

References:

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

Thermal performance report Dated 119/05/2023 based on Plans
Provided DATED 21/03/2023

Scope and/or Limitations

The report only covers the plans listed above

[Empty rectangular box]

I certify the matters described in this certificate.

Qualified person:	<i>Signed:</i>	<i>Certificate No:</i>	<i>Date:</i>
		102	19/05/202 3

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To: Owner /Agent
 Address
 Suburb/postcode

Form **55**

Qualified person details:

Qualified person:
Address: Phone No:
 Fax No:
Licence No: Email address:

Qualifications and Insurance details: *(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)*

Speciality area of expertise: *(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)*

Details of work:

Address: Lot No:
 Certificate of title No:
The assessable item related to this certificate: *(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: *(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)*

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:

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:

The attached Geotechnical Assessment Report for the address detailed above in, 'Details of Work'.

Relevant calculations:

Refer to above report.

References:

AS2870-2011 Residential slabs and footings
AS1726-2017 Geotechnical site investigations
CSIRO Building Technology File -18

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

Site classification consistent with AS2870-2011.

Scope and/or Limitations

The classification applies to the site as inspected and does not account for future alteration to foundation conditions as a result of earthworks, drainage condition changes or variations in site maintenance.

I certify the matters described in this certificate.

Qualified person:

Signed:



Certificate No:

1110

Date:

28/07/2022



CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To: Owner /Agent
 Address
 Suburb/postcode

Form **55**

Qualified person details:

Qualified person:
Address: Phone No:
 Fax No:
Licence No: Email address:

Qualifications and Insurance details: *(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)*

Speciality area of expertise: *(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)*

Details of work:

Address: Lot No:
 Certificate of title No:

The assessable item related to this certificate: *(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: *(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)*

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

building work, plumbing work or plumbing installation or demolition work

OR

a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Assessment Report for 20 Tradewind Terrace, Sandford dated November 2023, report code K22-5 Rev 2 and Bushfire Hazard Management Plan for 20 Tradewind Terrace, Sandford dated 01/11/2023 Rev B
Relevant calculations:	
References:	Australian Standard 3959, 2018 Director's Determination – Bushfire Hazard Areas Version 1.1 2021 NCC 2022

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

Bushfire Hazard Assessment report that includes bushfire attack level assessment to AS3959 2018 and Director's Determination – Bushfire Hazard Areas Version 1.1 2021.

Conclusion: Separation distances are required to create an HMA with dimensions of a minimum 18m on the northern aspect, 28m on the western aspect and to the property boundary on the southern and eastern aspects to allow a BAL-19 compliant building solution for all aspects of the proposed addition and deck 1. BAL-29 applies to the existing dwelling and proposed deck 2. Refer to the BHMP attached in Appendix C of report for deck 1 and 2 locations. HMA to be at least 7m from proposed shed (see BHMP).

Static firefighting water supply required in line with table 3B of the Director's Determination.

Site access is >30m <200m to firefighting water supply point and must comply with Table 2(B) of Director's Determination. Gravel surface to be upgraded to remove erosion ruts and some trimming of vegetation may be required in areas to provide minimum 4m vertical clearance. Turning area will be extended as per plans.

Proposed shed is >6m from class 1a dwelling, not required to comply with bushfire construction measures.

Scope and/or Limitations

Scope: to provide assessment of potential hazard relating to bushfire and classifying of bushfire prone vegetation in relation to the site. All recommendations and conclusions in this report are in accordance with, and subject to compliance with AS 3959-2018, Director's Determination – Bushfire Hazard Areas Version 1.1 2021 and the Building Code of Australia.

Limitations: Report is based on site investigations at the time of inspection and from information provided to us by proposal agent/owner and is limited to bushfire hazard assessment only. The assessment is based solely on this proposal and confined to the site only. Any proposed future building(s) or changes in vegetation that may impact this site from a bushfire hazard perspective other than that assessed have not been considered in this report.

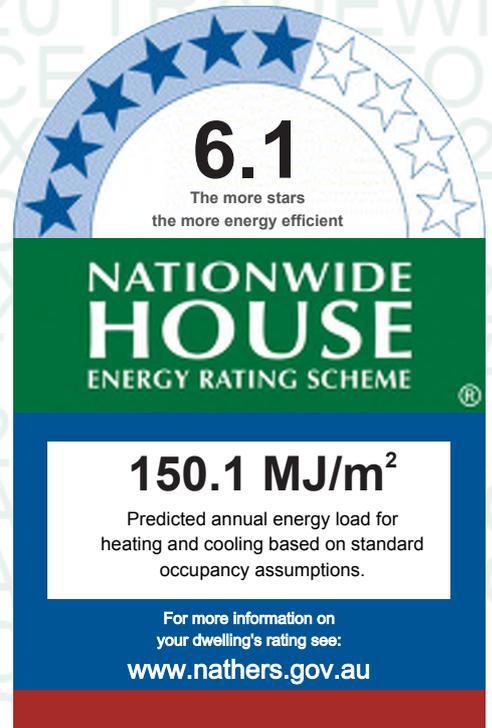
I certify the matters described in this certificate.

Qualified person:	<i>Signed:</i> 	<i>Certificate No:</i> K22-5 005	<i>Date:</i> 01.11.2023
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Nationwide House Energy Rating Scheme

NatHERS Certificate No. 3AX93HXIQX-01

Generated on 19 May 2023 using FirstRate5: 5.3.2b (3.21)



6.1
The more stars
the more energy efficient

NATIONWIDE HOUSE
ENERGY RATING SCHEME

150.1 MJ/m²
Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see:
www.nathers.gov.au

Property

Address 20 Tradewind Terrace, Sandford, TAS, 7020
Lot/DP -
NCC Class* Class 1a
Type Alteration



1/09/2023 9:51:55 AM

Mark Schmidt
Building Surveyor Limited
CC 4806 S
03 6124 2220
freestonebuildingsurveying.com.au



Plans

Main plan 21/02/2023
Prepared by MK DRAFTING - CHRIS

Construction and environment

Assessed floor area (m ²)*	Exposure type	
Conditioned*	202.4	open
Unconditioned*	2.8	NatHERS climate zone
Total	205.2	26 Hobart RO
Garage	-	

Thermal performance

Heating	Cooling
141.9	8.2
MJ/m ²	MJ/m ²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Verification

To verify this certificate, scan the QR code or visit <https://www.fr5.com.au/QRCodeLanding?PublicId=3AX93HXIQX-01> When using either link, ensure you are visiting www.FR5.com.au.



Accredited assessor

Name DAVID KEARNEY
Business name david kearney
Email admin@buildassesstas.com.au
Phone 0404571877
Accreditation No. HERA10186
Assessor Accrediting Organisation HERA
Declaration of interest Declaration completed: no conflicts

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary



Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page?
Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Additional Notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
BRD-002-01 A	Aluminium Sliding Window DG 4-6-4	4.42	0.59	0.56	0.62
BRD-032-01 A	ESS Hinged Door (100mm) DG 4/14/4	4.03	0.55	0.52	0.58
BRD-022-01 A	Al Sliding Door DG 4/17/4	4.02	0.62	0.59	0.65
BRD-028-08 A	ESS Awning Window (52mm) DG 4-6-4	4.62	0.55	0.52	0.58
BRD-125-46 A	ESS Fixed Window External 52 Comm DG 4mmClr_10Ar_4mmClr	3.21	0.67	0.64	0.7

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
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* Refer to glossary.



KIT / DIN / LOUNGE	BRD-002-01 A	Opening 1	350	1210	sliding	45.0	SSW	No
KIT / DIN / LOUNGE	BRD-002-01 A	Opening 2	350	2400	sliding	45.0	SSW	No
KIT / DIN / LOUNGE	BRD-002-01 A	Opening 4	350	1500	sliding	45.0	SSW	No
KIT / DIN / LOUNGE	BRD-002-01 A	Opening 5	350	1500	sliding	45.0	SSW	No
KIT / DIN / LOUNGE	BRD-032-01 A	Opening 25	2100	1637	casement	30.0	ESE	No
KIT / DIN / LOUNGE	BRD-022-01 A	SLIDING DOOR	2100	1900	sliding	30.0	WNW	No
KIT / DIN / LOUNGE	BRD-022-01 A	Opening 9	2100	1900	sliding	30.0	WNW	No
KIT / DIN / LOUNGE	BRD-022-01 A	Opening 6	2100	2400	sliding	30.0	NNE	No
KIT / DIN / LOUNGE	BRD-022-01 A	Opening 7	2100	2400	sliding	30.0	NNE	No
KIT / DIN / LOUNGE	BRD-022-01 A	Opening 22	2100	2400	sliding	30.0	WNW	No
KIT / DIN / LOUNGE	BRD-022-01 A	Opening 23	2100	2400	sliding	30.0	WNW	No
BED 2	BRD-022-01 A	Opening 10	2100	1900	sliding	30.0	WNW	No
BED 2	BRD-022-01 A	Opening 11	2100	1900	sliding	30.0	WNW	No
BEDROOM 3	BRD-028-08 A	Opening 20	2100	1400	awning	30.0	ESE	No
BEDROOM 3	BRD-125-46 A	Opening 26	350	1400	fixed	0.0	ESE	No
ENSUITE	BRD-028-08 A	Opening 21	350	700	awning	90.0	ESE	No
ENSUITE	BRD-125-46 A	Opening 27	350	700	fixed	0.0	ESE	No
ENSUITE	BRD-032-01 A	Opening 18	2100	820	casement	60.0	NNE	No
ENSUITE	BRD-028-08 A	Opening 19	600	600	awning	90.0	NNE	No
WIR	BRD-028-08 A	AWNING	1050	900	awning	90.0	NNE	No
WIR	BRD-125-46 A	Opening 24	1050	900	fixed	0.0	NNE	No
HALLWAY	BRD-032-01 A	Opening 17	2100	820	casement	60.0	ESE	No
ENUITE	BRD-125-46 A	Opening 15	1250	1600	fixed	0.0	NNE	No
ENUITE	BRD-125-46 A	Opening 14	1250	2100	fixed	0.0	WNW	No
MASTER	BRD-022-01 A	Opening 12	2100	1900	sliding	30.0	WNW	No
MASTER	BRD-022-01 A	Opening 13	2100	1900	sliding	30.0	WNW	No

Roof window type and performance value

Default* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

* Refer to glossary



Substitution tolerance ranges

Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m ²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

Skylight type and performance

Skylight ID	Skylight description
GEN-04-004a	DC: Double Clear

Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
KIT / DIN / LOUNGE	GEN-04-004a	Element 1	1040	0.9	N	None	No	0.75
KIT / DIN / LOUNGE	GEN-04-004a	Element 2	1040	0.9	NE	None	No	0.75
KIT / DIN / LOUNGE	GEN-04-004a	Element 3	1700	0.7	N	None	No	0.75
KIT / DIN / LOUNGE	GEN-04-004a	Element 4	1700	0.6	N	None	No	0.75
WC	GEN-04-004a	Element 6	819	0.4	N	None	No	0.75
PANTRY	GEN-04-004a	Element 5	819	0.4	N	None	No	0.75
BEDROOM 3	GEN-04-004a	Element 7	500	0.6	N	None	No	0.75

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	19MM TIMBER 20MM BATTERN R2.5 PLASTER	0.7	Dark	Glass fibre batt: R2.5 (R2.5)	No
2	NAILSTRIP 20MM BATTERN R2.5 PLASTER	0.7	Dark	Glass fibre batt: R2.5 (R2.5)	No

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
KIT / DIN / LOUNGE	1	2400	13844	SSW	441	No
KIT / DIN / LOUNGE	1	2400	2915	ESE	432	Yes
KIT / DIN / LOUNGE	1	2400	2730	ESE	1445	Yes
KIT / DIN / LOUNGE	1	2400	4671	WNW	400	Yes
KIT / DIN / LOUNGE	1	2400	5330	NNE	421	Yes
KIT / DIN / LOUNGE	1	2400	5751	WNW	441	No



WC	1	2400	982	ESE	451	Yes
WC	1	2400	991	NNE	0	Yes
PANTRY	1	2400	2760	ESE	443	Yes
BED 2	1	2400	4630	WNW	393	Yes
BED 2	1	2400	1189	NNE	0	Yes
BEDROOM 3	1	2400	3793	SSW	422	Yes
BEDROOM 3	2	2400	3580	ESE	458	No
ENSUITE	2	2400	1575	ESE	450	No
ENSUITE	2	2400	4631	NNE	462	Yes
WIR	1	2400	1688	NNE	440	No
WIR	1	2400	6090	ESE	423	Yes
HALLWAY	1	2400	1292	ESE	438	Yes
ENUITE	1	2400	3590	NNE	437	No
ENUITE	1	2400	2485	WNW	1584	Yes
MASTER	1	2400	4777	WNW	1580	Yes

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	136.2	
2	19MM TIMBER 20MM BATTERN R2.5 PLASTER	4.1	Glass fibre batt: R2.5 (R2.5)

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
KIT / DIN / LOUNGE	KEARNEY - TIMBER FLOOR R2 FC	99.9	Open	R2.5	Timber
WC	KEARNEY - TIMBER FLOOR R2 FC	2.8	Open	R2.5	Tiles
PANTRY	KEARNEY - TIMBER FLOOR R2 FC	7.9	Open	R2.5	Timber
BED 2	KEARNEY - TIMBER FLOOR R2 FC	18.5	Open	R2.5	Timber
WIR	KEARNEY - TIMBER FLOOR R2 FC	3	Open	R2.5	Timber
ENSUITE	KEARNEY - TIMBER FLOOR R2 FC	5.4	Open	R2.5	Tiles
BEDROOM 3	KEARNEY - TIMBER FLOOR R2 FC	16.6	Open	R2.5	Timber
ENSUITE	KEARNEY - TIMBER FLOOR R2 FC	7.3	Open	R2.5	Tiles
WIR	KEARNEY - TIMBER FLOOR R2 FC	10.3	Open	R2.5	Timber
HALLWAY	KEARNEY - TIMBER FLOOR R2 FC	6.6	Open	R2.5	Timber
ENUITE	KEARNEY - TIMBER FLOOR R2 FC	8.9	Open	R2.5	Tiles
MASTER	KEARNEY - TIMBER FLOOR R2 FC	18	Open	R2.5	Timber

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
KIT / DIN / LOUNGE	Plasterboard	R4.0	Yes
WC	Plasterboard	R4.0	Yes
PANTRY	Plasterboard	R4.0	Yes

* Refer to glossary



BED 2	Plasterboard	R4.0	Yes
WIR	Plasterboard	R4.0	Yes
ENSUITE	Plasterboard	R4.0	Yes
BEDROOM 3	Plasterboard	R4.0	Yes
ENSUITE	Plasterboard	R4.0	Yes
WIR	Plasterboard	R4.0	Yes
HALLWAY	Plasterboard	R4.0	Yes
ENUITE	Plasterboard	R4.0	Yes
MASTER	Plasterboard	R4.0	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
KIT / DIN / LOUNGE	15	Downlights	50	Sealed
PANTRY	1	Exhaust Fans	200	Sealed
BED 2	4	Downlights	50	Sealed
WIR	1	Downlights	50	Sealed
ENSUITE	1	Downlights	50	Sealed
ENSUITE	1	Exhaust Fans	200	Sealed
BEDROOM 3	2	Downlights	50	Sealed
ENSUITE	1	Downlights	50	Sealed
ENSUITE	1	Exhaust Fans	200	Sealed
WIR	2	Downlights	50	Sealed
ENUITE	2	Downlights	50	Sealed
ENUITE	1	Exhaust Fans	200	Sealed
MASTER	4	Downlights	50	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	0.0	0.8	Dark



Explanatory Notes

About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way. Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.



National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au .
Opening Percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).



DOYLE SOIL CONSULTING



SITE AND SOIL EVALUATION REPORT FOUNDATION AND WINDLOADING ASSESSMENT

**20 Tradewind Terrace
Sandford**

August 2022

Doyle Soil Consulting: 150 Nelson Rd Mt Nelson 7007 – 0488 080 455 – robyn@doylesoilconsulting.com.au

SITE INFORMATION

Client: Andrew Boico and Belinda Cook

Address: 20 Tradewind Terrace, Sandford (CT 43698/73)

Site Area: Approximately 2 ha

Date of inspection: 22/7/2022

Building type: House extension

Services: None

Planning Overlays: None

Mapped Geology - Mineral Resources Tasmania 1:25 000 Hobart sheet:

Pva = Permian siltstone/sandstone

Soil Depth: 0.4 – 0.6 m

Subsoil Drainage: Well drained

Drainage lines / water courses: Freshwater Dam on the property and River Derwent to the west

Vegetation: Grass, Bush, Scrub and Trees.

Rainfall in previous 7 days: Approximately 1 mm

Slope: Approximately 12° to the southeast

Site Assessment and Sample Testing

Site investigation and soil classification in accordance with AS 2870-2011 *Residential slabs and footings* and in accordance with AS 4055-2021 *Wind load for Housing*.

Two drill cores with refusal @ 0.6 m at TH1, and refusal @ 0.4 at TH2.

Dynamic Cone Penetrometer (DCP) test at TH2 with refusal @ 0.5 m.

Emerson Dispersion test on subsoils (none detected) and linear shrinkage tests on all likely founding layers.

Test holes were dug using a Christie Post Driver Soil Sampling Kit, comprising CHPD78 Christie Post Driver with Soil Sampling Tube (50 mm OD x 1600/2100 mm).

SOIL PROFILES – Test Hole 1

TH1 Depth (m)	TH2 Depth (m)	Horizon	Description and field texture grade	Soil Classifn.
0.0 – 0.1	0.0 – 0.1	A1	Very dark brown (10YR 2/2), Sand , single grain, slightly moist stiff consistency.	SP
0.1 – 0.25	0.1 – 0.25 refusal	A2	Light Grey (10YR 7/2), Silty Clay Loam , weak angular blocky structure, dry loose consistency.	ML
0.25 – 0.6		B2	Light Grey (10YR 7/2), Gravelly Light Clay , weak angular blocky structure, dry loose consistency, common sandstone fragments, refusal on fine sandstone bedrock.	CL



SITE AND SOIL COMMENTS

The natural soil profiles are formed from a thin layer of windblown sands over clayey colluvium derived from mudstone/sandstone. The profiles are shallow with refusal occurring at approximately 0.4 – 0.6 m. The field textures of the soil profile are dominated by clay, which is slightly reactive, weakly to poorly structured with low bearing capacity to at least 0.3 m. We recommend founding on the underlying competent sandstone bedrock approximately 0.4 – 0.6 m.

LINEAR SHRINKAGE AND SOIL REACTIVITY

Samples of the clayey subsoils were tested for reactivity using the linear shrinkage test. Linear shrinkage provides an approximate guide to aid soil classification of reactivity of clays for foundations. The tests suggest the clays are slightly reactive.

Sample	Depth (m)	Length of mould (L)	Longitudinal Shrinkage (LS) in mm	LS (%)	Soil Class
TH 1	0.3 – 0.6	125	4.0	3.2	S

DCP TESTS AND ESTIMATED BEARING CAPACITY

Dynamic Cone Penetrometer (DCP) testing is a method of estimating likely soil bearing capacity. However, surface layers (approx. upper 0.7 m) are subject to significant soil moisture variations with the season, affecting DCP values, especially in clays, e.g. in summer or drought. Dry clays may be very stiff – hard but only soft – firm in winter. Thus, DCP values below approximately 0.7 m are likely to be more typical of year-to-year soil bearing conditions in clayey and silty soils. We provide estimated soil bearing strengths along with a variance range (+/-) based on a review of published literature relating field DCP readings to triaxial soil strength tests.

A minimum bearing capacity of 100 kPa is required for strip and pad footings and under the edge footings and associated slab foundations. The Dynamic Cone Penetrometer (DCP) test was

carried out at TH2. The subsoils were dry when tested and so the field DCP values are likely to be higher than in very moist to saturated soil conditions (winter/spring).

The field DCP1 data indicates that the bearing capacity of the soil is at a suitable strength below 0.3 m. However, the competent sandstone bedrock at approximately 0.4 m would be the recommended foundation material.

Based on the DCP data and core depths, the recommended foundation depth can range from approximately 0.4 m to 0.6 m.

The clay horizons are slightly reactive/plastic and thus require foundation design suitable for slight shrinking and swelling induced movement (refer to tables below and AS2870-2011 clause 2.4.5).

DCP 1				
Depth (mm)	DCP n-number (Blows/100 mm)	DCP Penetration Index (mm/Blow)	Estimated bearing capacity (kPa = n x 30)	Likely Variance (+/-)
0 - 100	7	14.3	210	70
100 - 200	8	12.5	240	80
200 - 300	6	16.7	180	60
300 - 400	30	3.3	900	300

WIND CLASSIFICATION

The AS 4055-2021 *Wind load for Housing* classification of the site is:

Region:	A
Terrain Category:	TC2.5
Shielding Classification:	NS
Topographic Classification:	T2
Wind Classification:	N3
Design Wind Gust Speed ($V_{h,u}$):	50 m/sec

SITE CLASSIFICATION AND RECOMMENDATIONS

According to AS2870-2011 (construction) the site is classified as **Class S** or slightly reactive, with 0 – 20 mm the dominant reactivity of expected surface movement under normal soil moisture ranges for the location.

Note 1 – If founded entirely on underlying competent sandstone bedrock below approximately 0.4 to 0.6 m, which is recommended, and no part of the foundations, be it a slab, pier or footing, is in contact with/or is supported by the clayey subsoils, then **Class A** would become an appropriate site classification.

Note 2 – All foundations require ongoing adequate drainage and vegetation management – please refer to CSIRO foundation management BTF 18 sheet attached.

Note 3 – If any foundations are placed on FILL that is > 0.5 m in depth then **Class P** is applicable.

General Notes – Important points pertinent to maintenance of foundation soil conditions

This report relates to the soil and site conditions on the property at the time of the site assessment. The satisfactory long-term performance of footings is dependent upon the on-going site maintenance by the owner.

Examples of abnormal moisture conditions developing after construction include the following:

- A) The effect of trees too close to the footings
- B) Excessive or irregular watering of gardens adjacent to the footings
- C) Failure to maintain site drainage affecting footings
- D) Failure to repair plumbing leaks affecting footings
- E) Loss of vegetation from near the building.

All earthworks on site must comply with AS3798-2007 Guidelines on Earthworks for commercial and residential developments.

REPORT LIMITATIONS

Whilst every attempt is made to describe sub-surface conditions, natural variation will occur that cannot be determined by limited investigative soil testing. Therefore, discrepancies are possible between test results and observations during construction. It is our intention to accurately indicate the most probable soil type(s) and conditions for the area assessed. However due to the nature of sampling an area, variations in soil type, soil depth and site conditions may occur.

We accept no responsibility for any differences between what we have reported and actual site and soil conditions for the particular regions we could not directly assess at the time of inspection.

It is recommended that during construction, Doyle Soil Consulting and/or the design engineer be notified of any major variation to the foundation conditions as predicted in this report. Any changes to the site through excavations may alter the site classification.

In these cases, it is expected the owner consult the author for a reclassification. This report requires certification via a form 55 certificate from Doyle Soil Consulting to validate its contents.

Because site discrepancies may occur between this report and actual site conditions, it is a condition of certification of this report that the builder be provided with a copy of this report.



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Soil Scientist



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B.Sc.(Hons), M.Sc.(Geol), Ph.D. (Soil
Sci.), CPSS (Certified Prof Soil Scientist)
Geologist and Soil Scientist



APPENDIX 1 – Approximate test hole locations



APPENDIX 2 – Definitions of Soil Horizons

Horizon name	Meaning
A1	Dark topsoils, zone of maximum organic activity
A2 or E	Leached, light/pale washed-out sandy layer
A3 or AB	Transition from A to B, more like A
B1 or BA	Transition from A to B, more like B
B2	Main subsoils layer with brown colouration, accumulations of clay, humus, iron oxide, etc
B3	Transitional from B2 to C
C	Weakly weathered soil parent materials

Subscript	Meaning
r	Reducing conditions (anaerobic)
t	Enriched in translocated clay
s	Iron/aluminium oxide accumulations
g	Mottled, suggesting periodic/seasonal wetness
m	Cemented layer (oxides, carbonates, humus, silica etc)
k	Calcium carbonate (lime) accumulation
h	Humus accumulation a subsoil

Foundation Maintenance and Footing Performance: A Homeowner's Guide



PUBLISHING
BTF 18-2011
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 2870-2011, 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, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

Notes

1. Where controlled fill has been used, the site may be classified A to E according to the type of fill used.
2. Filled sites. Class P is used for sites which include soft fills, such as clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soil subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.
3. Where deep-seated moisture changes exist on sites at depths of 3 m or greater, further classification is needed for Classes M to E (M-D, H1-D, H2-D and E-D).

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 perpend).

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

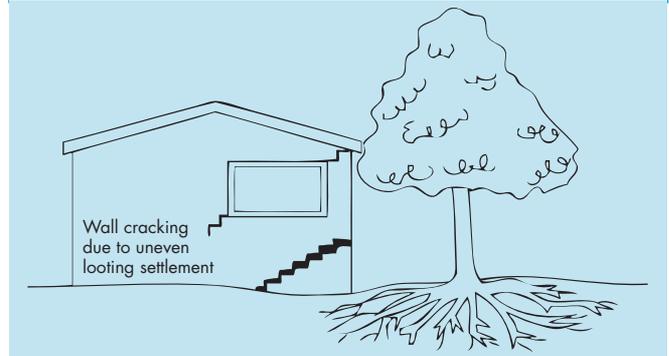
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the 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

Trees can cause shrinkage and damage



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 causes 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 2870-2011.

AS 2870-2011 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

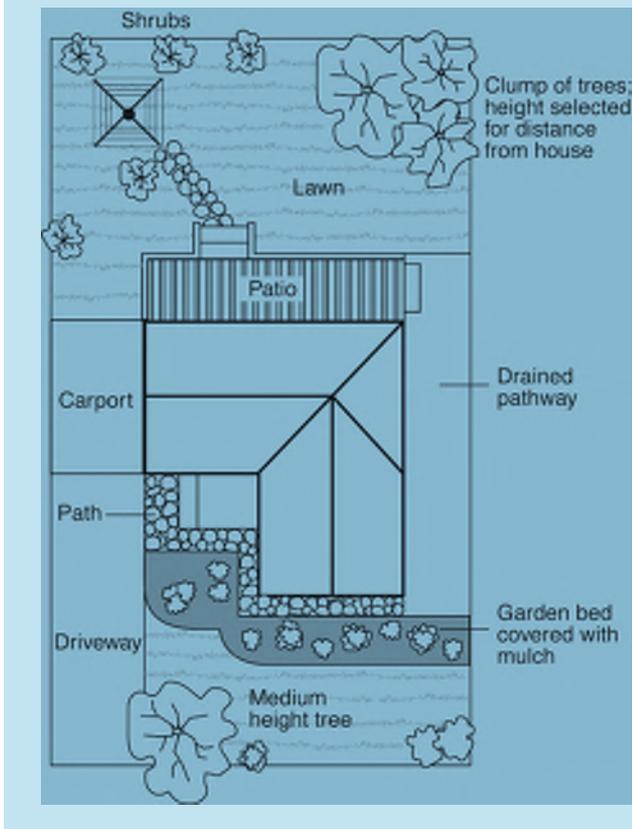
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

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 should

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 depends on number of cracks	4

Gardens for a reactive site



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.

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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Senior Environmental Health Officer
Clarence City Council
38 Bligh St
Rosny Park 7018

5/8/2022

RE onsite wastewater at 20 Tradewind Terrace Sandford

Dear Scott,

On 22/7/2022, We met on site with the owner, Mr Andrew Boico, to inspect the existing wastewater system.

The Ozzi Kleen and original 520 m² surface irrigation was installed in 2003 (refer to attached as-installed plan). The irrigation has since been moved up to the garden beds just below the house and it appears to be functioning well, with a good vegetation cover and no evidence of failure.

The house is currently three-bedrooms and the proposed renovations will not change this.

The soil is derived from Permian siltstone/sandstone and was moderately shallow with an estimated subsoil permeability of 0.25 m/day. The soil is category 5, a sandy light clay and was moderately well structured. There is a large area of land available for wastewater disposal.

Under the current AS1547-2012, a three-bedroom house has a calculated loading of 600 L/day (up to 5 persons at 120 L/person/day). Using a DIR of 2.4 mm/day (3 mm/day reduced by 20% due to slope) a minimum irrigation area of 250 m² is required. The current irrigation area is 382 m². Therefore the current irrigation area is more than capable of servicing the house.

Doyle Soil Consulting -150 Nelson Rd Mt Nelson 7007-0488 080 455 -robyn@doylesoilconsulting.com.au

The Ozzi Kleen has been installed in an upslope position in the landscape, close to the house, where the soils are very shallow. It is very unsightly, so it is proposed to relocate the AWTS down the slope where the soil is deeper (old dam site -has been filled in), and pump back up to the existing irrigation beds.



Doyle Soil Consulting -150 Nelson Rd Mt Nelson 7007-0488 080 455 -robyn@doylesoilconsulting.com.au

I support the relocation of the AWTS to the area as indicated on the attached plan, and approve the current irrigation beds as an appropriate area not requiring an upgrade.

Regards

A handwritten signature in black ink, appearing to read 'Robyn Doyle', with a stylized flourish at the end.

Robyn Doyle

B.Agr.Sc.

Director Lithos Group P/L, t/a Doyle Soil Consulting

Soil Scientist and Building Services Designer -Hydraulic -Licence no. CC7418

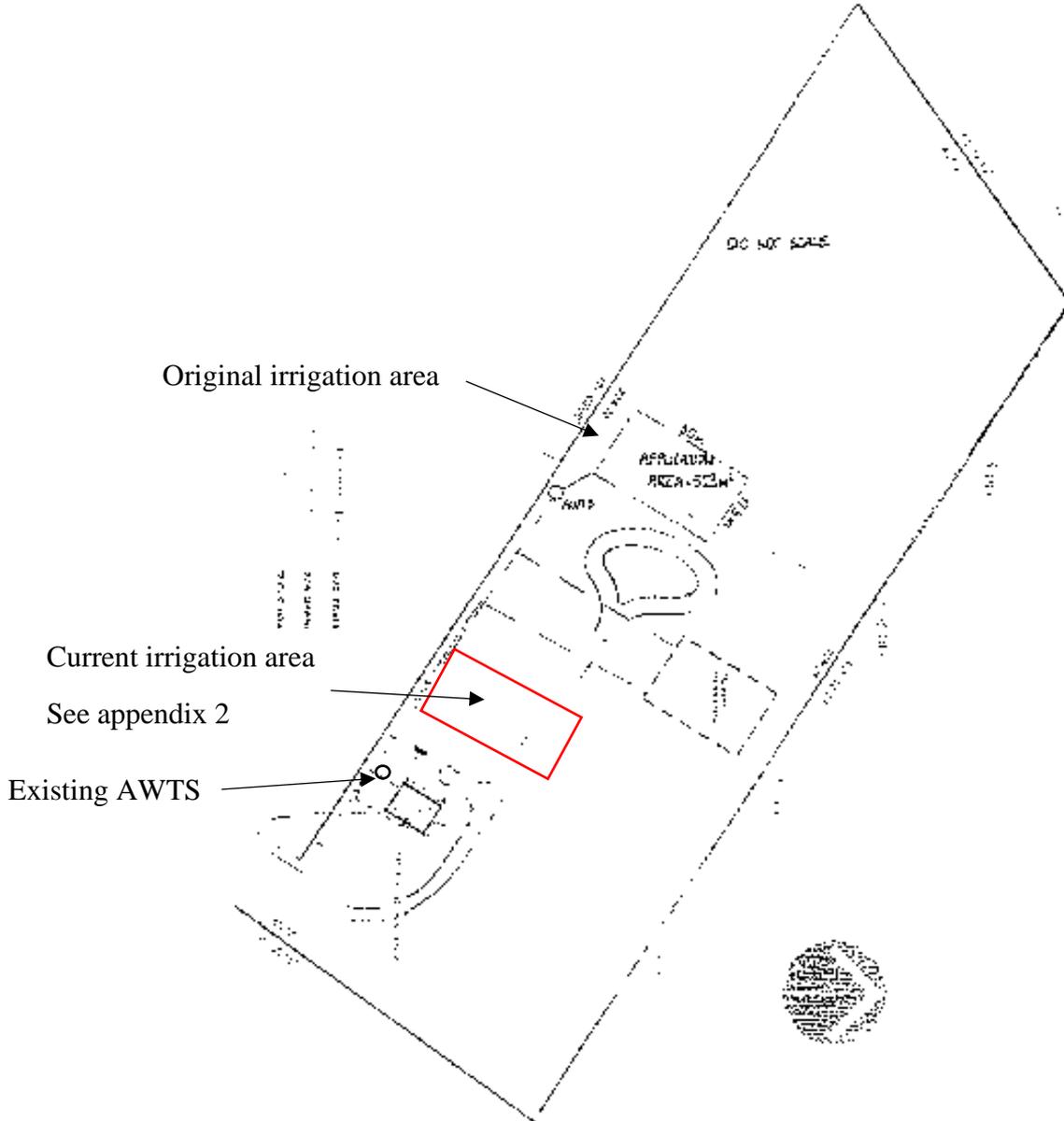
Doyle Soil Consulting -150 Nelson Rd Mt Nelson 7007-0488 080 455 -robyn@doylesoilconsulting.com.au

APPENDIX 1 – Original as-installed plan from 2003

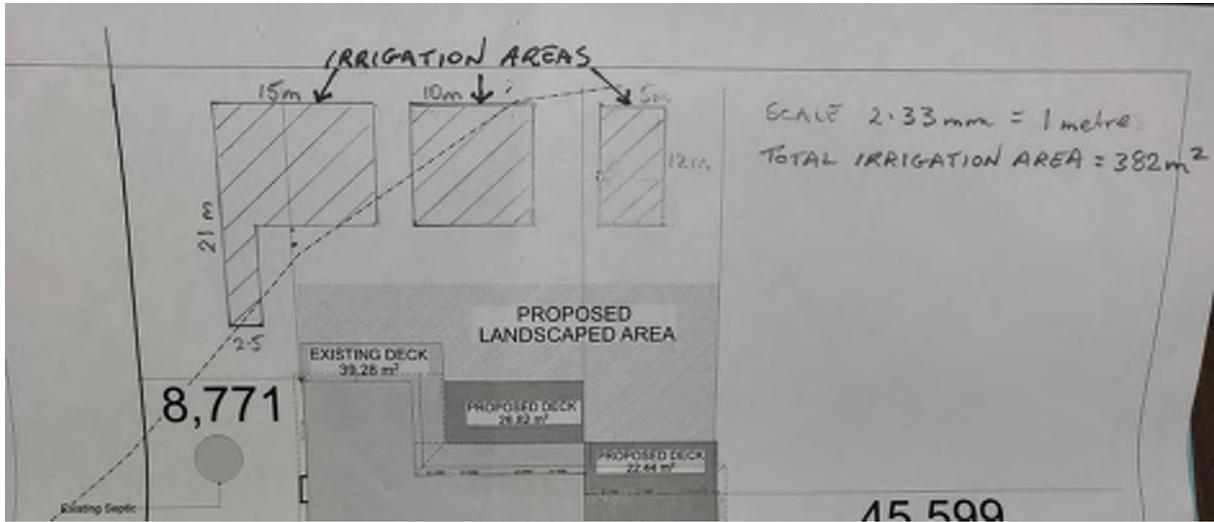
S2003/175
17/1/03

SITE PLAN

(Include location of: property boundaries, driveways, house, outbuildings, dams, watercourses, water bores or other on-site developments)



APPENDIX 2 – Current as-installed plan 2022



Natural Values Report

Proposed alterations and additions at 20 Tradewind Terrace, Sandford, v1.0



23/01/2024 9:40:41 AM

Mark Schmidt
Building Surveyor Limited
CC 4806 S
03 6124 2220
freestonebuildingsurveying.com.au

A handwritten signature in blue ink, appearing to read "Mark Schmidt".

Clients: Andrew Boico and Belinda Cook

Prepared by: Jim Mulcahy

Date: FEBRUARY 2023

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1 Introduction

This Natural Values Report has been prepared as a condition of a permit under the Tasmanian Planning Scheme – Clarence (the Scheme) for alterations and additions to an existing dwelling at 20 Tradewind Terrace, Sandford. The property at 20 Tradewind Terrace is zoned Rural Living (B) and is subject to the Priority Vegetation Area overlay and the Bushfire Prone Areas overlay.

The Priority Vegetation Area overlay covers the whole property. The permit issued by Clarence City Council on the 9 December 2022 (PDPLANPMTD-2022/031639) includes the following conditions relevant to this report:

2. To demonstrate that the proposed development minimises and appropriately manages the impacts on vegetation within the priority vegetation area overlay, natural values statement/assessment report prepared by a suitable qualified person, is to be submitted to and approved by the Manager City Planning prior to the commencement of works.
4. A weed management plan identifying methods to control weeds during construction, must be submitted to and approved by Council's Group Manager Engineering Services prior to commencement of works. The plan must reference any Weeds of National Significance and Declared Weeds under the *Weed Management Act 1999* and address the spread of soil-based pathogens in accordance with the Tasmanian Washdown Guidelines for Weed and Disease Control.

The permit also contains an advice section which includes the following:

- c. The Department of Primary Industries, Parks, Water and Environment (now Natural Resources and the Environment), Threatened Species Unit has advised that the property may contain species identified in the schedules of the *Threatened Species Protection Act 1995*. I have enclosed a copy of the Department's letter. It is your responsibility to comply with the legislation and therefore you should contact the Department to determine whether there will be any issues which may arise under that Act in relation to the development.

Enviro-dynamics has been contracted to undertake this natural values assessment on behalf of the proponents. The assessment identifies the natural values of the site including the type and extent of vegetation communities, presence of threatened species and threatened fauna habitat. It also maps weed infestations and incorporates a 'weed management plan', as well as identifying any other threats present. Any potential impacts to natural values posed by the development are analysed against the requirements of the Scheme.

2 Background

2.1 Site Description and context

The subject land is +/- 2.06 ha in a single title (43698/73) on the lower north-western slopes of Collins Springs Hill, fronting Ralphs Bay to the west and located approximately 4 km west-southwest of Clifton Beach (see Figure 1). The property has a gravel driveway extending south within a narrow access strip to the frontage with Tradewind Terrace. There is an existing residential dwelling located at the western end of the lot proper, along with some outbuildings.

The block has a north-westerly aspect, with an altitudinal range of approximately 20 - 65 m above sea level and slopes in the order of 10 – 15°. Except for the area immediately surrounding the dwelling, the block is covered with native forest and woodland. Surrounding properties are of a similar scale and exhibit a similar pattern of development and native vegetation cover.



Figure 1 – Site Location (Image source: theLIST, 2022)

2.2 Development Proposal

The proposed development is alterations and additions to the existing dwelling (Figure 2).

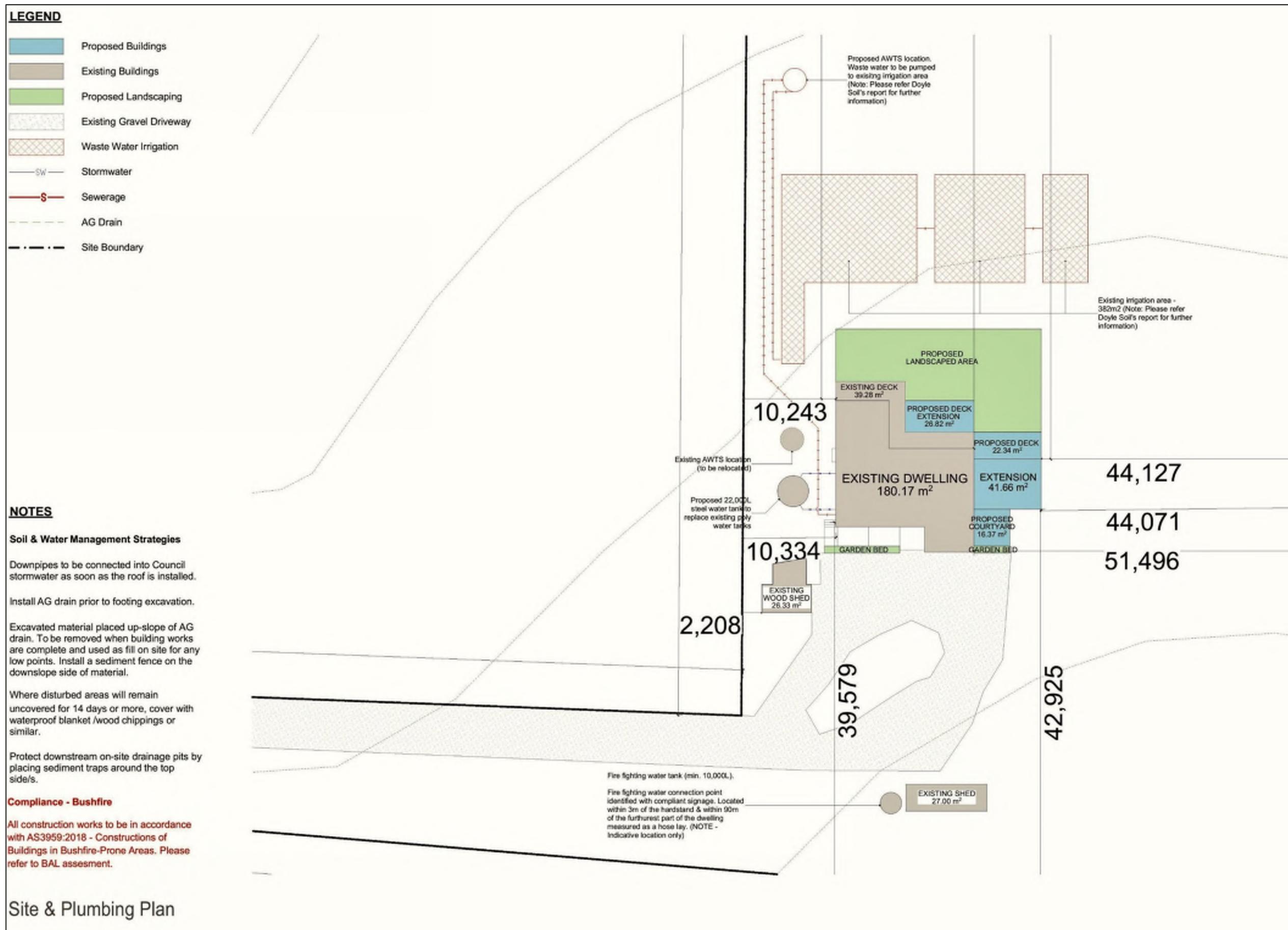


Figure 2 – 1:400 Site Plan (cropped from page 3 of the development application by Matt Kennedy Drafting and Design)

3 Methods

The natural values assessment was undertaken through desktop analysis and field survey.

3.1 Desktop analysis

The desktop analysis involved extracting data from a variety of sources, including:

- Natural Values Atlas (NRE, 2023)
- LISTmap (theLIST, 2023)

3.2 Field survey

A field survey was undertaken by a single observer on the 8th February 2023. The vegetation communities on the site were assessed and classified according to TASVEG 4.0. All vascular plant species encountered were recorded, with an emphasis on detecting rare and threatened species. Searches for potential threatened fauna habitat e.g. tree hollows and den sites, and other evidence e.g. scats, diggings and tracks were also undertaken.

Locations of weeds were mapped with a handheld GPS and population data was captured e.g. numbers of individuals, area occupied etc. Geographic datum used was GDA94 Zone 55. Taxonomic nomenclature for flora follows the latest Census of Vascular Plants of Tasmania (Baker & de Salas 2020). Classification of vegetation communities is in accordance with Kitchener and Harris (2013) and TASVEG 4.0.

3.3 Limitation of the survey

Detailed survey work was limited to the area around the proposed development and potentially impacted by the development.

Whilst every effort was made to identify all plant species in the survey area, a single survey of a site is unlikely to detect all species present due to seasonal/temporal variations. Some plants could not be identified to a species level and some species may have been overlooked due to a lack of fertile material. It is also possible that additional species are present but were dormant at the time of survey e.g. annuals, ephemerals.

4 Natural Values Assessment

This section outlines the findings of the desktop analysis and field survey, including a description of the vegetation communities, threatened species habitat values and weeds.

4.1 Vegetation Communities

One native vegetation community and two modified communities were recorded during the field survey, as per the TASVEG 4.0 classification system:

- Silver peppermint (*E. tenuiramis*) dry forest and woodland on mudstone (DTO),
- Regenerating cleared land (FRG), and
- 'Urban' – urban infrastructure and associated gardens (FUR).

Vegetation communities are mapped in Figures 3 and 4 relative to existing and proposed infrastructure and are described briefly below.

The far western end of the property was not surveyed and has been mapped based on aerial photography and extrapolation as forest dominated by silver peppermint (DTO).

Refer to Appendix 1 for a flora species list.

Silver peppermint (*Eucalyptus tenuiramis*) dry forest on sediments (DTO)

DTO forest and woodland at the site is characterised by a multi-aged canopy up to 10 m in height of variable density dominated by silver peppermint (*Eucalyptus tenuiramis*), with occasional white gums (*E. viminalis*). A few blue gum (*E. globulus*) seedlings were observed but no mature trees.

The understorey in the DTO forest and woodland is characteristically very open, with a sparse secondary taller shrub layer dominated by native hop (*Dodonaea viscosa*). There is a denser sub-stratum of smaller shrubs, although it is highly variable in terms of density and composition. Prominent species in the low shrub layer from place to place include native gorse (*Acacia genistifolia*), matted bush pea (*Pultenaea pedunculata*), native cranberry (*Styphelia humifusum*), common heath (*Epacris impressa*) and pink heath berry (*Lissanthe strigosa*).

Grasses, graminoids, herbs and ferns are typically sparse but include wallaby grass (*Rytidosperma* sp.), weeping grass (*Microlaena stipoides*), black-anther flax lily (*Dianella revoluta*), trailing goodenia (*Goodenia lanata*), native violet (*Viola hederacea*), dwarf rice flower (*Pimelea humilis*) and occasional bracken (*Pteridium esculentum*).

The condition of the DTO forest and woodland is variable, with parts of the property having been cleared previously and the areas in proximity to the dwelling impacted by weeds and exotic plantings. That area of DTO north of the proposed extension and subject to the proposed hazard management area is affected by a range of exotic species, including occasional boneseed (*Chrysanthemoides monilifera*), bluebell creeper (*Billardiera heterophylla*), rosemary (*Salvia rosmarinus*), olive (*Olea europaea*), white cudweed (*Vellereophyton dealbatum*), several species of exotic succulents, and a range of exotic grasses.

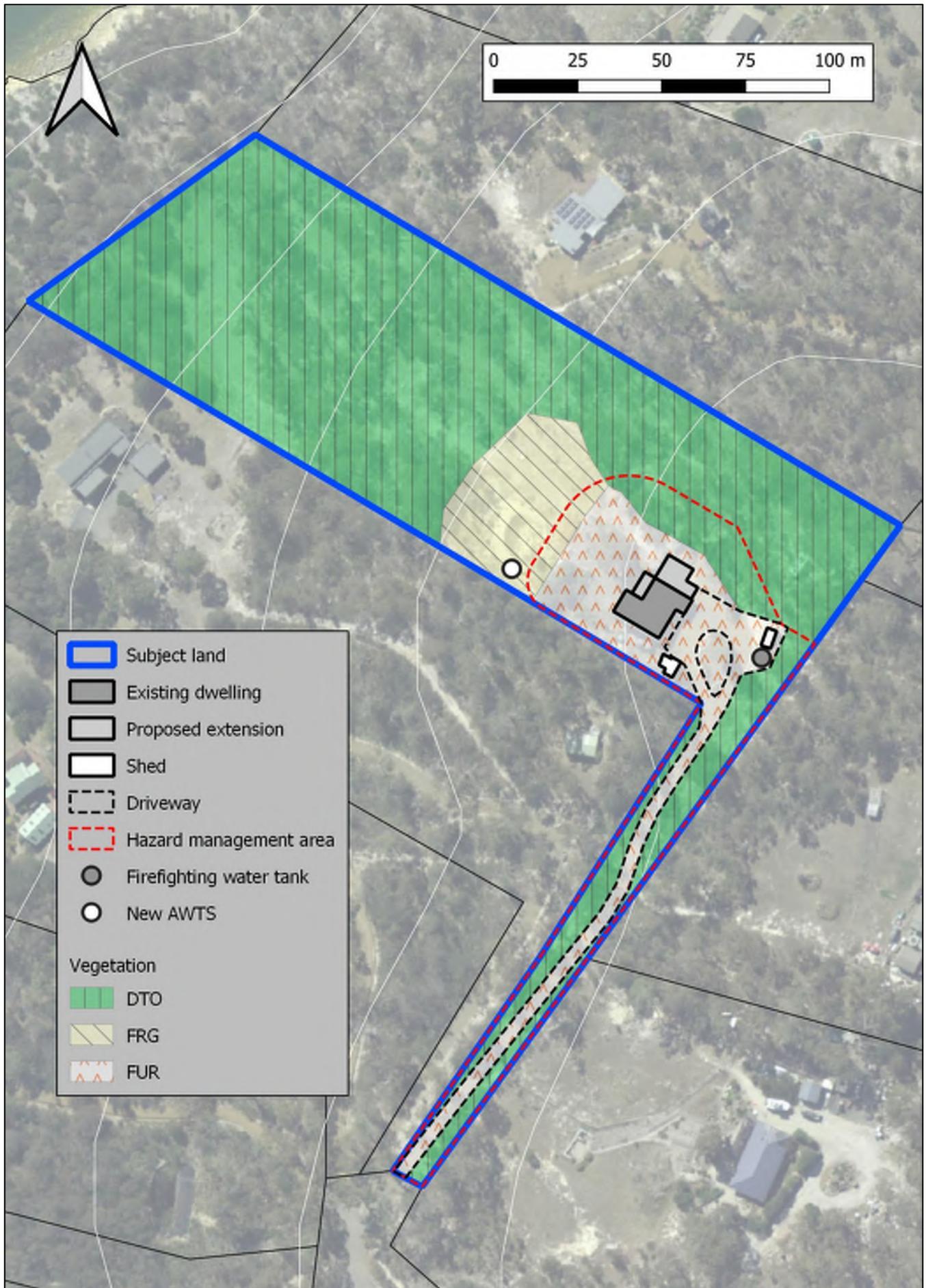


Figure 3 – Vegetation communities relative to existing & proposed infrastructure (Imagery: theLIST 2023)



Figure 4 – Vegetation communities relative to existing & proposed infrastructure (Imagery: theLIST 2023)

Regenerating cleared land (FRG)

Previously cleared land to the west of the dwelling dominated by native and exotic grasses has been mapped as FRG. The site is could arguably have been mapped as native grassland complex (GCL), but the recent emergence of juvenile shrubs and trees suggests likely succession to scrub or woodland in the near future.

This community is open and grassy, is variously dominated by bristly wallaby grass (*Rytidosperma setaceum*) or cocksfoot (*Dactylis glomerata*) and contains a range of other native and exotic pasture species. There is an emerging shrub layer dominated by yellow dogwood (*Pomaderris elliptica*), along with occasional bull-oak (*Allocasuarina littoralis*), black wattle (*Acacia mearnsii*) saplings, blue gum (*E. globulus*) seedlings and boneseed (*Chrysanthemoides monilifera*). The area at southern end of the community proposed for the new AWTS has a low shrub layer featuring native cranberry (*Styphelia humifusum*), common heath (*Epacris impressa*) and pink heath berry (*Lissanthe strigosa*).

4.1.1 Conservation status of the vegetation communities

DTO forest is listed as a threatened vegetation community under Schedule 3A of the Tasmanian *Nature Conservation Act 2002*.

4.2 **Native flora**

A total of 39 vascular plants were recorded during the survey, of which nine are introduced species, and one is a declared weed under the *Weed Management Act 1999*. Additional flora species are likely to occur within the site in other areas not surveyed, and some plants could have been overlooked due to the inherent limitations of the survey, e.g. timing, timed meander method.

4.2.1 Threatened species

No threatened species were recorded on the property.

A search of the Natural Values Atlas (NRE, 2023) revealed that 23 threatened flora species have been recorded within 5 km of the site. The area of the property affected by the development probably only provides suitable habitat for one of these species (Table 1).

The search of the Natural Values Atlas revealed that 26 threatened fauna species have been recorded within 5 km of the site. The property provides suitable habitat for several of these species (Table 2).

Table 1 – Threatened flora species recorded within a 5 km radius of the subject land and suitable habitat may be present

Species	Status TSPA	Status EPBCA	Comments
<i>Senecio squarrosus</i> (leafy fireweed)	rare	-	Suitable habitat may be present

Table 2 – Threatened fauna species recorded within a 5 km radius of the subject land and suitable habitat is present

Species	Status TSPA	Status EPBCA	Comments
<i>Aquila audax fleayi</i> (Tas. wedge-tailed eagle)	endangered	endangered	Suitable foraging habitat present
<i>Dasyurus viverrinus</i> (eastern quoll)	-	endangered	Suitable foraging and denning habitat present
<i>Haliaeetus leucogaster</i> (white-bellied sea eagle)	vulnerable	-	Suitable foraging and roosting habitat present
<i>Lathamus discolor</i> (swift parrot)	endangered	critically endangered	No foraging habitat present but potential nesting habitat may be present
<i>Perameles gunnii</i> (eastern barred bandicoot)	-	vulnerable	Suitable foraging and denning habitat present
<i>Sarcophilus harrisii</i> (Tasmanian devil)	endangered	endangered	Suitable foraging and denning habitat present
<i>Tyto novae-hollandiae castanops</i> (Tasmanian masked owl)	endangered	vulnerable	Suitable foraging habitat present, but probably no nesting habitat due to absence of over mature trees with large hollows

4.2.2 Threatened fauna habitat

The threatened bird and mammal species recorded in the vicinity are all relatively widespread and mobile. As such, the small area of native forest directly impacted by the proposal is unlikely to be critical or important habitat for any of these species.

In the course of the assessment process Council has sought input from the Department of Natural Resources and the Environment (DNRE). The advice received raised some concerns about the risk of bird-strike, particularly in relation to swift parrots (*Lathamus discolor*). No mature blue gums were recorded on the property or in the immediate vicinity and the property is unlikely to lie in the flight path of birds moving between areas of foraging habitat in the Sandford area. In any case, the owners are keen to minimise the risk of bird strike and have received advice in relation to the issue.

There are mature silver peppermints on the property with the potential to support hollows that could be used by hollow-dwelling species such as the swift parrot, including trees within the proposed bushfire hazard management area. It should be possible to retain individual mature trees without compromising bushfire hazard management outcomes and the owners should retain all mature trees on site unless a qualified arborist certifies that they must be removed for safety reasons.

4.3 Introduced plants

A wide range of exotic plant species occur in the area immediately surrounding the dwelling, as outlined above in the section on vegetation. One of these is a declared weed under the *Weed Management Act 1999* - boneseed (*Chrysanthemoides monilifera*).

There are several other exotic species at the site which are recognised environmental weeds in some situations and have the potential to invade surrounding bushland, including:

- Bluebell creeper (*Billardiera heterophylla*),
- White cudweed (*Vellereophyton dealbatum*),
- Olive (*Olea europaea*), and
- Exotic succulents.

The distribution of boneseed and bluebell creeper, which are the most likely environmental weeds problems for the site are mapped in Figure 5. Mature boneseed was hand-pulled at the time of assessment, but more plants are likely to occur in the unsurveyed parts of the property to the west.

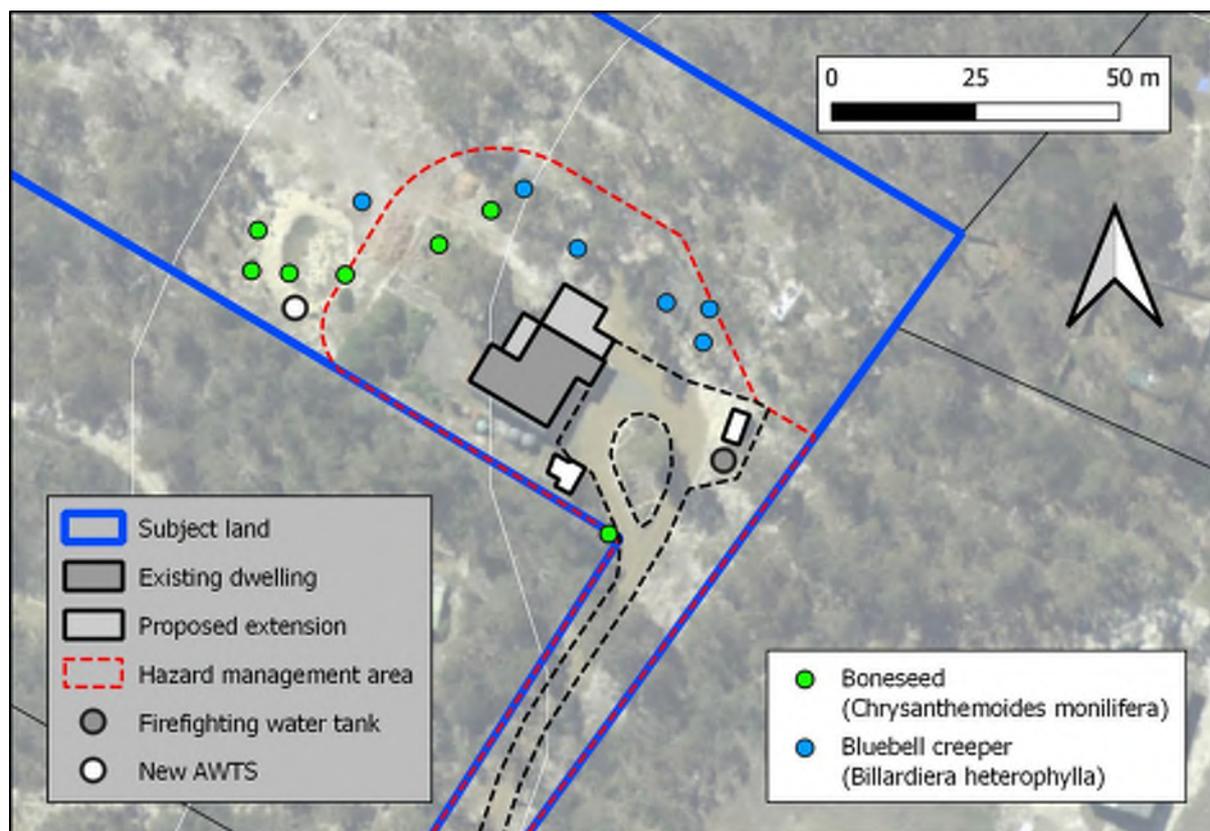


Figure 5 – Boneseed and bluebell creeper recorded in the survey area



Figure 6 – Boneseed (*Chrysanthemoides monilifera*).



Figure 7 – Bluebell creeper (*Billardiera heterophylla*),



Figure 8 – White cudweed

4.4 Weed Management Plan

As described above, one declared weed species has been recorded from the property. The owners should continually monitor the native vegetation on the property for the emergence or spread of any declared or environmental weeds and any infestations should be treated promptly to prevent establishment or spread.

The following broad requirements apply to future weed control actions:

- the owner must undertake weed management actions as prescribed in Table 3,
- only approved herbicides that are recommended for the control of a target species are to be applied and the owners must apply and dispose of herbicides in accordance with the manufacturer's recommendations, and
- any plant debris that contains seeds should be piled and burnt (subject to required permits) or bagged up and disposed of at an approved waste management facility.

In addition to the environmental weeds identified, common introduced pasture grasses and herbs were also recorded across the property. These weeds do not pose a significant threat to the natural values of the site and therefore no control action is required.

4.4.1 Herbicides, other chemicals and fertilisers

No fertilisers are to be applied in the native vegetation on the property.

No chemicals or herbicides are to be applied in the native vegetation unless it is part of weed eradication efforts.

Fertilisers, herbicides and chemicals may be applied as per label instructions for normal management of the cleared land on the property.

4.4.2 Preventing the introduction of weeds or disease

Weeds and fungal diseases such as root-rot pathogen (*Phytophthora cinnamomi*) and Chytrid frog disease (*Batrachochytrium dendrobatidis*) can easily be transported between sites on boots, equipment, vehicle tyres, introduced soil or other foreign materials. This may have been a vector for the introduction of environmental weeds already present on the property.

Development works or other physical disturbance could potentially introduce weeds or disease, or promote the spread of existing weeds. The proposed development will involve very little soil disturbance, but any physical works or introduction of foreign materials carries

some risk. This risk can be minimised through appropriate vehicle and equipment hygiene and management controls:

- all contractors engaged in development works should be required to thoroughly wash-down vehicles and equipment before coming on-site and after leaving the site,
- vehicles, equipment and materials should not be parked or stored within areas of native vegetation, and
- during and post-development, any areas of soil disturbance or introduced foreign materials (eg soil, compost or mulch) should be monitored regularly by the owners for the presence of any environmental weeds and any infestations should be treated as soon as practicable after discovery.

Table 3 – Weed control actions

WEED SPECIES	ACTION	TREATMENT / METHODOLOGY*	OUTCOME	TIMING	PRIORITY
Boneseed	Conduct annual inspection of site to locate any isolated plants	Survey general area surrounding the identified infestations to locate any isolated plants and control using 'cut and paint' method** or hand pull when soil is moist	Environmental weeds prevented from establishing and spreading on the site	Annually in spring	High
Spanish Heath					

* For detailed advice on the control and management of these declared weed species see:

<https://nre.tas.gov.au/invasive-species/weeds/weeds-index/declared-weeds-index/boneseed>

** The 'cut & paint' control method is the best technique for large or woody weeds. Cut all stems as close to the ground as possible with secateurs, loppers or a saw, depending on the size of the plant. A horizontal cut is preferable because it prevents runoff of herbicide. Apply undiluted glyphosate to the entire exposed surface of all cut stems within 20 seconds using a brush, foam applicator or spray bottle. Always wear protective clothing - long pants and sleeves, boots, gloves and eye protection.

5 Development Impacts

The following section outlines the potential impacts of the proposed subdivision on natural values.

The proposal impacts a small area of regenerating cleared land to the west of the dwelling through the installation of the new AWTS and through the establishment and maintenance of the proposed bushfire hazard management area (HMA). There are no significant natural values in this area and the management required for the HMA will still allow for the maintenance of native groundcover species, along with some regenerating native shrubs and trees.

The proposal impacts a small area of threatened DTO forest and woodland within the property access strip and to the north of the dwelling through the establishment and maintenance of the proposed HMA. The affected areas of DTO are in a degraded state due to the impacts of residential occupation and use and contain a range of exotic species, some of which have been planted as part of domestic gardens.

The main values within the areas of degraded DTO impacted by the proposal are associated with:

- the mature silver peppermint (*Eucalyptus tenuiramis*) trees, some of which have or have the potential to develop hollows, and
- the relatively diverse low groundcover of native species.

Establishment and maintenance of the proposed HMA can occur without impacting any individual mature trees, although some lopping of lower branches and trimming for canopy separation may be required.

Establishment and maintenance of the proposed HMA can occur without significantly impacting native groundcover species, most of which are reasonably tolerant of occasional slashing/mowing.

6 Scheme provisions

The following section provides an assessment of the proposal against the relevant provisions of the Priority Vegetation Area overlay of the Scheme.

The property is zoned Rural Living (B) and the areas of native vegetation materially affected by the proposal are subject to the Priority Vegetation Area overlay. The establishment and maintenance of the proposed HMA involves vegetation clearance within the area of the overlay.

C7.0 Natural Assets Code

C7.6.2 Clearance within a priority vegetation area

P1.1 Clearance of native vegetation within a priority vegetation area must be for:

- (a) the bulk of the clearance required for the HMA is associated with the existing residential use of the site (safe access and adequate separation from bushfire prone vegetation for the existing habitable building), and
- (f) the additional clearance of native vegetation for the HMA to the north triggered by the proposed extension is of limited scale relative to the extent of priority vegetation on the site (calculated as approximately 142 m² of additional clearance, or approximately 0.9 % of the DTO on the property).

P1.2 Clearance of native vegetation within a priority vegetation area must minimise adverse impacts on priority vegetation:

- the constraints imposed by the site and by the configuration of the existing structure make the extension to the west the most practical outcome to achieve the desired built amenity with good solar access,
- the BAL-19 construction and separation to the north of the proposed extension requires disturbance to only 0.9 % of the DTO on the property (over and above the disturbance required to protect existing infrastructure), the affected vegetation is in a degraded state requiring active management for weed control, and most of the natural values associated with the affected vegetation can be retained in the maintenance of the HMA, and
- should the owners choose to construct to BAL-29 rather than Bal-19 the impacts on DTO could be even further reduced.

7 Summary

The natural values of land at 20 Tradewind Terrace were assessed in response to permit conditions for proposed alterations and additions to an existing dwelling.

No threatened species or confirmed threatened species habitat was recorded on the property.

One declared weed species and several environmental weed species were recorded which require management.

The assessment confirms that most of the vegetation on the property is threatened DTO forest and woodland and that the proposal will require disturbance to only 0.9 % of the DTO on the property (over and above the disturbance required to protect existing infrastructure).

The affected DTO woodland is in a degraded state, and most of the natural values associated with the affected vegetation can be retained in the maintenance of the HMA.

8 Conclusion and Recommendations

- A. Provided bushfire hazard management works are conducted in a sympathetic manner, the proposed alterations and additions involve very little impact on the natural values at the site. Sympathetic management would involve:
- retaining all mature trees within the HMA with a minimal level of canopy management,
 - retaining native shrubs where compatible with HMA prescriptions, and
 - maintaining low fuel groundcover through slashing or mowing at approximately 75 mm above ground level.
- B. Declared and environmental weeds should be managed according to the Weed Management Plan in section 4.4 of this report.

9 References

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BUSHFIRE HAZARD ASSESSMENT REPORT

PROPOSED ALTERATIONS / ADDITIONS AND SHED
20 TRADEWIND TERRACE,
SANDFORD

Dated November 2023 (Rev 2)

Report by Samuel Walters BFP-130

Report Code: K22-5



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Bushfire
Tasmania

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- Appendix A – Site Photographs
- Appendix B – Architectural/Designer Plans
- Appendix C – Bushfire Hazard Management Plan

1. Report Summary

This report provides a Bushfire Hazard Management Plan (BHMP) and Bushfire Attack Level (BAL) assessment for proposed alterations and additions to the existing class 1a dwelling and a new class 10a shed at 20 Tradewind Terrace, Sandford (C.T 43698/73).

Our findings conclude that the potential bushfire hazard for the proposal is tolerable providing the recommendations and findings of this report are followed and implemented in accordance with Australian Standard 3959 2018 (incorporating Amendments 1 & 2) and the Director's Determination – Bushfire Hazard Areas Version 1.1 2021 (Director's Determination).

Table 4(C) within the Director's Determination states a minimum BAL-29 solution must be achieved.

Bushfire prone B. Woodland vegetation on all aspects poses the greatest threat to the development.

A BAL-29/BAL-19 compliant solution can be achieved based on the implementation of a hazard management area (HMA) that encompasses the building and proposed works with specifications of:

- a minimum 18m separation distance on the northern aspect,
- a minimum 28m separation distance on the western aspect.
- To the property boundary on the southern and eastern aspects (to be at least 6m from the existing shed).

It is noted that a resurvey of property boundaries has meant the distance from the existing dwelling to the south/south west boundary is less than 10m. The difference is approximately 0.5m. Boundary location remaining as is will provide sufficient separation for BAL-29 for the existing dwelling. If 30 Tradewind Terrace opts to move boundary fence, under the Boundary Fence Act of 1908 there is a requirement to clear 2m either side of the fence line which satisfies BAL-29.

The proposal will require a static water supply to comply with table 3B of the Director's Determination.

Site access is >30m & <200m and must comply with table 2(B) of Director's Determination.

Proposed class 10a shed is >6m from the dwelling and not required to comply with bushfire construction measures.

2. Introduction

2.1. The Proposal

The proposal involves proposed alterations and additions to the existing class 1a dwelling and a new class 10a shed at 20 Tradewind Terrace, Sandford (C.T 43698/73).

2.2. Scope of Report

Bushfire Tasmania was engaged by Andrew Boico and Belinda Cook to undertake a Bushfire Hazard Management Plan (BHMP) and BAL assessment to determine vegetation management requirements, water supply requirements, site access requirements and construction requirements to comply with Australian Standard 3959 – Construction of Buildings in Bushfire Prone Areas 2018 (incorporating Amendments 1 & 2) and the Director's Determination – Bushfire Hazard Areas Version 1.1 2021.

The proposal is assessed in accordance with Table 2(B), Table 3B, and Table 4(C) of the Director's and a Fire Danger Index (FDI) of 50. The area assessed includes a radius of 150m from the proposal.

2.3. Property Information

Address: 20 Tradewind Terrace, Sandford

Zoning: Rural Living Zone B

Municipality: Clarence

Planning Scheme: Tasmanian Planning Scheme Clarence

2.4. Planning Overlays

Based on the Clarence Local Provisions Schedule:

- Bushfire Prone Areas
- Landslide Hazard Code - Low Landslip Hazard Band
- Natural Assets Code – Priority Vegetation Area

3. Site Conditions and Observations

3.1. Site Description

The subject property is located on the across-slope northern side of the end of Tradewind Terrace, on the south western slopes of Sandford overlooking Ralphs Bay. The allotment is a larger lifestyle property some 2.05 hectares in size. Natural site slopes range between approximately 6-15°. The site has a west north westerly aspect.

Current site conditions consist of a cleared area surrounding the existing dwelling and shed. Beyond this clearing is remnant and regenerating sparse bushland with a typical dry undergrowth albeit patchy.

A gravel driveway provides site access directly off Tradewind Terrace, terminating at the dwelling and shed and is approximately 190m long.



Figure 1: contoured listmap. www.thelist.tas.gov.au Property outline in blue, proposed additions in orange and black.

3.2. Surrounding Area

The subject site is located in a rural living zone B zoned area which encompasses properties to the north, east and south.

Typically, properties within this zoning are larger in size and have similar uses and vegetation composition. In this case, the subject site and all properties surrounding within several hundred meters are developed with a dwelling (or 2) and outbuildings. Vegetation is primarily remnant and regenerating woodland with clearings in developed zones together with long driveways and/or a network of driveways and pathways.

Beyond this zoning to the east are much larger rural zoned properties comprising remnant forest and woodland with significant clearing for paddocks/grazing land.

Open space zoning runs along the foreshore, down-slope to the west. This is typically remnant Eucalyptus and sheoaks with patchy dry undergrowth.

Figure 2 below gives the TasVeg4.0 listmap of the area and bushfire prone vegetation within 100m of the proposal.



Figure 2: contoured TasVeg4.0 listmap. www.thelist.tas.gov.au Property outline in blue, proposed additions in orange and black.



Figure 3: contoured aerial listmap. www.thelist.tas.gov.au Property outline in blue, proposed additions in orange and black. Red shading shows woodland bushfire prone vegetation within 100m of the proposal.

3.3. Additional Information

Construction not expected to be staged.

The site is within a priority vegetation area overlay and as such it is recommended this be investigated in relation to tree removal approvals.

Resurvey of property boundaries has revealed the south/south west boundary is less than 10m from the existing dwelling (approximately 0.5m change). As the boundary stands there is sufficient separation to meet the minimum 10m separation for BAL-29 for the existing dwelling.

If the neighbours at 30 Tradewind Terrace are aware of this and intend to move their boundary as per the new survey, the Boundary Fences Act of 1908 states:

"where any fence is to be erected on land covered with standing bush or scrub, and the required notices as hereinbefore provided have been given, the person erecting the fence shall clear the bush and scrub and remove fallen timber for a width of not less than 2 metres on each side along the entire length of the fence, and may fell any tree

standing in the immediate line of the fence, and may fell and remove any tree standing on either side of the fence which in the opinion of the said person may be likely to injure the fence; and the cost of such clearing, felling, and removing shall be added to the cost of the erection of the fence, and be apportioned and recoverable accordingly".

If the boundary fence remains as is, the existing dwelling is BAL-29 compliant and if the fence is moved, the 2m minimum clearing satisfies the min 10m setbacks for BAL-29.

Recent bushfire activity encompasses a few small fire events. These did not impact the property and range from a small to medium sized fire of unknown cause in 2017 north east of the site to smaller planned burns to the north, north and south east in 2001, 2021, 2016 and 2017.

See Figure 4 below for these events on a listmap.



Figure 4: Fire History listmap. www.thelist.tas.gov.au Subject property outline in blue, fire events denoted by hashed areas with dates inserted.

4. Bushfire Attack Level Assessment

4.1. Vegetation

According to TasVeg4.0 the proposal is situated within vegetation classified as (DT0) *Eucalyptus tenuiramis* forest and woodland on sediments. This covers a considerable portion of the western sloped side of Sandford falling toward Ralphs Bay.

Vegetation is moderately sparse with a patchy shrubby undergrowth 1-3m in height. This continues for 100-200m on all aspects. This vegetation is inconsistent given surrounding development as well as the network of driveways and other roads on private properties.

According to the Overall Fuel Hazard Assessment Guide, Fire and Adaptive Management report no. 82, vegetation to the south east on adjoining 30 Tradewind Terrace keys out to a tonnes/hectare fuel load of 15-17tonnes/hectare. This is <25tonnes/hectare allowable for a woodland classification and is calculated based on fine fuel levels within ground cover, small shrubs and tree bark. Surface fuel load was assessed as moderate (10), near-surface fuel load moderate (3), elevated moderate (2) and bark moderate (1). It must be said though, bark fuel load is likely closer to low (value of 0) as Silver Peppermints typically have near smooth trunks.

Further to the east, over Gellibrand Drive, is vegetation classified as (DAM) *Eucalyptus amygdalina* forest on mudstone. This extends for several hundred meters before changing to (DOV) *Eucalyptus ovata* forest and woodland.

Fire Behaviour

Fire behaviour suggests that major threats to the dwelling may include:

- An across/up-slope head/flanking fire from the north west and north through woodland, fanned by warm to hot north westerly to northerly winds. This burns across a reasonably consistent slope and will be dictated by wind conditions;
- An up-/across-slope fire from the west and south west, fanned by west to south westerly to southerly winds;
- A down-/across-slope fire from the south and south east, fanned by southerly winds;
- A down-slope fire from the east fanned by east to north easterly winds.

All scenarios would likely result in considerable ember attack/spot fires ahead of any fire front, with the possibility/likelihood of these being unpredictable pending wind conditions.

The following tables give the predominant bushfire prone vegetation types for ground cover, middle growth and canopy for the surrounding area within 150m:

Table 1: Predominant bushfire-prone woodland vegetation on all aspects.

Vegetation Height	Species
Canopy	<i>Eucalyptus tenuiramis</i> (Silver Peppermint)
Middle Growth	<i>Acacia mearnsii</i> (Black Wattle) <i>Acacia dealbata</i> (Silver Wattle) <i>Bursaria spinosa</i> (Prickly Box) <i>Dodonaea viscosa</i> (Broadleaf Hop Bush) <i>Allocasuarina littoralis</i> (Black Sheoak) <i>Pomaderris apetala</i> (Yellow Dogwood)
Ground Cover	Assorted native and introduced pasture species <i>Lomandra longifolia</i> (sagg) Assorted native shrubs (<50cm)

Vegetation on all aspects is assessed as B. Woodland.
See photographs in appendix A for an indication of the surrounding vegetation.

4.2. Slope

Majority of land below woodland bushfire-prone vegetation ranges between approximately 5-10° to 10-15° and is up-, across- and down-slope of the proposal with a west north westerly aspect.

4.3. Separation Distances

Refer to Table 2 indicating the minimum defensible space distances required from the nearest bushfire prone vegetation of greatest threat in order to achieve a minimum BAL-19/29.

Table 2: Defendable Space Table

	North	East	South	West
Vegetation Type	B. Woodland	B. Woodland	B. Woodland	B. Woodland
Surrounding land relative to site	Down-slope 0-5°	Up-slope / Across/flat	Up-slope / Across/flat	Down-slope 10-15°
Minimum Defendable Space Required to achieve BAL-19	≥18m	≥15m	≥15m	≥28m
Minimum Defendable Space Required to achieve BAL-29	≥12m	≥10m	≥10m	≥19m
Achieved Separation with HMA	18m	>35m	10m	28m

All separation distances are in accordance with Table 2.6 in AS3959 2018.

On the northern and southern aspects, a minimum 18m separation distance is required from the existing dwelling and proposed works. Separation distances to the property boundary on the eastern and southern aspects, and a minimum 28m separation distance is required on the western aspect.

NOTE: on the eastern aspect, the separation has been increased to the boundary to provide at least a 7m setback from the proposed shed (as shown on the BHMP). This is to aid in firefighter and occupant safety when accessing the tank. Refer to BHMP attached for indicative tank location.

Resurvey of property boundaries has revealed the south/south west boundary is less than 10m from the existing dwelling (approximately 0.5m change). As the boundary stands there is sufficient separation to meet the minimum 10m separation for BAL-29 for the existing dwelling.

If the neighbours at 30 Tradewind Terrace are aware of this and intend to move their boundary as per the new survey, the Boundary Fences Act of 1908 states:

"where any fence is to be erected on land covered with standing bush or scrub, and the required notices as hereinbefore provided have been given, the person erecting the fence shall clear the bush and scrub and remove fallen timber for a width of not less than 2 metres on each side along the entire length of the fence, and may fell any tree standing in the immediate line of the fence, and may fell and remove any tree standing on either side of the fence which in the opinion of the said person may be likely to injure

the fence; and the cost of such clearing, felling, and removing shall be added to the cost of the erection of the fence, and be apportioned and recoverable accordingly".

If the boundary fence remains as is, the existing dwelling is BAL-29 compliant and if the fence is moved, the 2m minimum clearing satisfies the min 10m setbacks for BAL-29.

With the implementation of the HMA, site and vegetation circumstances will allow compliance for a BAL-19 compliant building solution for all aspects of the proposed addition and deck 1. BAL-29 applies to the existing dwelling and proposed deck 2. Refer to the BHMP attached in Appendix C for deck 1 and 2 locations.

To satisfy HMA vegetation requirements, grass must be regularly mown to a nominal 100mm or less height as per AS3959 2018 clause 2.2.3.2(d)(e)(f). Existing shrubs and small trees are to be thinned/removed in line with below as well as TFS guidelines for HMA's contained within the Building for Bushfire Booklet dated June 2020 at www.fire.tas.gov.au:

General Vegetation Management Information:

New vegetation may be planted within and existing vegetation may be retained within the HMA but must satisfy low threat conditions in accordance with AS3959 2018 clause 2.2.3.2(d)(e)(f).

Vegetation 0.1-1m in height may be planted/retained not closer than 2m from dwelling and decks.

Shrubs up to 2m in height can be planted/retained either individually or in single rows but must be spaced with a minimum 6m between foliage and should not be within 6m of the dwelling or decks.

Large plants 4m or more in height can be planted/retained and should have low and mid-level growth up to 2m in height to be trimmed and maintained over time. Spacing between crowns is to be a minimum of 30m.

Vegetation 2m or more in height should not be planted/retained within 10m of the dwelling and decks.

All vegetation 1-4m in height should be spaced from large vegetation (>4m) at least 8m from tree crown (measured vertically).

Plant debris should be regularly cleared/removed and firewood be stored appropriately either undercover, protected from possible ember attack or stacked more than 6m from the dwelling.

Future plantings must take into account the requirement to maintain the HMA as low threat. Site should not impede firefighter access to bushfire prone vegetation.

It is recommended owners refer to the TFS guidelines for HMA's contained within the Building for Bushfire Booklet dated June 2020 at www.fire.tas.gov.au.

4.4. BAL

Based on all the assessed variables, BAL ratings can be seen in Table 3. These are in accordance with Table 2.6 of AS3959 2018. Table 3.1 of AS3959, 2018 (incorporating Amendments 1 & 2) describes BAL-19/29:

Table 3: BAL Ratings

Bushfire Attack Level (BAL)	Heat flux exposure thresholds for classified vegetation within 100m of site	Predicted bushfire attack and levels of exposure	Construction Sections
BAL-19 Addition & Deck 1 All aspects	>12.5 kW/m ² ≤19 kW/m ²	Increasing ember attack & burning debris ignited by windborne embers together with increasing heat flux	3 & 6
BAL-29 Existing Dwelling /deck & Deck 2 All aspects	>19 kW/m ² ≤29 kW/m ²	Increasing ember attack & burning debris ignited by windborne embers together with increasing heat flux	3 & 7

5. Construction Requirements

The proposed addition and deck 1 must comply with construction standards as detailed by AS3959, 2018 sections 3 and 6, specifically Clauses 6.2 to 6.8 for BAL-19.

The existing dwelling/deck and deck 2 must comply with construction standards as detailed by AS3959, 2018 sections 3 and 7, specifically Clauses 7.2 to 7.8 for BAL-29.

6. Access and Water

6.1. Site Access

Site access is <200m and provides access to a firefighting water supply point. Must comply with table 2(B) of Director's Determination.

Minor trimming of vegetation to provide 4m vertical clearance may be needed in some areas. Existing gravel surface to be upgraded to remove erosion ruts. Turning area as part of the proposed plans (see Appendix B) will be increased.

See below for Table 2(B) in the Director's Determination:

Table 2 - Requirements for Property Access

Column 1 Element	Column 2 Requirement
A. Property access length is less than 30 metres, or access is not required for a fire appliance to access a firefighting water point.	There are no specified design and construction requirements.
B. Property access length is 30 metres or greater, or access is required for a fire appliance to access a firefighting water point.	The following design and construction requirements apply to property access: (a) all-weather construction; (b) load capacity of at least 20 tonnes, including for bridges and culverts; (c) minimum carriageway width of 4 metres; (d) minimum vertical clearance of 4 metres; (e) minimum horizontal clearance of 0.5 metres from the edge of the carriageway; (f) cross falls of less than 3 degrees (1:20 or 5%); (g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle; (h) curves with a minimum inner radius of 10 metres; (i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and (j) terminate with a turning area for fire appliances provided by one of the following: (i) a turning circle with a minimum outer radius of 10 metres; (ii) a property access encircling the building; or (iii) a hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.
C. Property access length is 200 metres or greater.	The following design and construction requirements apply to property access: (a) complies with requirements for B above; and (b) passing bays of 2 metres additional carriageway width and 20 metres length provided every 200 metres.

6.2. Water Supply

The proposal will require a static water supply to comply with table 3B of the Director's Determination. This involves installing a static water supply (tank) of a minimum 10,000L within 3m of a hardstand constructed of the same material and standard as the driveway. The hardstand must be within 3m of the driveway, be at least 3m wide/8m long and located a minimum 6m from the dwelling.

The tank must be fitted with a DIN or NEN standard forged Storz 65mm coupling with suction washer for connection to firefighting equipment and be within 90m of the entire proposal as a hose lay. Water supply point signage must be installed and clearly visible to inform firefighters.

If it can be shown that the tank can comply with section 3.5 of AS3959 2018 (shielded from bushfire prone vegetation on all aspects), the tank can be made of any material provided the 400mm above ground is covered with a non-combustible material.

Alternatively, a non-combustible tank can be installed, for eg, metal.

An indicative location is shown on the BHMP (see attached).

Refer to Table 3B below:

Table 3B - Requirements for Static Water Supply for Firefighting

Column 1 Element		Column 2 Requirement
A.	Distance between building area to be protected and water supply	The following requirements apply: (a) the building area to be protected must be located within 90 metres of the firefighting water point of a static water supply; and (b) the distance must be measured as a hose lay between the firefighting water point and the furthest part of the building area.
B.	Static water supplies	A static water supply: (a) may have a remotely located offtake connected to the static water supply; (b) maybe a supply for combined use (firefighting and other uses), but the specified minimum quantity of firefighting water must be available at all times; (c) must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose, including firefighting sprinkler or spray systems; (d) must be metal, concrete or lagged by non-combustible materials if above ground; and (e) if a tank can be located, so it is shielded in all directions in compliance with Section 3.5 of AS 3959, the tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by: (i) metal; (ii) non-combustible material; or (iii) fibre-cement a minimum of 6 mm thickness.
C.	Fittings, pipework and accessories (including stands and tank supports)	Fittings and pipework associated with a firefighting water point for a static water supply must: (a) have a minimum nominal internal diameter of 50mm; (b) be fitted with a valve with a minimum nominal internal diameter of 50mm; (c) be metal or lagged by non-combustible materials if above ground; (d) if buried, have a minimum depth of 300mm;

Column 1 Element		Column 2 Requirement
		(e) provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to firefighting equipment; (f) ensure the coupling is accessible and available for connection at all times; (g) ensure the coupling is fitted with a blank cap and securing chain (minimum 220mm length); and (h) ensure underground tanks have either an opening at the top of not less than 250mm diameter or a coupling compliant with this Table; and (i) where a remote offtake is installed, ensure the offtake is in a position that is: (i) visible; (ii) accessible to allow connection by firefighting equipment; (iii) at a working height of 450mm – 600mm above ground level; and (iv) protected from possible damage, including damage by vehicles.
D.	Signage for static water connections	The firefighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within AS 2304; or (b) comply with the TFS Water Supply Signage Guideline.
E.	Hardstand	A hardstand area for fire appliances must be provided: (a) no more than three metres from the firefighting water point measured as a hose lay (including the minimum water level in dams, swimming pools and the like); (b) no closer than six metres from the building area to be protected; (c) a minimum width of three metres constructed to the same standard as the carriageway; and (d) connected to the property access by a carriageway equivalent to the standard of the property access.

7. Regulations

Regulations governing construction in bushfire prone areas encompass all documents relating to planning, design and implementation. These documents include:

- Tasmania Building Act 2016
- Tasmania Building Regulations 2014
- Tasmania Building Regulations 2016
- Director's Determination – Bushfire Hazard Areas Version 1.1 2021
- Tasmania Planning Scheme – State Planning Provisions 2023
- National Construction Code – 2022
- AS3959 (2018) (incorporating Amendments 1 & 2) – Construction of buildings in bushfire prone areas
- The ABCB Performance Standard for Private Bushfire Shelters Part 1

8. Report Limitations and General Information

This report aims to provide sound advice, best practice strategies and measures in accordance with AS3959 2018 (incorporating Amendments 1 & 2), Tasmania Planning Scheme – State Planning Provisions 2023 and the Director's Determination – Bushfire Hazard Areas Version 1.1 2021.

We rely on information provided to us by clients and agents on behalf of clients. The assessment provided in this report relates only to the subject proposal/land/property, which has been identified in this report.

It is outside the scope of our accreditation to provide performance solutions. Bushfire Tasmania can provide performance solutions only with the advice and approval of the Tasmania Fire Service.

The purpose of recommendations contained in this report are to deliver clarity of circumstances relating to potential bushfire hazard(s). In addition, they are designed to assist in developing mitigation measures and on-going management of the site and surrounding area to provide a tolerable level of risk in accordance with all relevant standards. Any proposed future building(s) or changes in vegetation that may impact this site from a bushfire hazard perspective have not been considered in this report. No responsibility is taken for any loss as a result of actions taken which may be contrary to AS3959 2018 or the Directors Determinations. All findings and conclusions in this report are based on these.

Of particular note and importance from AS3959:

This standard is primarily concerned with improving the ability of buildings in designated bushfire-prone areas to better withstand attack from bushfire thus giving a measure or protection to the building occupants (until the fire front passes) as well to the building itself.

Improving the design and construction of buildings to minimize damage from the effects of bushfire is but one of several measures available to property owners and occupiers to address damage during bushfire. Property owners should be aware that this Standard is part of a process that aims to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. Other measures of mitigating damage from bushfire fall within the areas of planning, subdivision, siting, building design, landscaping and maintenance.

Furthermore, compliance with AS3959 does not guarantee that no loss will occur to life or property as a result of bushfire, as stated in AS3959:

It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.

The survivability of buildings is also dependent on a combination of measures such as landscaping, water supplies, access, building design and maintenance. Care should also be exercised when siting and designing for these measures when constructing a building under this Standard.

Monitoring current TFS advice is imperative and landowners should be aware in Catastrophic Fire Danger Rating conditions, even very well-prepared buildings may not be safe. Residents in bushland areas should not plan to defend any building, regardless of any preparations they have made.

It is the intention that based on the implementation of sound bushfire prevention measures in conjunction with on-going maintenance and keeping informed of possible fire threats that loss of property and/or life may be reduced.

If your property is within a bushfire prone area or if likely to be impacted by bushfire in some way, it is highly recommended that property owners/managers develop and implement a bushfire survival plan. This should address all aspects of bushfire safety and bushfire prevention measures applicable to the property. In addition, an evacuation plan should be developed and rehearsed to ensure occupants can realistically enforce it should the need arise. Please read the attached TFS Bushfire Emergency Planning Guidelines V3.0 2021 as a reference to better plan evacuation procedures as part of any bushfire survival plan and listen to ABC local radio for updates in the event of a fire in your area.

This assessment and BHMP is valid for 6 years from the date of issue.

9. Recommendations

- In accordance with Table 2.6 in AS3959 2018:
A hazard management area (HMA) is required to the specifications of:
 - a minimum 18m separation distance on the northern aspect,
 - a minimum 28m separation distance on the western aspect.
 - To the property boundary on the southern and eastern aspects (to be at least 7m from the proposed shed). Separation distance on the eastern aspect has been increased to the property boundary to aid in firefighter / occupant safety when accessing the firefighting water tank.

The proposed HMA can achieve compliance with grass being mowed to a nominal height of 100mm or less as per Clause 2.2.3.2(f) of AS3959 2018. Existing shrubs and small trees are to be thinned/removed in line with Section 4.3 of this report and TFS guidelines for HMA's contained within the Building for Bushfire Booklet dated June 2020 at www.fire.tas.gov.au.

- With the implementation of the HMA, site and vegetation circumstances will allow compliance for a BAL-19 compliant building solution for all aspects of the proposed addition and deck 1. BAL-29 applies to the existing dwelling/deck and proposed deck 2. Refer to the BHMP attached in Appendix C for deck 1 and 2 locations. Existing dwelling to be upgraded to BAL-29 standard. Proposed class 10a shed is >6m from the dwelling and not required to comply with bushfire construction measures.
- Site access is >30m and <200m and provides access to a firefighting water supply point. Must comply with table 2(B) of Director's Determination. Minor trimming of vegetation to provide 4m vertical clearance may be needed in some areas. Existing gravel surface to be upgraded to remove erosion ruts. Turning area will be extended as per the plans (see Appendix B).
- The proposal will require a static water supply to comply with table 3B of the Director's Determination. This involves installing a static water supply (tank) of a minimum 10,000L within 3m of a hardstand constructed of the same material and standard as the driveway. The hardstand must be within 3m of the driveway, be at least 3m wide/8m long and located a minimum 6m from the dwelling. The tank must be fitted with a DIN or NEN standard forged Storz 65mm coupling with suction washer for connection to firefighting equipment and be within 90m of the entire proposal as a hose lay. Water supply point signage must be installed and clearly visible to inform firefighters. If it can be shown that the tank can comply with section 3.5 of AS3959 2018 (shielded from bushfire prone vegetation on all aspects), the tank can be made of any material provided the 400mm above ground is covered with a non-combustible material. Alternatively, a non-combustible tank can be installed, for eg, metal.

10. Conclusion

Woodland bushfire prone vegetation is present on all aspects. In order to achieve a BAL-19/29 compliant building solution for the proposed additions and dwelling, minimum setbacks as outlined in this report must be implemented and maintained appropriately in accordance with Table 2.6 and Clause 2.2.3.2(d)(e)(f) in AS3959 2018.

Water supply must comply with table 3B of the Director's Determination. Site access must comply with table 2(B) of Director's Determination.

All construction must adhere to sections 3, 6 and 7 of AS3959 2018.

The site has been assessed in accordance with Australian Standard 3959 – *Construction of Buildings in Bushfire Prone Areas 2018* (incorporating Amendments 1 & 2) and the Director's Determination – Bushfire Hazard Areas Version 1.1 2021.



Samuel Walters B.Agr Sc.; BFP-130

Bushfire Tasmania

11. References

- AS3959-2018 Construction of buildings in bushfire prone areas, Standards Australia, Sydney (incorporating Amendments 1 & 2).
- Wiltshire,R and Jordan,G. *Treeflip*, School of Plant Science, University of Tasmania, 2009.
- Wiltshire,R and Potts,B. *Eucaflip*, School of Plant Science, University of Tasmania, 2007.
- Tasmania Planning Scheme – State Planning Provisions 2023.
- Director's Determination – Bushfire Hazard Areas Version 1.1 2021.
- Tasmania Building Act 2016.
- National Construction Code 2022.
- Tasmania Building Regulations 2016.
- From Forest to Fjaeldmark, *Descriptions of Tasmania's Vegetation*. Department of Primary Industries, Water and Environment, 2005.
- Tasmanian Planning Scheme Clarence.
- www.thelist.tas.gov.au
- Chladil, M and Sheridan, J. *Fire Resisting Garden Plants for the urban fringe and rural areas*. Tasmania Fire Service, 2017.
- TasVeg4.0 Tasmanian Vegetation Monitoring and Mapping Program, Biodiversity Conservation Branch, DPIPWE, 2013.
- Bushfire Planning Group, *Guidelines for Development in Bushfire Prone Areas of Tasmania*, Tasmania Fire Service, Hobart, 2017.
- www.fire.tas.gov.au
- TFS *Bushfire Emergency Planning Guidelines* Version 3.0, November 2021. Tasmania Fire Service.
- TFS *Building for Bushfire booklet*, Tasmania Fire Service, June 2020.
- TFS *Water Supply Signage Guideline* Version 1.0, Tasmania Fire Service, February 2017.
- TFS *Firefighting Water Supplies booklet*, Tasmania Fire Service.
- *Overall Fuel Hazard Assessment Guide*, Fire and Adaptive Management report no. 82, 4th Edition July 2010 - Francis Hines, Kevin G Tolhurst, Andrew AG Wilson and Gregory J McCarthy.

Appendix A – Site Photographs

Photograph 1 – Looking west toward southern side of existing dwelling. Woodland on left.



Photograph 2 – Looking south from near southern wall of dwelling on southern boundary toward across-slope woodland.



Photograph 3 – Looking north west toward shed on neighbouring 30 Tradewind Terrace (seen in photo 2) from adjacent to driveway on subject site.



Photograph 4 – Looking south along driveway on subject site (near photo 3 location) toward Tradewide Terrace.



Photograph 5 – Looking east from south western corner of dwelling. New decks and additions proposed on the left.



Photograph 6 – Subfloor of existing dwelling showing non-combustible piers and exposed underside of floor/joists etc.



Photograph 7 – Looking north from eastern side of driveway toward turning circle. Shed on right is location identified for firefighting water tank (indicative).



Photograph 8 – Looking south along driveway from shed seen in photo 7.



Photograph 9 – Looking southeast from northern side of dwelling toward turning area.



Photograph 10 – Looking north from proposed addition site toward woodland on subject property. Some trees will be removed.



Photograph 11 – Looking west north west from addition site. Some trees will be removed.



Photograph 12 – Looking south west from north of addition site.



Photograph 13 – Looking west into down-slope woodland approximately 60m west north west of the proposal.



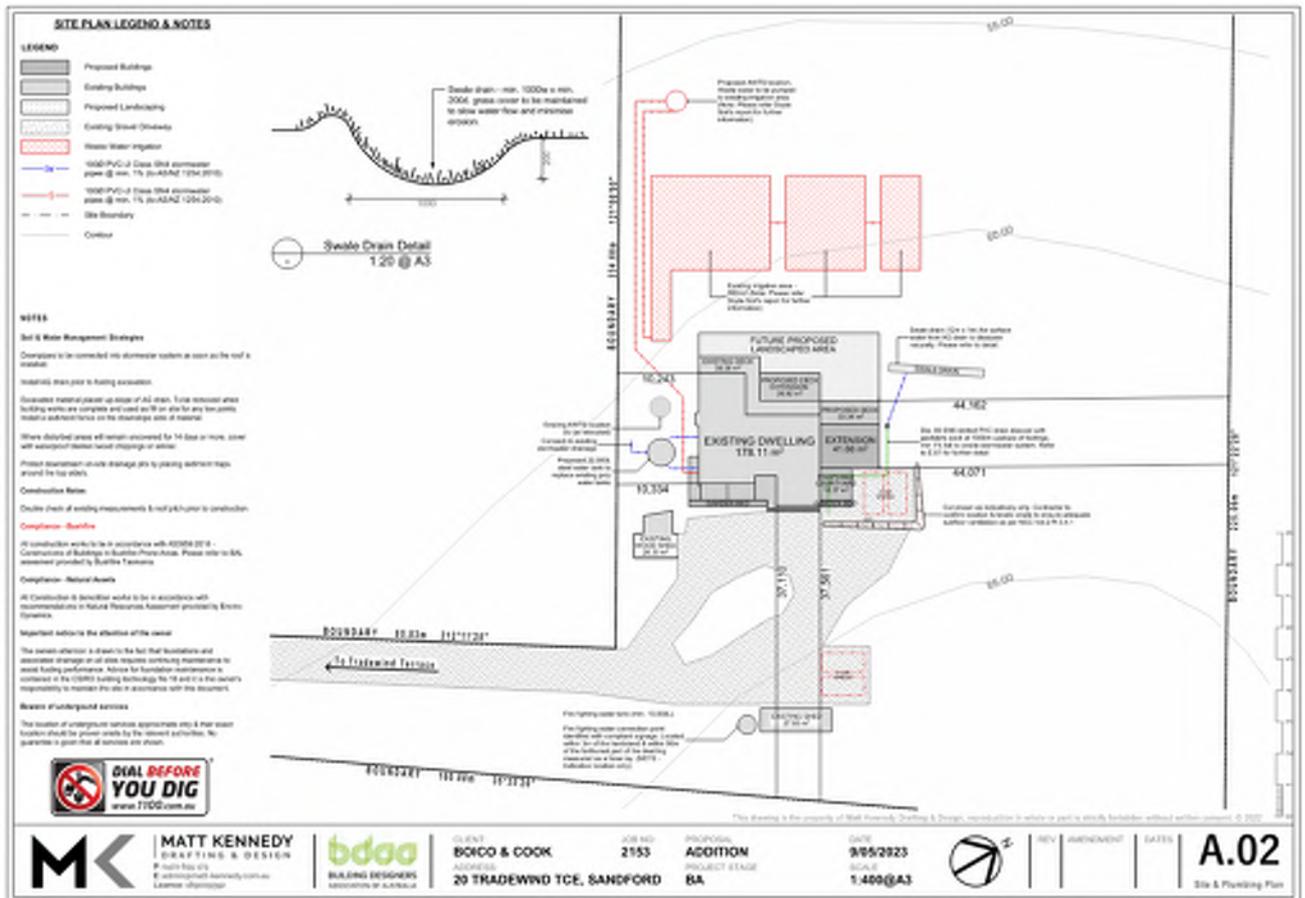
Photograph 14 – Looking east south east from approximately 60m north west of subject dwelling into woodland vegetation on subject property. Dwelling can be seen lower mid-right, with addition and deck site closest.



Appendix B – Architectural/Designer Plans

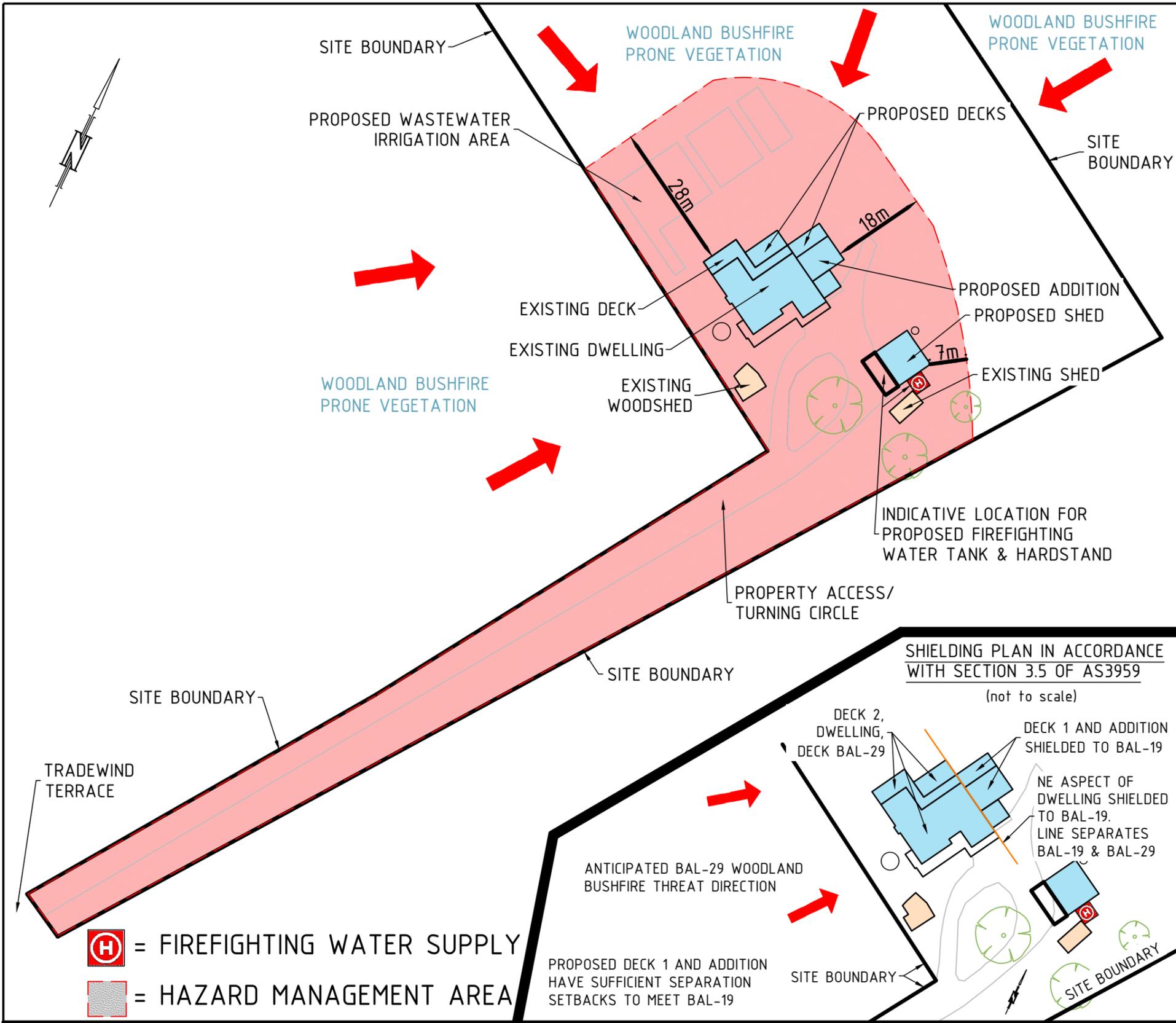
See attached

Below is the proposed site plan with boundary fences as they currently stand:



Appendix C – Bushfire Hazard Management Plan

See attached



VEGETATION:
 IN ACCORDANCE WITH TABLE 2.6 IN AS3959, 2018.
 FROM THE PROPOSED ADDITION, EXISTING DWELLING AND DECKS, SEPARATION DISTANCES ARE REQUIRED TO:

- A MINIMUM 28m ON THE WESTERN ASPECT,
- A MINIMUM 18m ON THE NORTHERN ASPECT,
- TO THE PROPERTY BOUNDARY ON ALL OTHER ASPECTS (7m FROM PROPOSED SHED).

NOTE: RESURVEY OF PROPERTY BOUNDARIES HAS REVEALED THE SOUTH/SOUTH WEST BOUNDARY IS LESS THAN 10m FROM THE EXISTING DWELLING (±0.5m CHANGE). AS THE BOUNDARY STANDS, THERE IS SUFFICIENT SEPARATION TO MEET THE MINIMUM 10m SEPARATION FOR BAL-29. IF THE NEIGHBOURS AT 30 TRADEWIND TERRACE ARE AWARE OF THIS AND INTEND TO MOVE THEIR BOUNDARY AS PER SURVEY, THE BOUNDARY FENCES ACT OF 1908 STATES "Where any fence is to be erected on land covered with standing bush or scrub, and the required notices as hereinbefore provided have been given, the person erecting the fence shall clear the bush and scrub and remove fallen timber for a width of not less than 2 metres on each side along the entire length of the fence". REFER TO THE REPORT FOR THE REMAINDER OF TEXT. IF THE BOUNDARY FENCE REMAINS AS IS, THE EXISTING DWELLING IS BAL-29 COMPLIANT AND IF THE FENCE IS MOVED, THE 2m MINIMUM CLEARING SATISFIES THE MIN 10m SETBACKS FOR BAL-29. TO SATISFY HMA VEGETATION REQUIREMENTS, GRASS MUST BE REGULARLY MOWN TO A NOMINAL 100mm OR LESS HEIGHT AS PER AS3959 2018 CLAUSE 2.2.3.2(F). GROUND AND MID-LEVEL GROWTH IS TO BE SLASHED AND MAINTAINED. SOME EXISTING EUCALYPTS WITHIN HMA MAY BE RETAINED IN LINE WITH BELOW AS WELL AS TFS GUIDELINES FOR HMA'S CONTAINED WITHIN THE BUILDING FOR BUSHFIRE BOOKLET DATED JUNE 2020 AT WWW.FIRE.TAS.GOV.AU.

GENERAL VEGETATION MANAGEMENT INFORMATION:
 NEW VEGETATION MAY BE PLANTED AND EXISTING VEGETATION MAY BE RETAINED WITHIN THE HMA BUT MUST SATISFY LOW THREAT CONDITIONS IN ACCORDANCE WITH AS3959 2018 CLAUSE 2.2.3.2(D)(E)(F). AS A GENERAL RULE/GUIDE:
 VEGETATION 0.1-1m IN HEIGHT MAY BE PLANTED/RETAINED NOT CLOSER THAN 2m FROM DWELLING AND DECKS.
 SHRUBS UP TO 2m IN HEIGHT CAN BE PLANTED/RETAINED EITHER INDIVIDUALLY OR IN SINGLE ROWS BUT MUST BE SPACED WITH A MINIMUM 6m BETWEEN FOLIAGE AND SHOULD NOT BE WITHIN 6m OF THE DWELLING OR DECKS.
 LARGE PLANTS 4m OR MORE IN HEIGHT CAN BE PLANTED/RETAINED AND SHOULD HAVE LOW AND MID-LEVEL GROWTH UP TO 2m IN HEIGHT TO BE TRIMMED AND MAINTAINED OVER TIME. SPACING BETWEEN CROWNS IS TO BE A MINIMUM OF 30m.
 VEGETATION 2m OR MORE IN HEIGHT SHOULD NOT BE PLANTED/RETAINED WITHIN 10m OF THE DWELLING AND DECKS.
 ALL VEGETATION 1-4m IN HEIGHT SHOULD BE SPACED FROM LARGE VEGETATION (>4m) AT LEAST 8m FROM TREE CROWN (MEASURED VERTICALLY).
 PLANT DEBRIS SHOULD BE REGULARLY CLEARED/REMOVED AND FIREWOOD BE STORED APPROPRIATELY EITHER UNDERCOVER, PROTECTED FROM POSSIBLE EMBER ATTACK OR STACKED MORE THAN 6m FROM THE DWELLING.

SITE ACCESS:
 SITE ACCESS TO COMPLY WITH TABLE 2(B) OF DIRECTOR'S DETERMINATION - BUSHFIRE HAZARD AREAS VERSION 1.1 2021. COMPLIANT TURNING AREA TO BE EXTENDED AS PER PLANS BY MK DESIGN AND SURFACE TO BE UPGRADED TO REMOVE EROSION RUTS.

WATER SUPPLY:
 SITE MUST PROVIDE A STATIC WATER SUPPLY IN LINE WITH TABLE 3B OF DIRECTOR'S DETERMINATION - BUSHFIRE HAZARD AREAS VERSION 1.1 2021. MUST BE WITHIN 90m OF THE FURTHEST POINT OF PROPOSAL (AS A HOSE LAY) AND BE WITHIN 3m OF A MINIMUM 3m WIDE HARDSTAND THAT IS WITHIN 3m OF ACCESS ROAD. HARDSTAND TO BE AT LEAST 6m FROM DWELLING.

RECOMMENDATIONS:
 MINIMUM SEPARATION DISTANCES TO BE MAINTAINED AS LOW THREAT AND IN ACCORDANCE WITH CLAUSE 2.2.3.2 OF AS3959 2018, THIS BHMP AND BHMP REPORT. THE HMA CREATED BY THESE SETBACKS WILL ALLOW A BAL-19 COMPLIANT SOLUTION FOR ALL ASPECTS OF THE PROPOSED ADDITION AND DECK 1 DUE TO SHIELDING (IN ACCORDANCE WITH SECTION 3.5 IN AS3959 2018). SHIELDED NORTH EASTERN SIDE OF EXISTING DWELLING IS BAL-19. PROPOSED DECK 2 IS BAL-29 AS WELL AS EXISTING DWELLING & DECK WHICH ARE TO BE UPGRADED TO THIS STANDARD. WE RECOMMEND ANY LANDSCAPING USE PLANTS OF LOW FLAMMABILITY RATINGS AS LISTED IN THE TASMANIA FIRE SERVICE BOOKLET FIRE RESISTING GARDEN PLANTS FOR THE URBAN FRINGE AND RURAL AREAS, 2017. CONSTRUCTION REQUIREMENTS FOR THE PROPOSED ADDITION, DECK 1 AS WELL AS THE SHIELDED NORTH EASTERN ASPECT OF EXISTING DWELLING (AS SHOWN) MUST COMPLY WITH CONSTRUCTION STANDARDS AS DETAILED BY AS3959, 2018 SECTIONS 3 AND 6, CLAUSES 6.2 TO 6.8 FOR BAL-19. CONSTRUCTION REQUIREMENTS FOR REMAINDER OF EXISTING DWELLING, EXISTING DECK AND PROPOSED DECK 2 MUST COMPLY WITH CONSTRUCTION STANDARDS AS DETAILED BY AS3959, 2018 SECTIONS 3 AND 7, CLAUSES 7.2 TO 7.8 FOR BAL-29.

BUSHFIRE HAZARD MANAGEMENT PLAN
 SCALE 1:750

REV.	DESCRIPTION	DATE
B	BUILDING APPROVAL	01/11/2023
A	BUILDING APPROVAL	24/5/2023



21 Dysart Street
 Clifton Beach
 0438 559 371
 sam@bushfiretasmania.com.au

CLIENT: BOICO & COOK
 ADDRESS: 20 TRADEWIND TERRACE SANDFORD

SHEET: BUSHFIRE HAZARD MANAGEMENT PLAN
 PROJECT: PROPOSED ALTERATIONS / ADDITIONS AND SHED
 ISSUE: BUILDING APPROVAL

DRAWN: SW	APPROVED: SW BFP-130
SCALE: 1:750	SIZE: A3
DATE: 01/11/2023	
PROJECT No. K22-5	SHEET No. B

Mark Schmidt
Building Surveyor Limited
CC 4806 S
03 6124 2220



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DWG NO:	DESCRIPTION
A.01	Location Plan
A.02	Site & Plumbing Plan
A.03	Ground Floor Plan - Existing
A.04	Ground Floor Plan - Demolition
A.05	Elevations - Demolition
A.06	Elevations 2 - Demolition
A.07	Ground Floor Plan - Proposed
A.08	Elevations - Proposed
A.09	Elevations 2 - Proposed
A.10	Perspectives
A.11	Perspectives 2
A.12	RFI Response - Natural Assets
A.13	Section A
A.14	Section B
A.15	Plumbing Plan
A.16	Electrical Plan
A.17	Roof Plan
A.18	Window & Door Schedule
A.19	Detailed Section B
A.20	Construction Notes
A.21	Construction Notes - Wet Areas
A.21	Construction Notes 2
A.22	Construction Notes - Safety Notes
A.23	Bushfire Requirements - BAL 29
BHMP	Bushfire Hazard Management Plan
E.01	Footing Plan
E.02	Floor Framing Plan
E.03	Subfloor Bracing Plan
E.04	Wall Framing Plan
E.05	Wall Bracing Plan
E.06	Roof Framing Plan
E.07	Details

DWG NO:	DESCRIPTION
SH.01	Location Plan
SH.02	Site Plan
SH.03	Garage Plan & Elevations
BHMP	Bushfire Hazard Management Plan



20 TRADEWIND TERRACE
SANDFORD

ADDITION & ALTERATIONS
2153

SITE INFORMATION

Title Reference: 43698/73
 Property ID: 7639341
 Council: Clarence City Council
 Planning Zone: Rural Living
 Code Overlays: Low Landslip Hazard Band
 Priority Vegetation Area
 Bushfire-Prone Areas

Covenants:
 Covenants in Schedule of Easements - SP43698

Soil Classification: Class S
 as per AS2870-2011 *Refer to GES soil report*
 Wind Classification: N3
 Region: A
 Terrain Category: TC2.5
 Topography: T2
 Shielding: NS
 Design Wind Gust Speed (V_{h,u}): 50m/s
 Corrosion Environment: Medium

Bushfire Attack Level (BAL)
 Refer to Bushfire Tasmania BAL report
 Dwelling Addition: BAL-29
 Deck Addition: BAL-19

NCC Building Class: 1a
 Land area: 2.05ha
 Building Area - Existing: 178.11m²
 Building Area- Addition: 41.66m²
 Deck Area - Existing: 46.82m²
 Deck Area - Addition: 49.16m²

WIND ROSE



All dimensions in millimetres
 unless noted otherwise.

PRINT ALL DRAWINGS IN COLOUR



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JOB NO:
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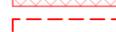
REV | AMENDMENT | DATES

A.01

Location Plan

SITE PLAN LEGEND & NOTES

LEGEND

-  Proposed Buildings
-  Existing Buildings
-  Proposed Landscaping
-  Existing Gravel Driveway
-  Waste Water Irrigation
-  Bushfire Hazard Management Area
-  100Ø PVC-U Class SN4 stormwater pipes @ min. 1% (to AS/NZ 1254:2010)
-  100Ø PVC-U Class SN4 stormwater pipes @ min. 1% (to AS/NZ 1254:2010)
-  Site Boundary
-  Contour
-  Existing Tree

NOTES

Soil & Water Management Strategies

Downpipes to be connected into stormwater system as soon as the roof is installed.

Install AG drain prior to footing excavation.

Excavated material placed up-slope of AG drain. To be removed when building works are complete and used as fill on site for any low points. Install a sediment fence on the downslope side of material.

Where disturbed areas will remain uncovered for 14 days or more, cover with waterproof blanket /wood chippings or similar.

Protect downstream on-site drainage pits by placing sediment traps around the top side/s.

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

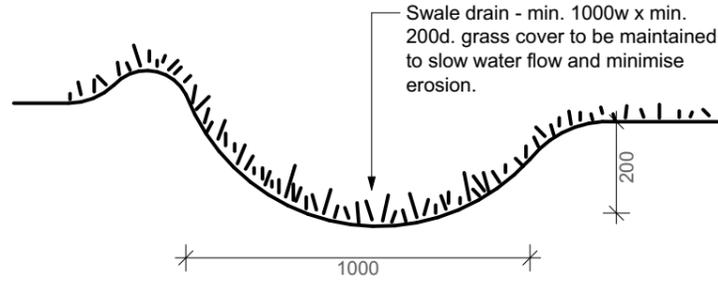
All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.

Important notice to the attention of the owner

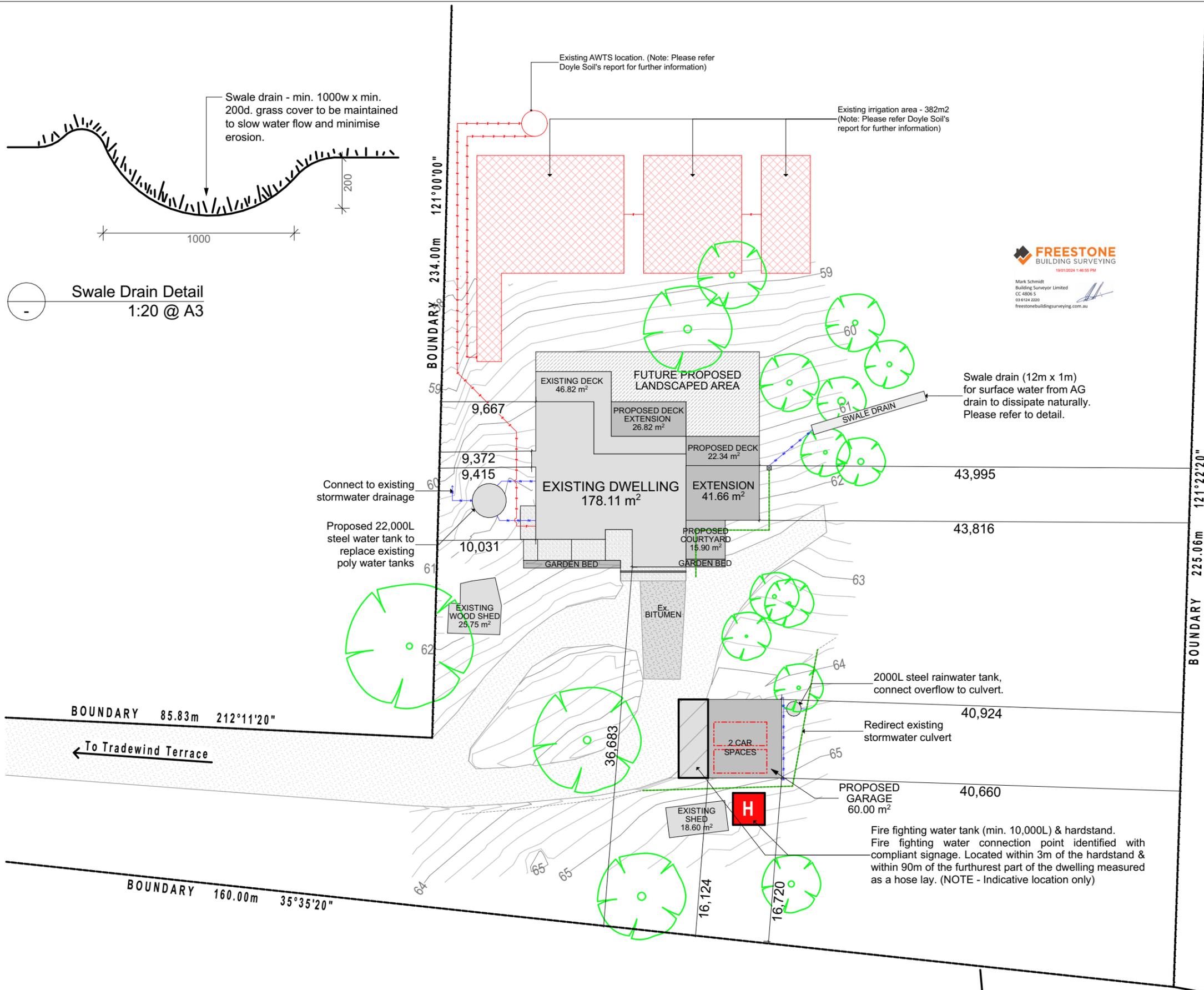
The owners attention is drawn to the fact that foundations and associated drainage on all sites requires continuing maintenance to assist footing performance. Advice for foundation maintenance is contained in the CSIRO building technology file 18 and it is the owner's responsibility to maintain the site in accordance with this document.

Beware of underground services

The location of underground services approximate only & their exact location should be proven onsite by the relevant authorities. No guarantee is given that all services are shown.



Swale Drain Detail
1:20 @ A3



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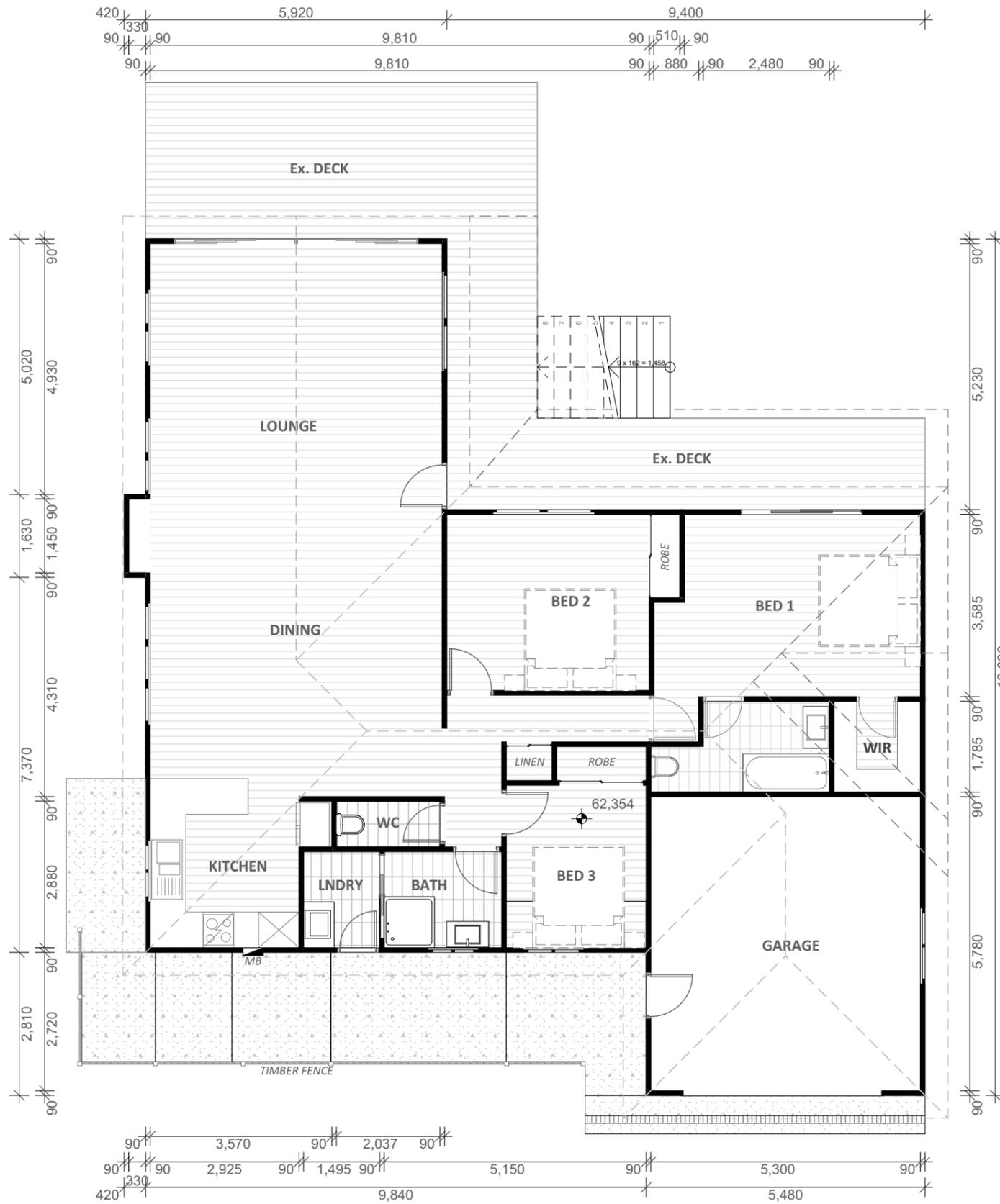
A.02

Site & Plumbing Plan

RENOVATION LEGEND & NOTES

LEGEND

- Existing
- Ex. Existing



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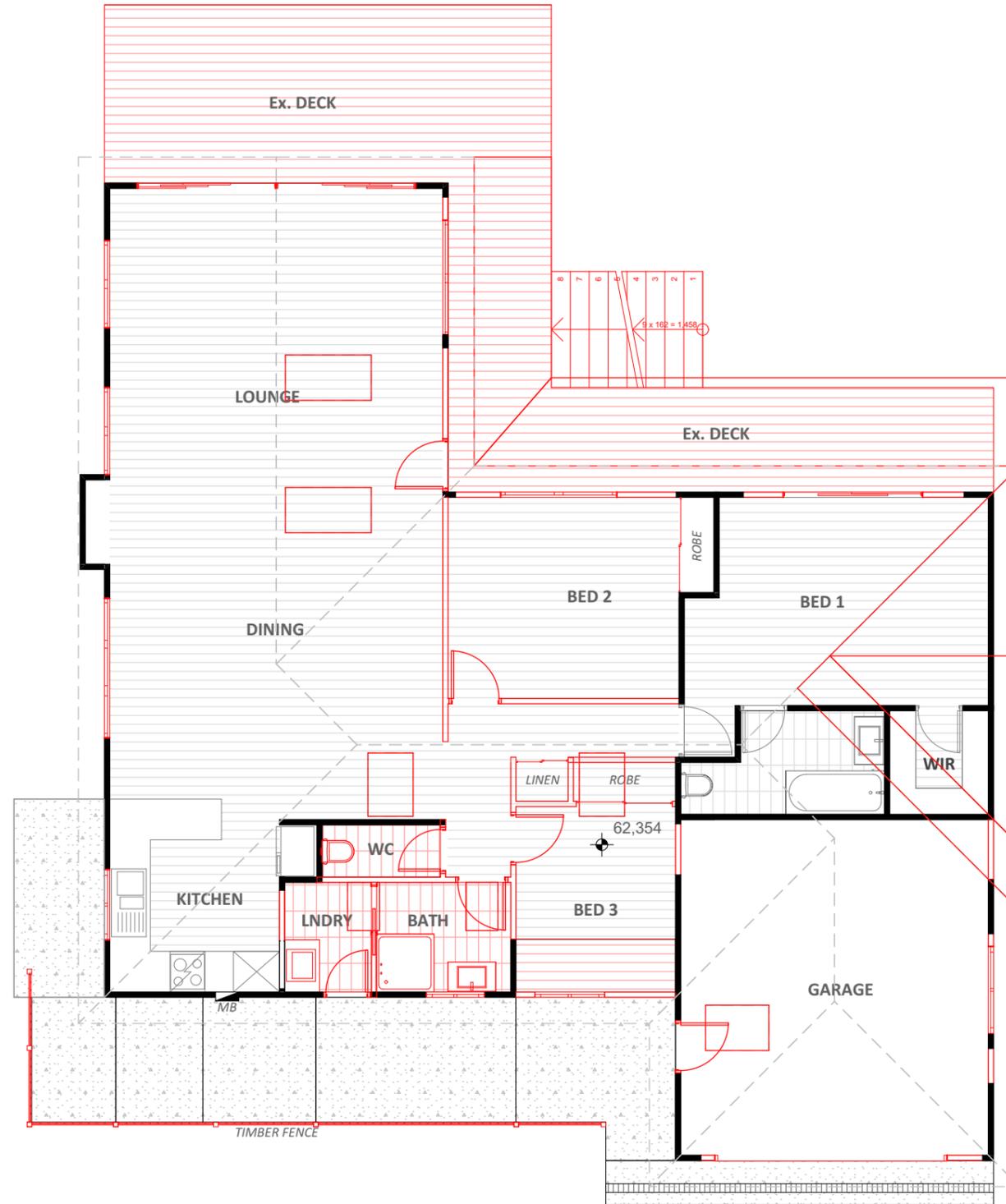
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A.03
Ground Floor Plan - Existing

RENOVATION LEGEND & NOTES

LEGEND

- Existing
- Ex. Existing
- Demolition



NOTES

Demolition

Demolition works to be carried out in accordance with AS2601-2001: The Demolition of Structures.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.



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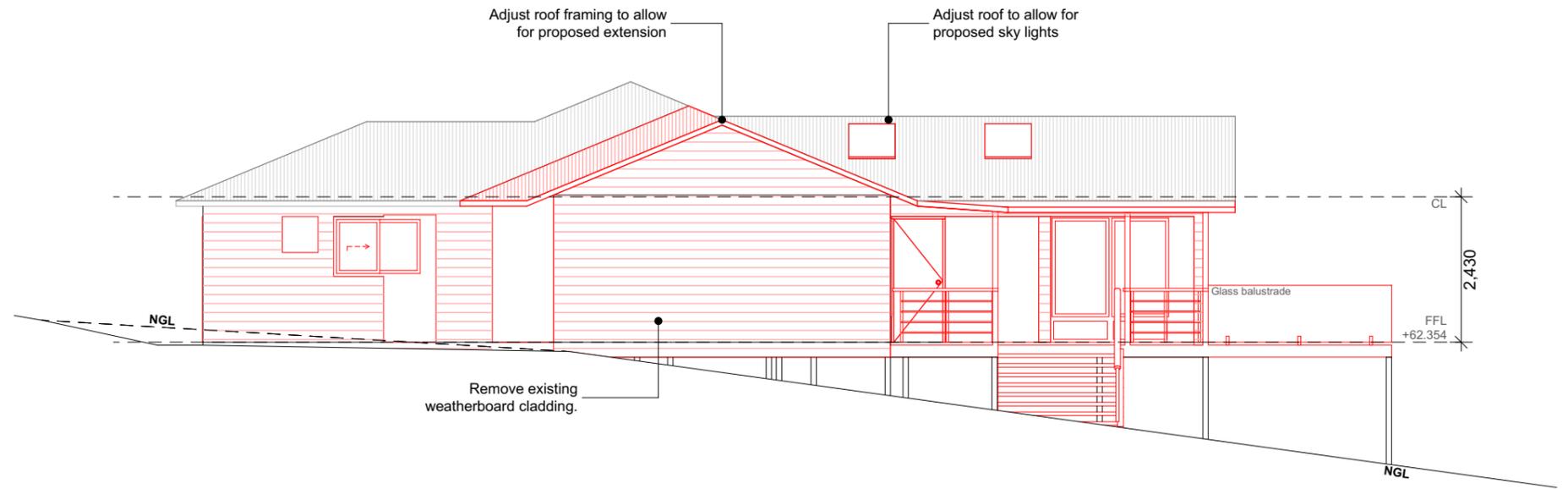
REV	AMENDMENT	DATES

A.04
Ground Floor Plan -
Demolition

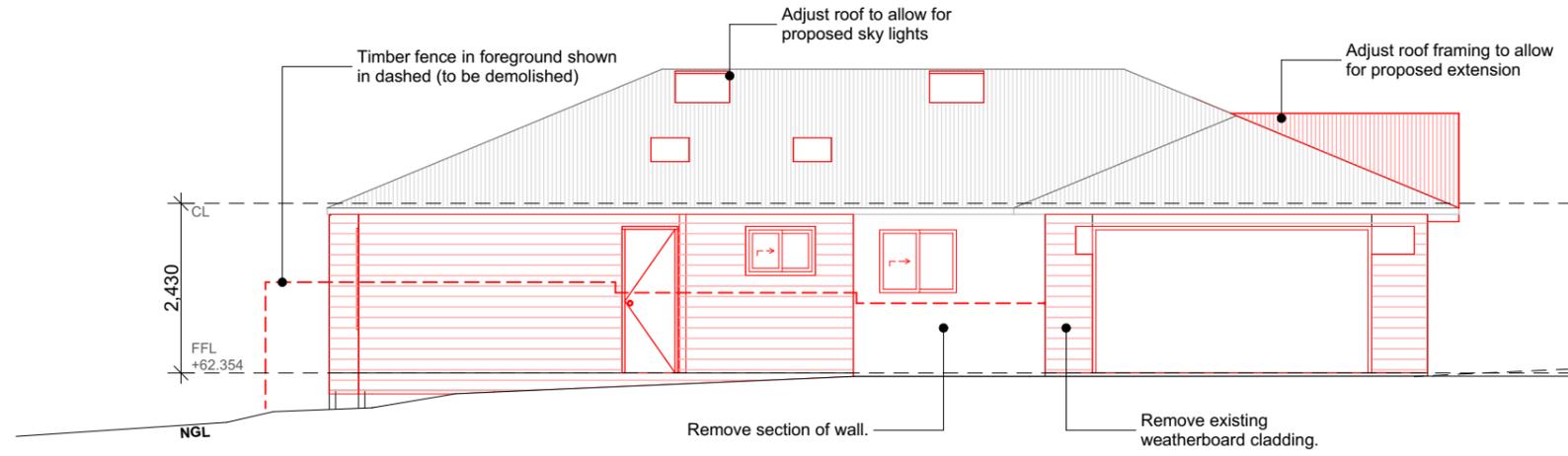
RENOVATION LEGEND & NOTES

LEGEND

- Existing
- Ex. Existing
- Demolition



E/01 North East Elevation - Demolition
1:100 @ A3



E/02 South East Elevation - Demolition
1:100 @ A3

NOTES

Demolition
Demolition works to be carried out in accordance with AS2601-2001: The Demolition of Structures.

Compliance - Natural Assets
All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.

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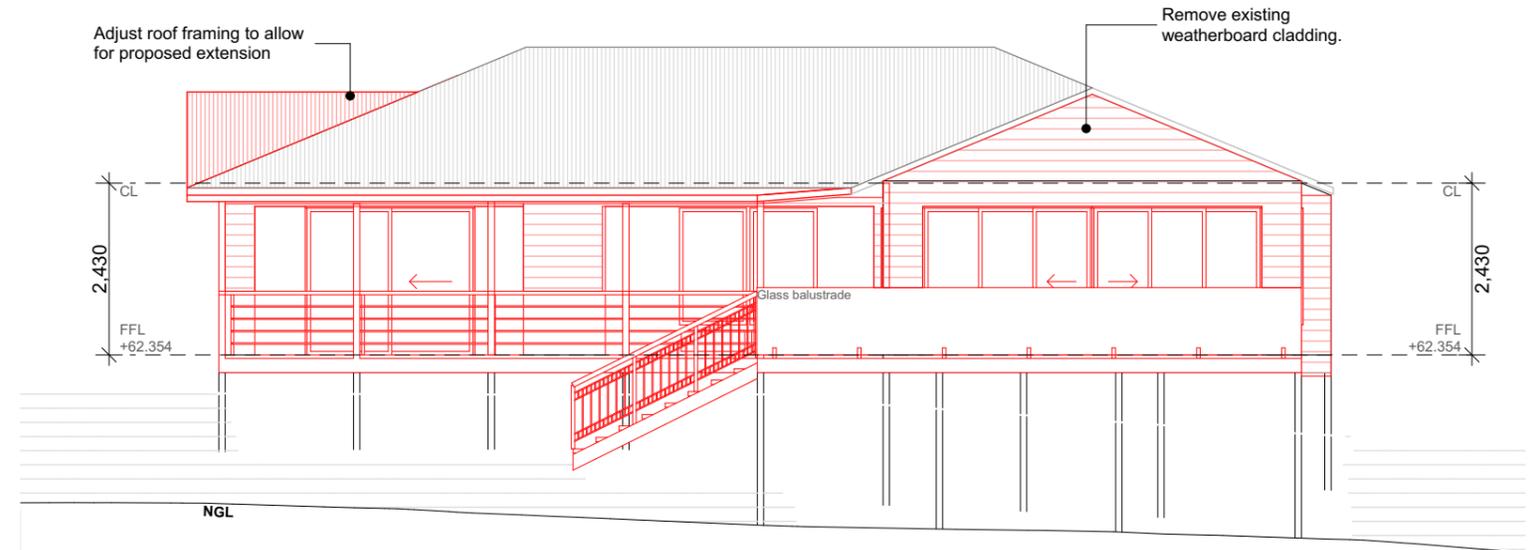
REV	AMENDMENT	DATES

A.05
Elevations - Demolition

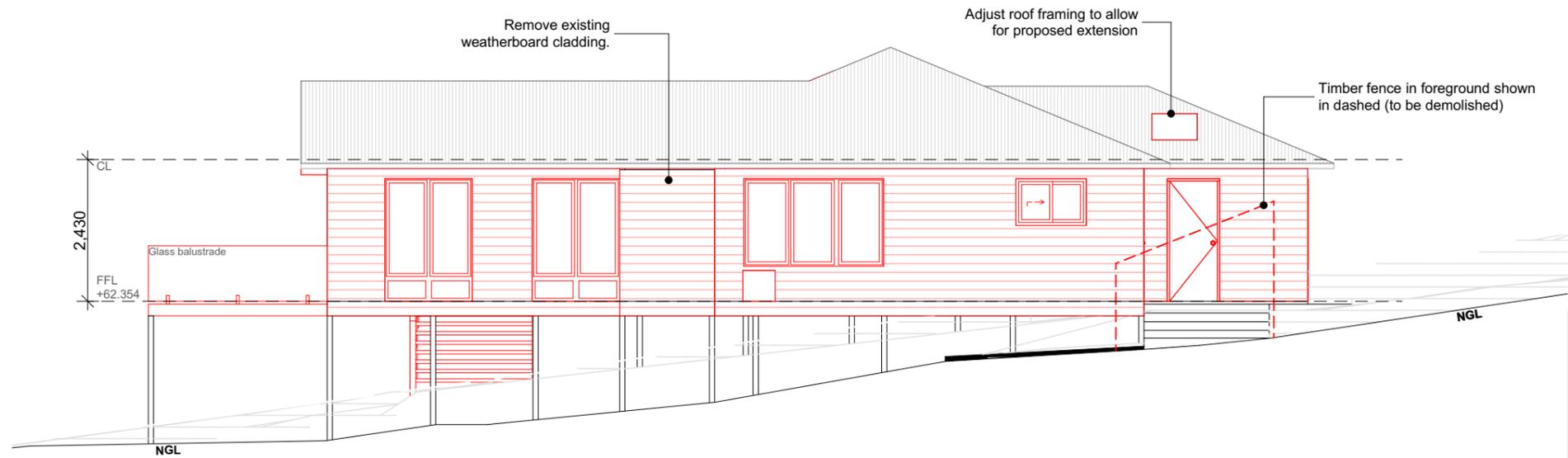
RENOVATION LEGEND & NOTES

LEGEND

- Existing
- Ex. Existing
- Demolition



E/03 North West Elevation - Demolition
1:100 @ A3



E/04 South West Elevation - Demolition
1:100 @ A3

NOTES

Demolition

Demolition works to be carried out in accordance with AS2601-2001: The Demolition of Structures.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.



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REV	AMENDMENT	DATES

A.06
Elevations 2 -
Demolition

RENOVATION LEGEND & NOTES

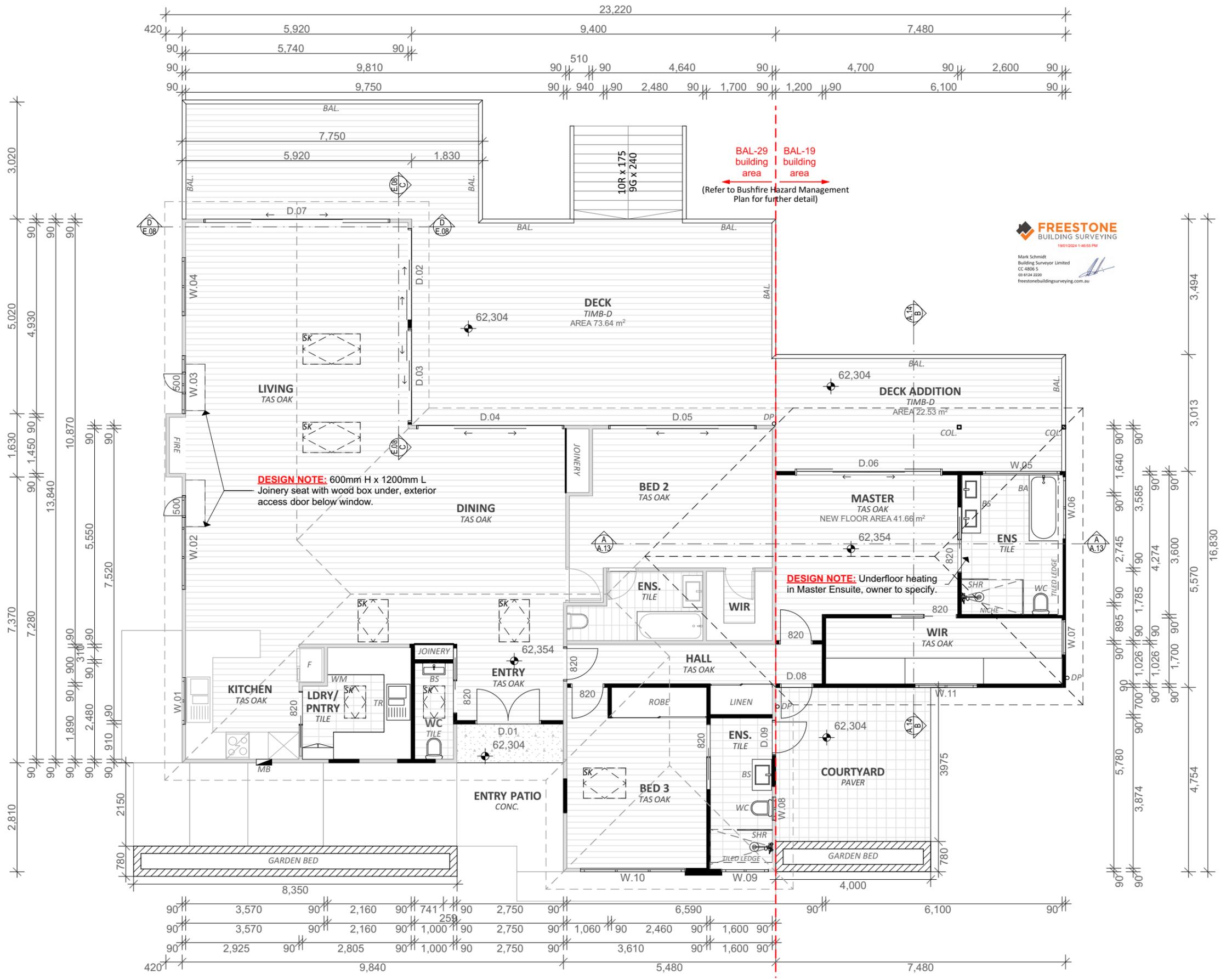
LEGEND

- Existing
- New construction
- MB** Meter box
- Ex** Existing
- TIMB-D** Decking boards, to owners selection.
Ensure BAL Compliance
- TAS OAK** Tas Oak floorboards, to owners selection
- CONC.** Concrete slab to engineers specifications.
- TILE** Ceramic floor tiles, to owners selections.
- PAVER** Pavers, to owners selection.
- BAL.** Stainless steel balustrade, to owners selection.
- COL.** Column
- DP** DN90 uPVC downpipe, painted to match adjacent wall surface. Install IO's above ground level; for flushing & cleaning.
- SK** Skylight, R2.0 insulation to skylight shaft
- BA** Bath
- BS** Basin
- SHR** Shower
- TR** Laundry Trough
- S** Sink
- WC** Toilet
- F** Refrigerator
- WM** Washing Machine
- NICHE** Shower niche

NOTES

Construction Notes

- Double check all existing measurements & roof pitch prior to construction.
- All structural steel members that are not built in to a masonry wall must be protected against Medium Corrosion Environment as per table 6.3.9a of the NCC 2022 Vol 2.
- Sheet metal roofing & flashings must be protected against Medium Corrosion Environment as per table 7.2.2a of the NCC 2022 Vol 2.
- All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.
- All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.
- Bracing & tie downs are to comply with as 1684.2 and the NCC.
- Compliance - Bushfire**
- All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.
- Compliance - Natural Assets**
- All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



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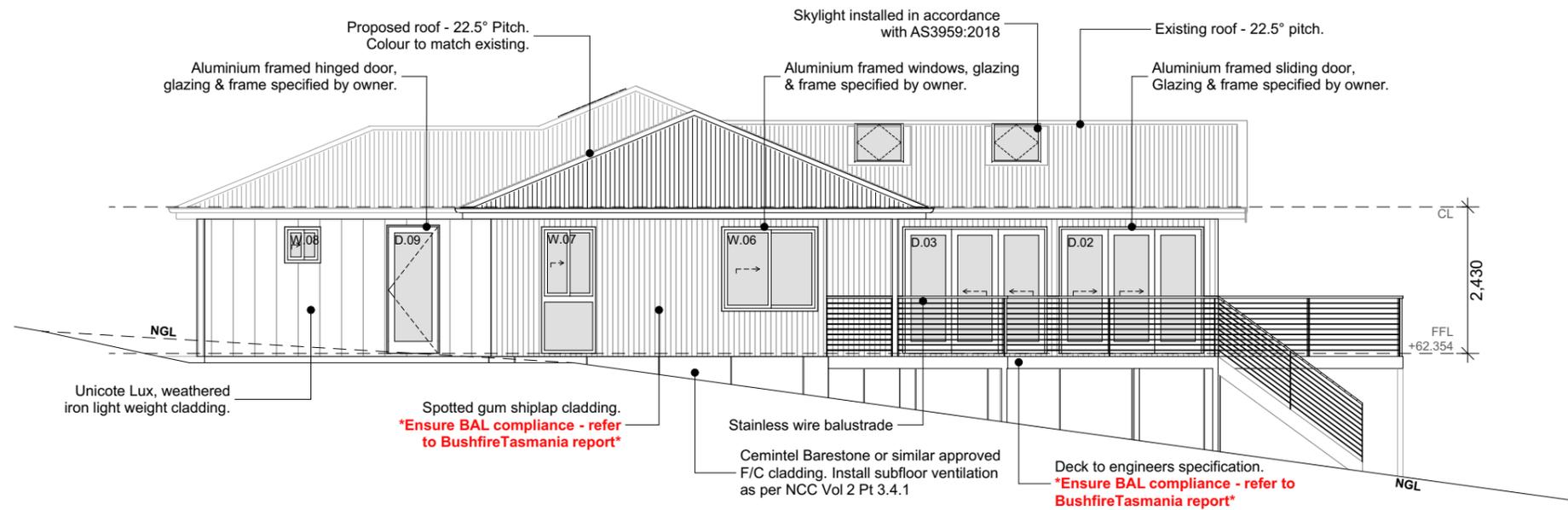
REV	AMENDMENT	DATES

A.07
Ground Floor Plan - Proposed

RENOVATION LEGEND & NOTES

LEGEND

-  Existing
-  Existing
-  New Construction



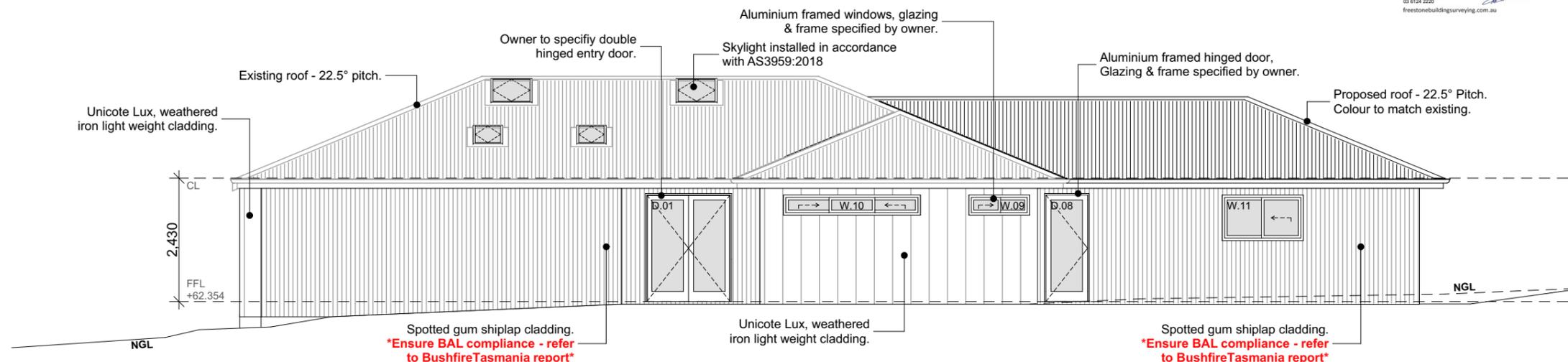
E/01 North East Elevation - Proposed
1:100 @ A3



NOTES

Construction Notes

- Double check all existing measurements & roof pitch prior to construction.
- All structural steel members that are not built in to a masonry wall must be protected against Medium Corrosion Environment as per table 6.3.9a of the NCC 2022 Vol 2.
- Sheet metal roofing & flashings must be protected against Medium Corrosion Environment as per table 7.2.2a of the NCC 2022 Vol 2.
- All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.
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- Compliance - Bushfire**
- All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assessment provided by Bushfire Tasmania.
- Compliance - Natural Assets**
- All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.



E/02 South East Elevation - Proposed
1:100 @ A3

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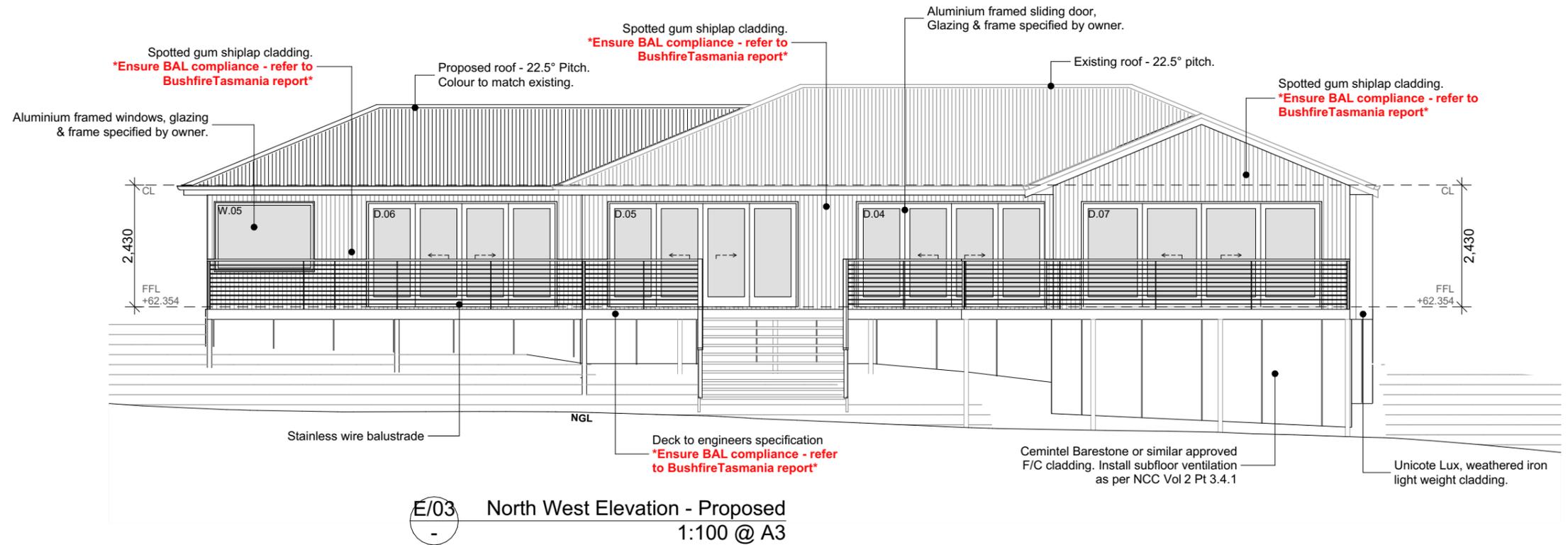
REV	AMENDMENT	DATES

A.08
Elevations - Proposed

RENOVATION LEGEND & NOTES

LEGEND

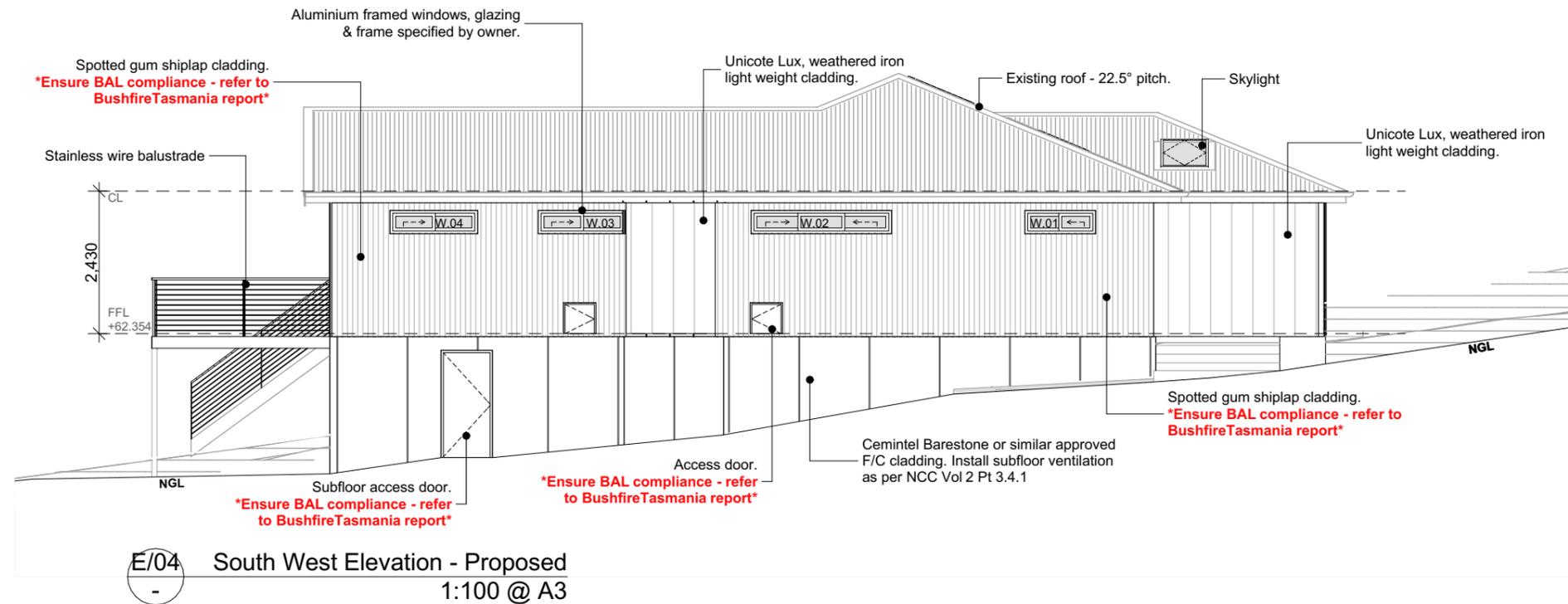
- Existing
- Ex. Existing
- New Construction



NOTES

Construction Notes

- Double check all existing measurements & roof pitch prior to construction.
- All structural steel members that are not built in to a masonry wall must be protected against Medium Corrosion Environment as per table 6.3.9a of the NCC 2022 Vol 2.
- Sheet metal roofing & flashings must be protected against Medium Corrosion Environment as per table 7.2.2a of the NCC 2022 Vol 2.
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- All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.
- Compliance - Natural Assets**
- All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



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REV | AMENDMENT | DATES

A.09
Elevations 2 - Proposed



FREESTONE
BUILDING SURVEYING
19/01/2024 1:48:56 PM
Mark Schmidt
Building Surveyor Limited
CC 4026 5
03 6124 2220
freestonebuildingsurveying.com.au



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REV	AMENDMENT	DATES

A.10
Perspectives



FREESTONE
BUILDING SURVEYING
19/01/2024 1:48:56 PM
Mark Schmidt
Building Surveyor Limited
CC-4026-5
03 6124 2220
freestonebuildingsurveying.com.au



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REV	AMENDMENT	DATES

A.11

Perspectives 2



Photo Reference Plan - NTS

Approximate site boundary. Red hatching over neighbouring site



Existing Aerial View



Existing North West Building Face



Existing North East Building Face



Approximate site boundary. Red hatching over neighbouring site

Existing Irrigation Garden



Approximate site boundary. Red hatching over neighbouring site

Proposed AWTS Location

COUNCIL PLANNING RFI - PDPLANPMTD-2022/031639

The proposed works are located within the priority vegetation overlay and appear to require the removal of native vegetation. Please confirm whether any native vegetation is proposed to be removed as part of the proposed development. If this is the case, justification against the standard in Clause 7.6.2 P1.1 and P1.2; noting that a Natural Values Assessment may also be required.

- RESPONSE:** Preliminary assessments indicate that the proposed development footprint will be contained within existing cleared land. All Construction works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.
- Photo 1 shows the existing cleared area for the proposed deck extension
 - Photo 2 shows the existing cleared area for the proposed dwelling extension
 - Photo 3 shows the existing vegetation that is a part of the existing AWTS irrigation bed which will not be affected by proposed works
 - Photo 4 shows the existing cleared site for the proposed location of the relocated AWTS.
 - Photo 5 an aerial shot of the site to provide context



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REV	AMENDMENT	DATES

A.12
RFI Response -
Natural Assets

ENERGY EFFICIENCY & NOTES

ENERGY ASSESSMENT REQUIREMENTS

Min. ceiling insulation - R4.0 batts.

Min. wall insulation - R2.5 batts.

Min. sub floor insulation - R2.5 batts.

Downlights - Min. IC rated - Insulation to abut to cover.

Glazing - Clear double glazing.

Skylights - Single glazed skylight with R2.0 shaft insulation.

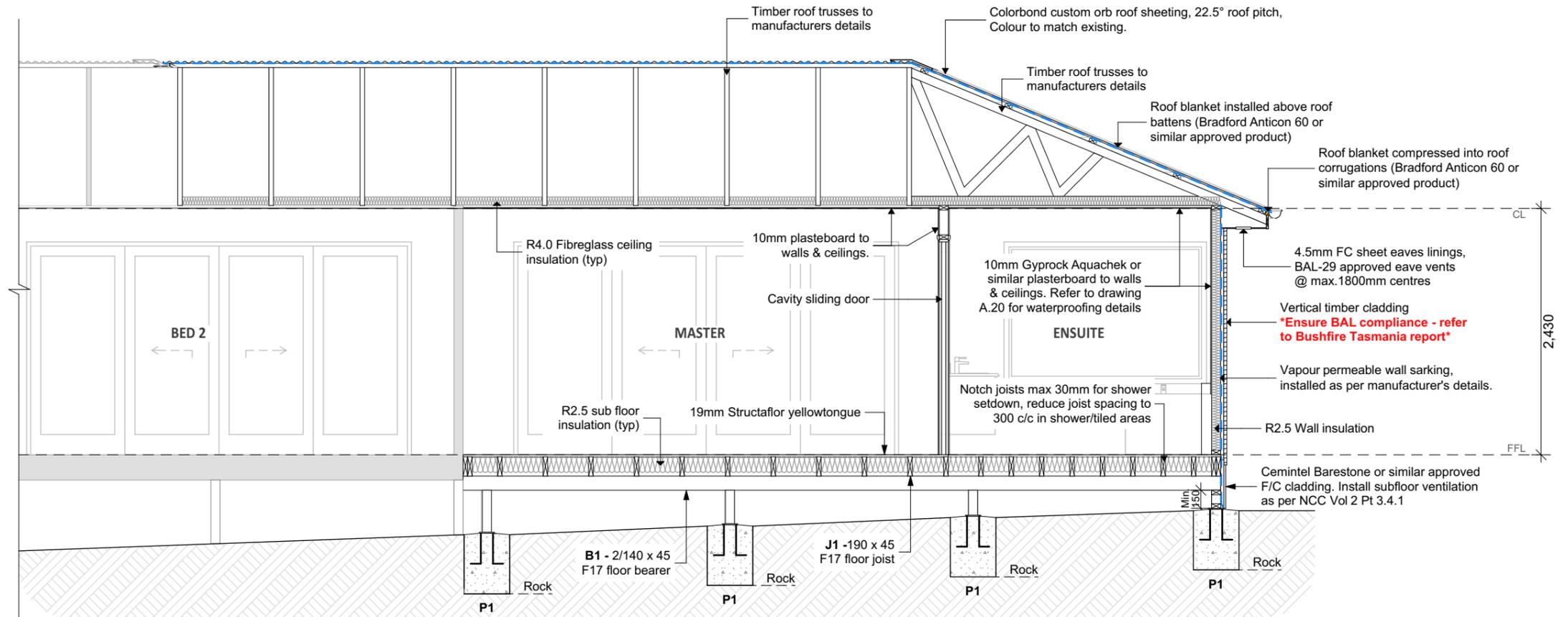
ENERGY EFFICIENCY (Refer to BCA 3.12)

A seal to restrict air infiltration must be fitted to each edge of an external door & openable window (including internal garage door). (A window complying with the maximum air infiltration rates specified in AS 2047 need not comply with the above).

A seal for the bottom edge of an external swing door (including internal garage door) must be a draft protection device (Raven or equivalent). Other edges of an external swing door or the edges of an openable window may be a foam or rubber compressible strip, fibrous seal or the like.

Roof, external walls, external floors and openings such as door and window frames must be constructed to minimise air leakage, ie:
 - Enclosed by internal lining systems that are close fitting at the ceiling, wall and floor junctions; OR
 - Sealed by caulking, skirting, architraves, cornices or the like.

Please refer to Energy Assessment prepared by **Build Assess Tas** for further information.



NOTES

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

All structural steel members that are not built in to a masonry wall must be protected against Medium Corrosion Environment as per table 6.3.9a of the NCC 2022 Vol 2.

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Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



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REV | AMENDMENT | DATES

A.13

Section A

ENERGY EFFICIENCY & NOTES

ENERGY ASSESSMENT REQUIREMENTS

Min. ceiling insulation - R4.0 batts.

Min. wall insulation - R2.5 batts.

Min. sub floor insulation - R2.5 batts.

Downlights - Min. IC rated - Insulation to abut to cover.

Glazing - Clear double glazing.

Skylights - Single glazed skylight with R2.0 shaft insulation.

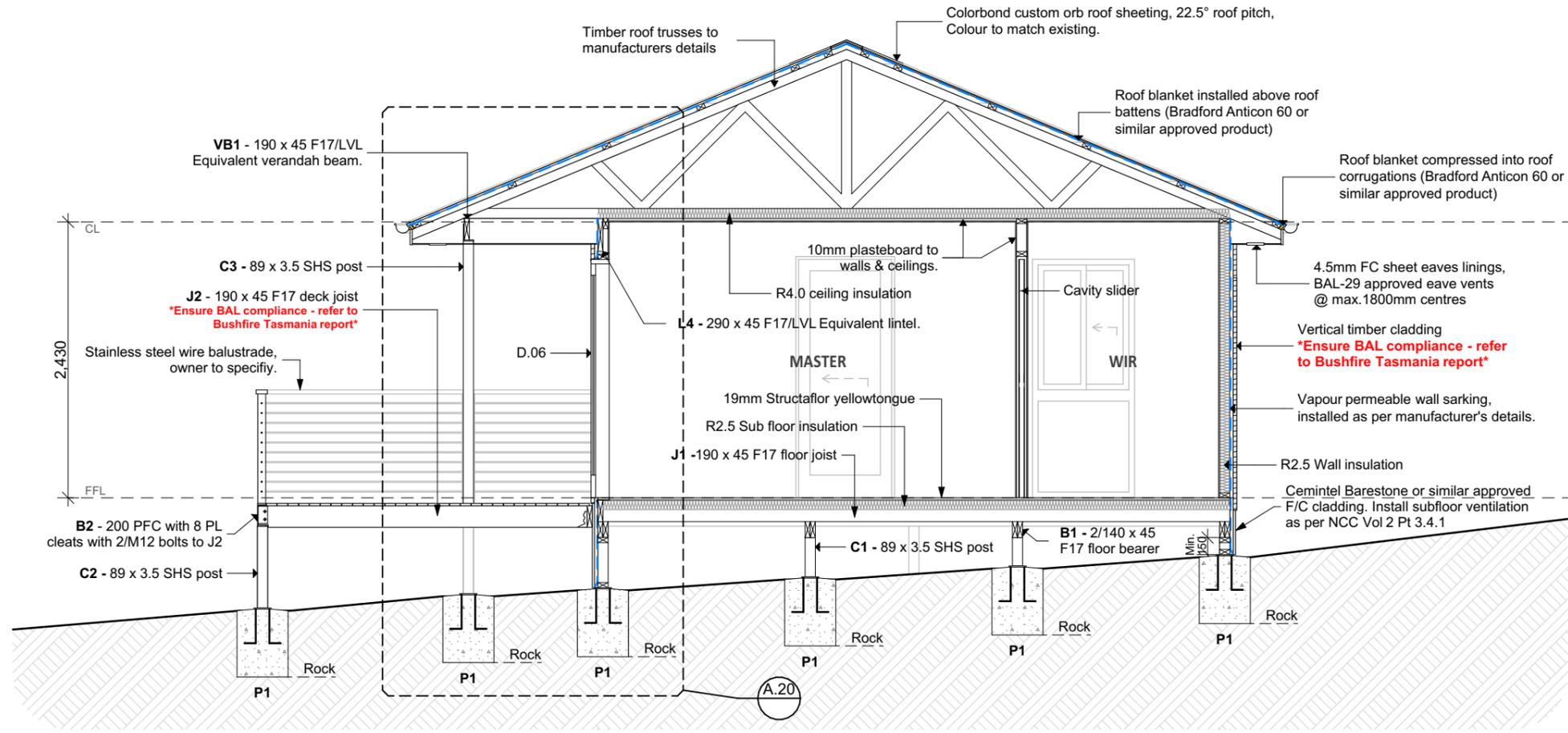
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NOTES

Construction Notes

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Bracing & tie downs are to comply with as 1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Construction of Buildings in Bushfire-Prone Areas. Please refer to BAL assessment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.

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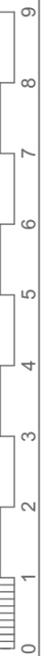
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REV | AMENDMENT | DATES

A.14

Section B



PLUMBING LEGEND & NOTES

- SW— Stormwater pipes to be 100Ø PVC-U Class SN4 @ Min. 1% (to AS/NZS 1254:2010)
- S— Sewer pipes to be 100Ø DWV PVC-U Class SN6 @ Min. 1.65% (to AS/NZS 1260:2009)
- - - DN90 slotted AG Drain @ min. 1%
- Wet areas hatched. Builder to ensure suitable falls & levels in wet areas in accordance with NCC 2022 Vol 2 Part 10.2.1
- BA** DN65 bath with trap.
- BS** DN65 basin with trap.
- SHR** DN65 shower waste with trap.
- WC** DN100 WC with tap.
- 90ØDP** DN90 PVC-U downpipe, painted to match adjacent wall surface. Install I/O's above ground level for cleaning and flushing.

PLUMBING NOTES

All plumbing to be in accordance with AS3500, TAS plumbing code and local authority regulations.

Sewer and stormwater to on site connections, plumber to verify location on site. (refer site plan.)

First inspection openings to be raised to finished ground level.

All stormwater pits to be designed in accordance with AS/NZS 3500.3:2021 7.5

Minimum gradient on stormwater pipes as per AS/NZS 3500.3:2021 6.3.4
 DN90 = 1:100 DN100 = 1:100 DN150 = 1:100

Minimum gradient on sewer pipes as per AS/NZS 3500.2:2021 3.4.1
 DN65 = 1:40 DN80, DN100 = 1:60 DN125 = 1:80 DN150 = 1:100

The heated water system must be designed & installed with part B2 of NCC Vol. 3 - Plumbing Code of Australia.

Thermal insulation for heated water piping must:
 a) Be protected against the effects of weather and sunlight; and
 b) Be able to withstand the temperatures within the piping; and
 c) Use thermal insulation in accordance with AS/NZS 4859.1

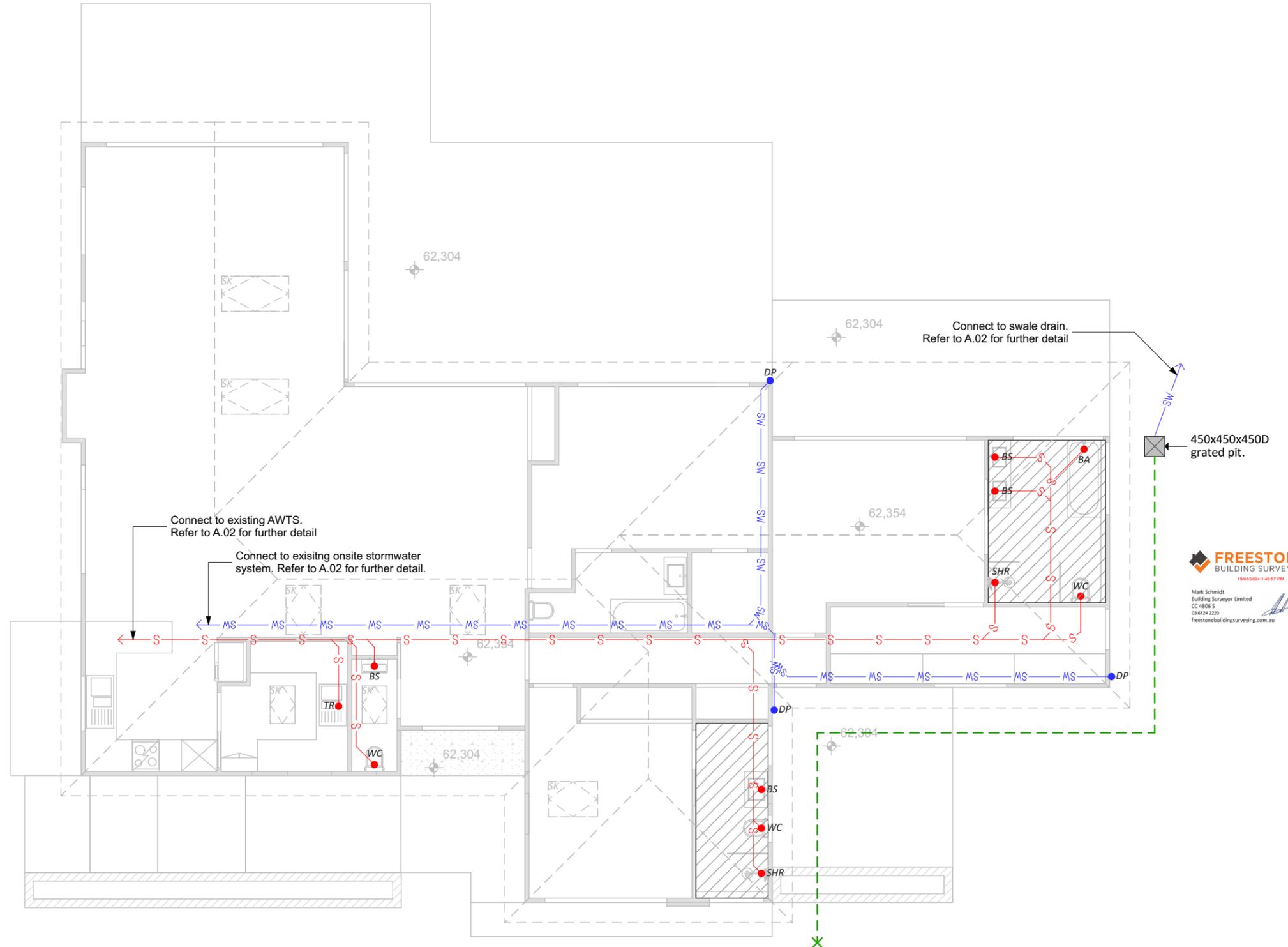
Heated water piping that is not within a conditioned space must be thermally insulated as follows:

- 1 - Internal Piping**
- a) All flow and return internal piping that is -
 - i) Within an unventilated wall space
 - ii) Within an internal floor between storeys; or
 - iii) Between ceiling insulation and ceiling must have a minimum r-value of 0.2 (i.e. 9mm of closed cell polymer insulation)

- 2 - Piping located within a ventilated wall space, an enclosed building subfloor or a roof space**
- a) All flow and return piping.
 - b) Cold water supply piping and relief valve piping within 500mm of the connection to central water heating system must have a minimum r-value of 0.45 (i.e. 19mm of closed cell polymer insulation)

- 3 - Piping located outside the building or in an unenclosed building sub-floor or roof space**
- a) All flow and return piping
 - b) Cold water supply piping and relief valve piping within 500mm of the connection to central water heating system must have a minimum r-value of 0.6 (i.e. 25mm of closed cell polymer insulation)

Piping within an insulated timber framed wall, such as that passing through a wall stud, is considered to comply with the above insulation requirements.



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REV	AMENDMENT	DATES

A.15
Plumbing Plan

ELECTRICAL LEGEND & NOTES

LEGEND

-  Single GPO (DW/FR/WM)
-  Double GPO
-  Double GPO - Outdoor
-  Light switch
-  2-way light switch
-  NBN
-  Television point
-  Wall mounted light
-  LED downlight
-  Manrose heat, light & fan unit or similar
-  Exhaust fan
-  Meter box
-  Hardwired smoke detector
-  CH:XXXX

NOTES

Lighting layout may change, owner to confirm with builder prior to purchase/ installation of exact quantity and location of electrical services.

SMOKE ALARMS NCC 2022 VOL 2 PART 9.5.1

Smoke alarms must be installed in a class 1a building on or near the ceiling in any storey containing bedrooms-

- (i) Between each part of the dwelling containing bedrooms and the remainder of the dwelling; and
- (ii) Where bedrooms are served by a hallway, in that hallway.

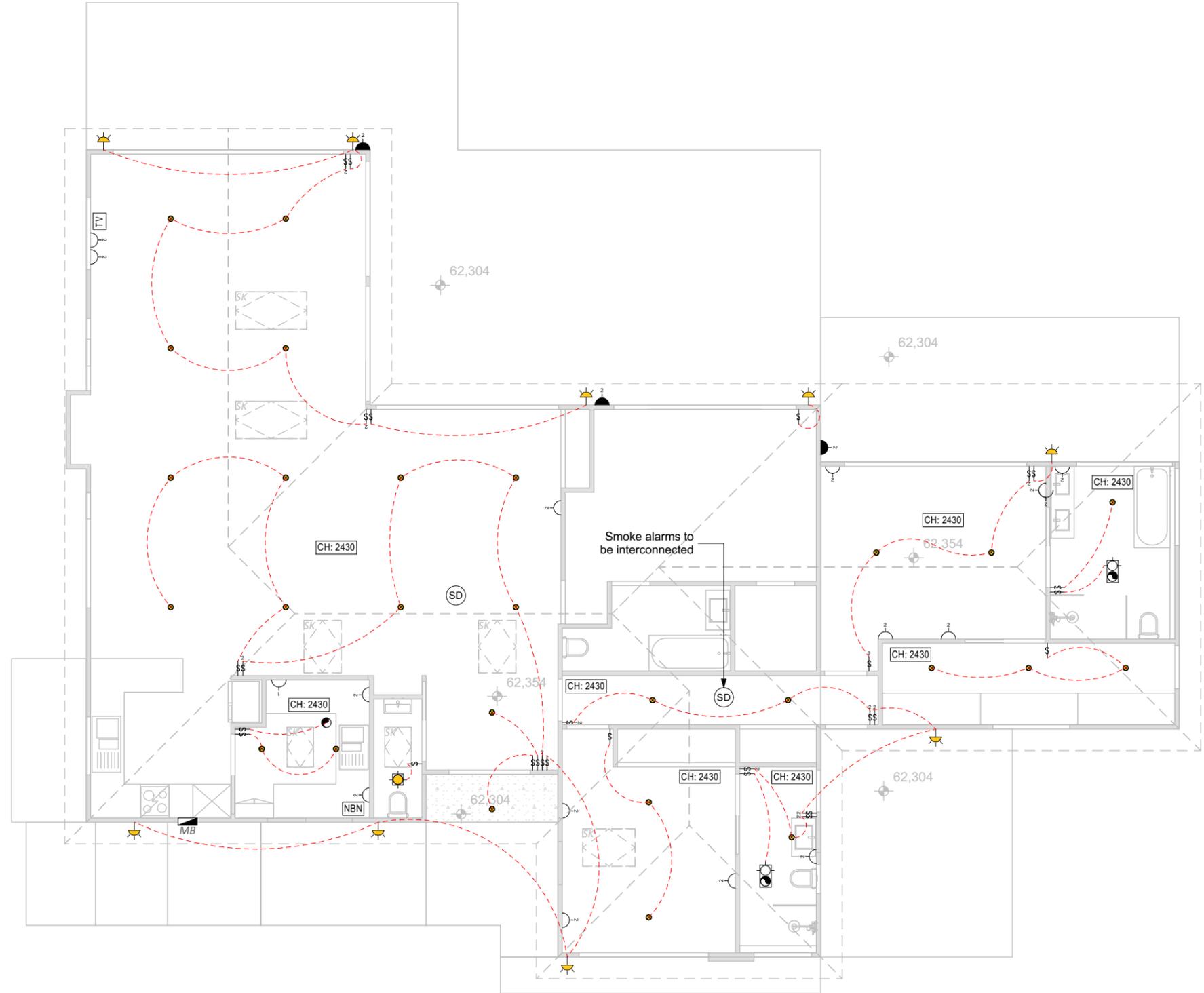
Smoke alarms to comply with AS3786.
 All smoke alarms must be connected to the consumer mains power where consumer power is supplied to the building.
 Smoke alarms to be interconnected where there is more than one alarm.
 Smoke alarms to have a battery back up in case of power outage. recommended batteries must be capable of servicing the smoke alarm without a fault for 1 year.

VENTILATION

To comply with the requirements of clauses in NCC 2022 Vol 2 Part 10.6.2.
 Where mechanical ventilation is required, the exhaust is to be directed outside the building by way of 100mm dia. colorbond steel, PVC or other approved ducting material.

LIGHTING

For habitable rooms shall comply with the requirements of clauses in NCC 2022 Vol 2 Part 10.5 where required.



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bdaa
 BUILDING DESIGNERS
 ASSOCIATION OF AUSTRALIA

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REV	AMENDMENT	DATES

A.16
 Electrical Plan

ROOF PLAN LEGEND & NOTES

WIND CLASSIFICATION

As per AS4055-2021 (refer GES soil report)

Wind Classification - N3

Region - A

Terrain Category - TC2.5

Shielding Classification - NS

Topographic Classification - T2

Wind Gust Design Speed - 50m/s

ROOF PLAN LEGEND

DP DN90 PVC-U downpipe, painted to match adjacent wall surface. Install I/O's above ground level for cleaning and flushing.

SK Skylight

NOTES

Colorbond custom orb roof sheeting crest fixed at side laps with 3 fixings for internal spans & 5 fixings for end spans. Colour to match existing.

Sheet metal roofing & flashings must be protected against Medium Corrosion Environment as per table 7.2.2a of the NCC 2022 Vol 2.

Fix with RoofZips M6 x 50mm (or equal). Colour to match existing.

Battens typically 70 x 35 MGP12 @ 900 max c/c (use F5 KD treated pine if battens on top of sarking).

See NCC 2022 Vol 2 Part 7.2.4 for definition of internal & end spans.

Vapour permeable sarking installed as per manufacturers instructions. Ensure there is a clear unimpeded path of travel for water to escape sarking into the eaves gutter. Additional battens or blocking pieces may be required.

Sarking must comply with AS/NZS 4200 parts 1 & 2.

Downpipes must not serve more than 12m of gutter length per downpipe.

Roof cladding must comply with AS 1562.1.

Roof drainage must comply with:
 - Plumbing Code of Australia Part D1
 - AS/NZS 3500.3
 - NCC 2022 Vol. 2 Parts 3.3.5 & 7.4 (Deemed to Satisfy provisions).

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Construction of Buildings in Bushfire-Prone Areas. Please refer to BAL assessment provided by Bushfire Tasmania.

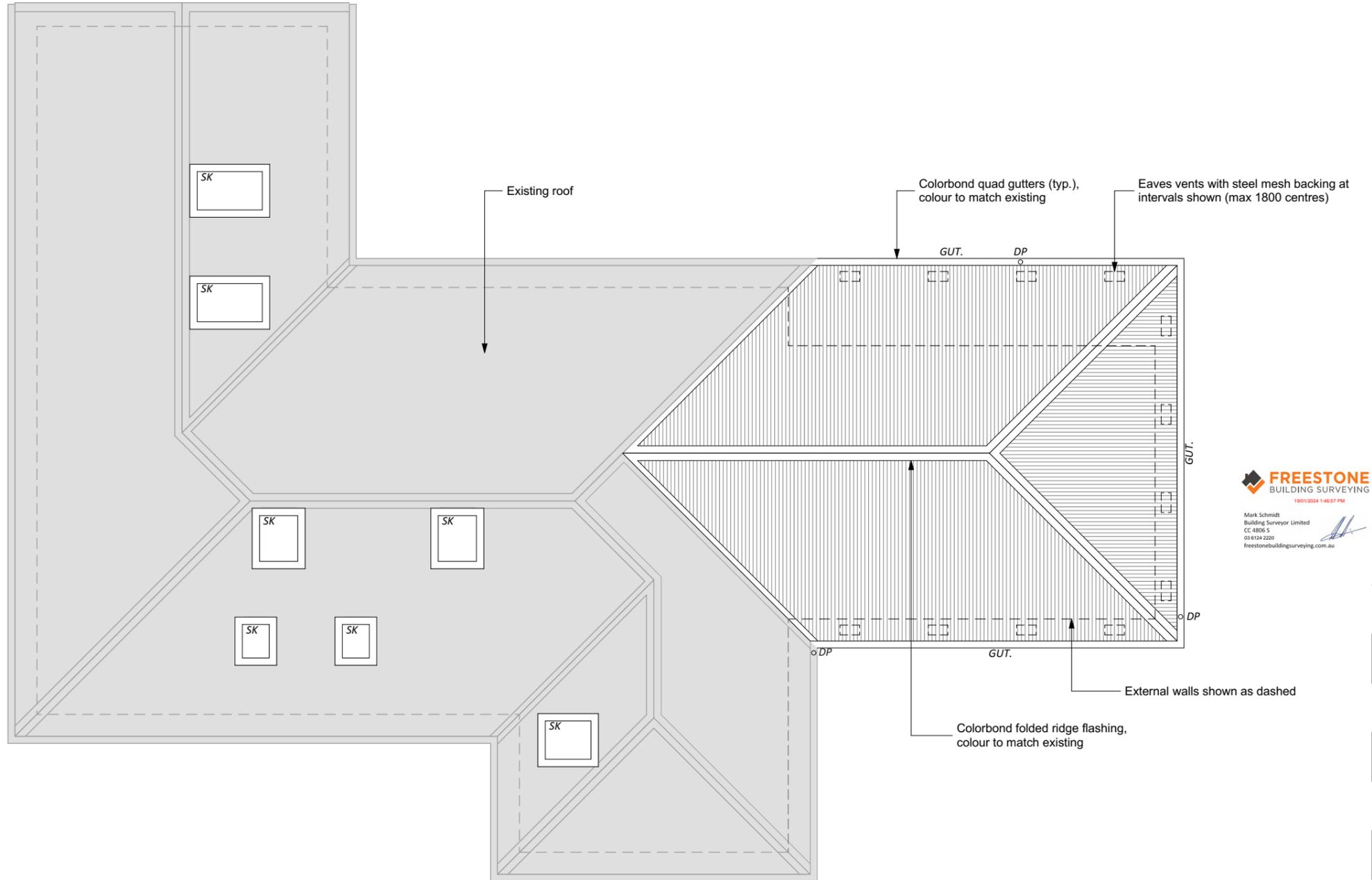
Construction Notes

Double check all existing measurements & roof pitch prior to construction.

All timber construction to be in accordance with AS1684.2 (Residential timber framed construction) and the NCC.

Bracing & tie downs are to comply with AS1684.2 (Residential timber framed construction) and the NCC.

Truss manufacturer is responsible for truss design including connections, bracing and tie down. This information is to be supplied to the building surveyor for inspections during construction.



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REV	AMENDMENT	DATES

A.17
 Roof Plan

WINDOWS & DOOR NOTES

LIGHT & VENTILATION

Part 10.5.1 Light - Minimum 10% of the floor area of a habitable room required (natural light).

Part 10.6.2 Ventilation - Minimum 5% of the floor area of a habitable room required.

(An exhaust fan may be used for a sanitary compartment, laundry or bathroom provided contaminated air discharges directly to the outside of the building by way of ducts).

Refer to elevations for window positions and styles.

Flyscreens to be fitted to all openable windows and doors.

GLAZING & WINDOWS

All glazing in kitchens, bathrooms, ensuites, spa rooms or the like, including shower doors, shower screens, bath enclosures, and associated windows and doors (including cabinet doors), where the lowest sight line is less than 2.0 m above the highest abutting finished level of the floor, bottom of the bath, or shower base, must—

(a) for framed panels, be glazed with Grade A safety glazing material in accordance with Table 8.4.2; or

(B) for panels or doors with any edge exposed, be toughened safety glass in accordance with Table 8.4.6 with a minimum nominal thickness of 6 mm..

Opaque Bands - Where glazed doors or side panels are capable of being mistaken for a doorway or opening, the glass must be marked to make it readily visible as follows:

- Marking in the form of an opaque band not less than 20mm in height;
- The upper edge is not less than 700mm above the floor;
- The lower edge is not more than 1200mm above the floor.

Flashings to Wall Openings - All openings must be adequately flashed using materials that comply with AS/NZS 2904. Flashing to window heads and sills to be installed with glazing manufacturer's specifications for cement sheet cladding and horizontal timber construction.

Protection of openable windows

A window opening must be provided with protection, if the floor below the window in a bedroom is 2m or more above the surface beneath.

Protect the windows (identified in the table beside) by one of the following methods:

- a) a device capable of restricting the window opening; or
- b) a screen with secure fittings.

The device or screen must:

- a) Not permit a 125mm sphere to pass through the window opening or screen; and
- b) Resist an outward horizontal action of 250N against the window restrained by a device; or screen protecting the opening; and
- c) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.

All glazed window & door assemblies in external walls to comply with AS2047. All other glass to comply with AS1288.

Compliance - Bushfire - External glazed elements, assemblies & doors to comply with AS 3959:2018. Refer to window schedule for element BAL rating.

ENERGY ASSESSMENT REQUIREMENTS

Min. ceiling insulation - R4.0 batts.

Min. wall insulation - R2.5 batts.

Min. sub floor insulation - R2.5 batts.

Downlights - Min. IC rated - Insulation to abut to cover.

Glazing - Refer to energy assessment.

Skylights - Single glazed skylight with R2.0 shaft insulation.

Please refer to Energy Assessment prepared by **Build Assess Tas** for further information.

Window Schedule						
ID	W.01	W.02	W.03	W.04	W.05	W.06
Window Type	Sliding	Sliding	Sliding	Sliding	Fixed	Sliding
Glazing Type	DBL Glazed	DBL Glazed	DBL Glazed	DBL Glazed	Low-E DBL Glazed	DBL Glazed
BAL Rating	BAL-29	BAL-29	BAL-29	BAL-29	BAL-19	BAL-19
Height	400	400	400	400	1,400	1,400
Width	1,210	2,400	1,500	1,500	2,000	1,600
Elevation						

Window Schedule					
ID	W.07	W.08	W.09	W.10	W.11
Window Type	Sliding	Sliding	Sliding	Sliding	Sliding
Glazing Type	DBL Glazed				
BAL Rating	BAL-19	BAL-29	BAL-29	BAL-29	BAL-19
Height	2,100	600	400	400	900
Width	900	600	1,200	2,700	1,600
Elevation					

Glazed Door Schedule					
ID	D.01	D.02	D.03	D.04	D.05
Door Type	Double Hinged	Sliding Door	Sliding Door	Sliding Door	Sliding Door
BAL Rating	BAL-29	BAL-29	BAL-29	BAL-29	BAL-29
Quantity	1	1	1	1	1
Height	2,100	2,100	2,100	2,100	2,100
Width	1,640	2,400	2,400	3,800	3,800
Elevation					

Glazed Door Schedule				
ID	D.06	D.07	D.08	D.09
Door Type	Sliding Door	Sliding Door	Hinged Door	Hinged Door
BAL Rating	BAL-19	BAL-29	BAL-19	BAL-29
Quantity	1	1	1	1
Height	2,100	2,100	2,100	2,100
Width	3,800	4,800	820	820
Elevation				

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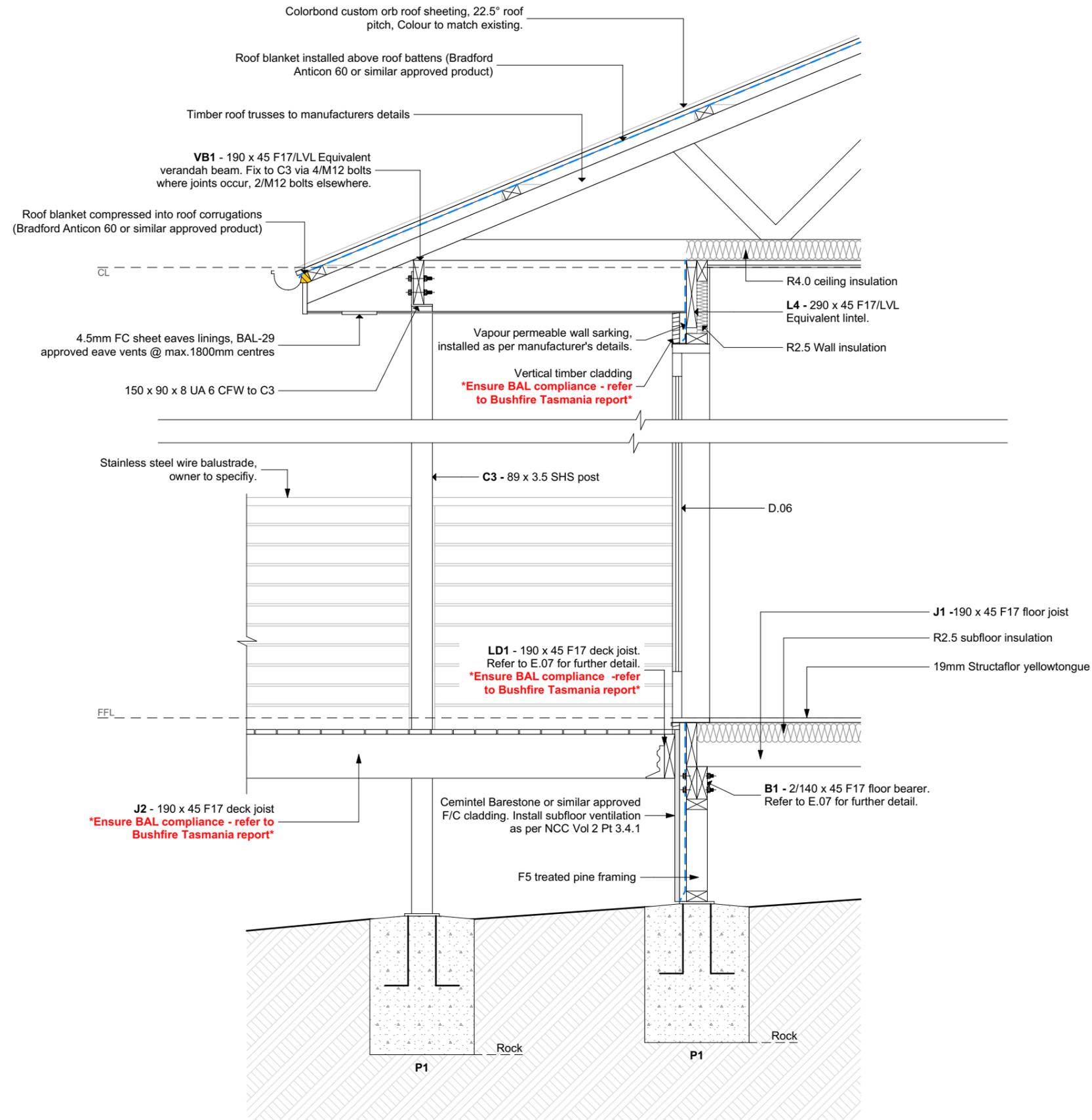
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DATE
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REV | AMENDMENT | DATES

A.18
Window & Door
Schedule



NOTES

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

All structural steel members that are not built in to a masonry wall must be protected against Medium Corrosion Environment as per table 6.3.9a of the NCC 2022 Vol 2.

Sheet metal roofing & flashings must be protected against Medium Corrosion Environment as per table 7.2.2a of the NCC 2022 Vol 2.

All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.

All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.

Bracing & tie downs are to comply with as1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



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Detailed Setion B

NOTE

PLEASE REFER TO ENGINEERS STRUCTURAL NOTES FOR ANY FURTHER INFORMATION.

ROOF CLADDING, GUTTERING AND DOWNPIPES

- IN ACCORDANCE WITH PART 7.2, 7.3 AND 7.4 OF NCC 2022 VOL 2, AS/NZS 3500.3 AND AS/NZS 3500.5. SECTION 5 INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- WHEREVER FULL SHEETS CAN'T BE UTILIZED PROVIDE THE DISTANCE FOR END LAPPING WHERE SHEETS MEET:
 - SLOPES 5-15 = A LAP OF 200mm
 - SLOPES 15 AND GREATER = A LAP OF 150mm
- GUTTERS MUST BE INSTALLED WITH A FALL OF NOT LESS THAN - 1:500 FOR EAVES GUTTERS AND 1:100 FOR BOX GUTTERS
- DOWNPIPES MUST:
 - NOT SERVE MORE THAN 12m OF GUTTER LENGTH FOR EACH DOWNPIPE
 - BE LOCATED AS CLOSE AS POSSIBLE TO VALLEY GUTTERS AND IF THE DOWNPIPE IS MORE THAN 1.2m FROM A VALLEY, PROVISION FOR OVERFLOW MUST BE MADE TO THE GUTTER.

BUILDING SEALING

- IN ACCORDANCE WITH TAS PART 13.4 OF NCC 2022 VOL 2 (IN TAS SECTION 13 IS REPLACED WITH BCA 2019 PART 3.12)
- CHIMNEYS AND FLUE MUST BE FITTED WITH A DAMPER/FLAP THAT CAN BE CLOSED
- ROOFS, WALLS & FLOORS SEALED BY CAULKING, SKIRTING, ARCHITRAVES OR THE LIKE
- EXTERNAL WINDOWS AND DOORS TO BE FITTED WITH COMPRESSIBLE STRIP, FOAM, RUBBER OR FIBROUS SEAL TO ALL EXTERNAL WINDOW SASHES AND EXTERNAL DOORS.
- EXTERNAL FANS TO BE SELF CLOSING DAMPER OR FILTER TO BE FITTED
- ALL DOWNLIGHTS TO BE SEALED

CEILING FANS

- IN ACCORDANCE WITH TAS PART 13.5 OF NCC 2022 VOL 2 (IN TAS SECTION 13 IS REPLACED WITH BCA 2019 PART 3.12).

SERVICES

- IN ACCORDANCE WITH TAS PART 13.7 OF NCC 2022 VOL 2 (IN TAS SECTION 13 IS REPLACED WITH BCA 2019 PART 3.12).

EXTERNAL GLAZING

- IN ACCORDANCE WITH TAS PART 13.3 OF NCC 2022 VOL 2 (IN TAS SECTION 13 IS REPLACED WITH BCA 2019 PART 3.12).

SMOKE ALARMS

- SMOKE ALARMS TO BE INSTALLED IN ACCORDANCE WITH PART 9.5.4 OF NCC 2022 VOL 2 AND AS3786 REQUIREMENTS.
- SMOKE ALARMS TO BE INSTALLED IN A CLASS 1a BUILDING ON OR NEAR THE CEILING IN:
 - ANY STOREY CONTAINING BEDROOMS (i) BETWEEN EACH PART OF THE DWELLING CONTAINING BEDROOMS AND THE REMAINDER OF THE DWELLING; AND (ii) WHERE BEDROOMS ARE SERVED BY A HALLWAY, IN THAT HALLWAY.
- ALL SMOKE ALARMS MUST BE CONNECTED TO THE CONSUMER MAINS POWER WHERE CONSUMER POWER IS SUPPLIED TO THE BUILDING
- SMOKE ALARMS TO BE INTERCONNECTED WHERE THERE IS MORE THAN 1 ALARM
- SMOKE ALARMS TO HAVE BATTERY BACK UP IN CASE OF POWER OUTAGE. RECOMMENDED BATTERIES MUST BE CAPABLE OF SERVICING THE SMOKE ALARM WITH A FAULT FOR 1 YEAR.

ENERGY EFFICIENCY

- IN ACCORDANCE WITH TAS PART 13.1 OF NCC 2022 VOL 2 (IN TAS SECTION 13 IS REPLACED WITH BCA 2019 PART 3.12).

BUILDING FABRIC

- IN ACCORDANCE WITH TAS PART 13.2 OF NCC 2022 VOL 2 (IN TAS SECTION 13 IS REPLACED WITH BCA 2019 PART 3.12).

BUILDING FABRIC IN ACCORDANCE WITH OF BCA 2019 PART 3.12.1.1**EXTERNAL WALLS - BCA 2019 PART 3.12.1.1.4**

TYPE OF SYSTEM	N.C.C REQUIREMENTS	VALUE OF WALL CONSTRUCTION FIG 3.12.1.3	ADDED R-VALUE OF INSULATION	TOTAL R-VALUE
BRICK VENEER CLADDING W/SINGLE SIDED SISALATION	TOTAL R VALUE: 2.8	0.56	R2.0 FIBREGLASS BATTS	R2.56
90mm WALL CEMENT SHEET W/SINGLE SIDED SISALATION	TOTAL R VALUE: 2.8	0.42	R2.0 FIBREGLASS BATTS	R2.42
75mm POLYSTYRENE STUD WALL W/SINGLE SIDED SISALATION	TOTAL R VALUE: 2.8	2.62	R2.0 FIBREGLASS BATTS	R4.62
BLOCK WALL W/SINGLE SIDED SISALATION	TOTAL R VALUE: 2.8	0.54	R2.0 FIBREGLASS BATTS	R2.54

ROOFS - BCA 2019 PART 3.12.1.2

TYPE OF SYSTEM	N.C.C REQUIREMENTS	VALUE OF WALL CONSTRUCTION FIG 3.12.1.3	ADDED R-VALUE OF INSULATION	TOTAL R-VALUE
PITCHED ROOF WITH FLAT CEILING W/ R1.3 ROOFING BLANKET	TOTAL R VALUE: 5.1	1.69	R4.0 FIBREGLASS BATTS	R5.69

FLOORS - BCA 2019 PART 3.12.1.5

TYPE OF SYSTEM	N.C.C REQUIREMENTS	VALUE OF WALL CONSTRUCTION FIG 3.12.1.3	ADDED R-VALUE OF INSULATION	TOTAL R-VALUE
ENCLOSED SUSPENDED TIMBER FLOOR	TOTAL R VALUE: 2.75	0.89	R2.0 FIBREGLASS BATTS	R2.89
CONCRETE FLOOR	NO REQUIREMENT	-	-	-

LIGHT

- NATURAL LIGHT TO BE IN ACCORDANCE WITH PART 10.5.1 OF N.C.C. 2022 VOL 2.
- NATURAL LIGHT MUST BE PROVIDED TO ALL HABITABLE ROOMS
- REQUIRED WINDOWS MUST HAVE A LIGHT TRANSMITTING AREA OF AT LEAST 10% OF THE FLOOR AREA.
- SANITARY COMPARTMENTS, BATHROOM, LAUNDRIES AND THE LIKE NOT PROVIDED WITH NATURAL LIGHT MUST BE PROVIDED WITH ARTIFICIAL LIGHT AT A RATE OF NOT LESS THAN 1 LIGHT FITTING PER 16m² OF FLOOR AREA AND IN ACCORDANCE WITH AS/NZS 1680.0

VENTILATION

- IN ACCORDANCE WITH PART 10.6.2 OF N.C.C. 2022 VOL 2.
- AN EXHAUST FAN OR OTHER MEANS OF MECHANICAL VENTILATION MAY BE USED TO VENTILATE A SANITARY COMPARTMENT, LAUNDRY, KITCHEN OR BATHROOM, OR WHERE MECHANICAL VENTILATION IS PROVIDED IN ACCORDANCE WITH N.C.C. 2022 VOL 2 10.6.3(b), PROVIDED CONTAMINATED AIR EXHAUSTS WITH COMPLY WITH N.C.C. 2022 VOL 2 10.8.2.
- SANITARY COMPARTMENTS MUST NOT OPEN DIRECTLY INTO A KITCHEN OR PANTRY UNLESS-
 - ACCESS IS BY AN AIRLOCK, HALLWAY OR OTHER ROOM
 - THE SANITARY ROOM IS PROVIDED WITH AN EXHAUST FAN OR OTHER MEANS OF MECHANICAL EXHAUST VENTILATION.

SOUND INSULATION

- IN ACCORDANCE WITH PART 3.8.6 OF CURRENT N.C.C.

HEATING APPLIANCES

- IN ACCORDANCE WITH AS/NZS 2918 FOR DOMESTIC SOLID-FUEL BURNING APPLIANCES.
- ALL HEATING APPLIANCES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS

BUSHFIRE PRONE AREAS

- IN ACCORDANCE WITH SITE BAL REPORT AND AS3959-2009
- AN ASSESSMENT TO DETERMINE THE BAL RATING MUST BE UNDERTAKEN AND ANY REQUIREMENTS FROM THE SUBSEQUENT BAL LEVEL MUST BE APPLIED
- A CLASS 1 BUILDING WITHIN A DESIGNATED BUSHFIRE PRONE AREA MUST BE IN ACCORDANCE WITH TFS PROPERTY ACCESS REQUIREMENTS AND TFS WATER SUPPLY SIGNAGE GUIDELINE.

DRAINAGE REQUIREMENTS:

- SURFACE DRAINAGE OF A SITE SHALL BE CONTROLLED FROM THE START OF SITE PREPARATION AND CONSTRUCTION.
- SURFACE DRAINS SHALL BE DESIGNED AND CONSTRUCTED TO AVOID WATER PONDING AGAINST OR NEAR THE FOOTINGS. THE GROUND IN THE IMMEDIATE VICINITY OF THE PERIMETER FOOTINGS, INCLUDING THE GROUND UPHILL FROM A SLAB ON CUT-AND-FILL SITES, SHALL BE GRADED TO FALL 50mm MINIMUM OVER A DISTANCE OF 1m AND SHAPED TO PREVENT PONDING OF WATER. WHERE FILL IS PLACED ADJACENT TO THE BUILDING, THE FILL SHALL BE COMPACTED AND GRADED TO ENSURE DRAINAGE OF WATER AWAY FROM THE BUILDING.
- PLACEMENT OF TRENCHES ABOUT A FOOTINGS SYSTEM FOR MODERATE TO HIGHLY REACTIVE SITES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AS2870 PART 5.6.3.
- SUBSURFACE DRAINS SHALL BE A CONSIDERATION UPSLOPE OF A BUILDING ON ALL SLOPING SITES, AND NOT BE PLACED WITHIN 1.5M FROM THE PERIMETER FOOTINGS, UNLESS SPECIFIC MEASURES ARE MADE TO LIMIT MOISTURE ACCUMULATING ABOUT THE FOOTINGS.

WET AREAS & EXTERNAL WATERPROOFING

- INSTALLED IN ACCORDANCE WITH PART 10.2 OF NCC 2022 VOL 2 AND AS/NZS 3740
- BUILDING ELEMENTS IN WET AREAS MUST BE WATERPROOF OR WATER RESISTANT IN ACCORDANCE WITH PART 10.2.1 NCC 2022 VOL 2.
- WATERPROOFING MEMBRANES FOR EXTERNAL ABOVE GROUND USE MUST COMPLY WITH AS4654 PARTS 1 AND 2

FACILITIES

- IN ACCORDANCE WITH PART 10.4 OF NCC 2022 VOL 2.
- THE DOOR TO A SANITARY CLOSED COMPARTMENT MUST -
 - OPEN OUTWARDS OR
 - SLIDE OR
 - BE READILY REMOVABLE FROM THE OUTSIDE OF THE COMPARTMENT UNLESS THERE IS A CLEAR SPACE OF 1.2m BETWEEN THE PAN AND THE DOORWAY

ROOM HEIGHTS

- IN ACCORDANCE WITH PART 10.3.1 OF NCC 2022 VOL 2
- CEILING HEIGHTS MUST NOT BE LESS THAN:
 - IN A HABITABLE ROOM EXCLUDING A KITCHEN - 2.4m
 - IN A KITCHEN - 2.1m
 - IN A CORRIDOR, PASSAGEWAY OR THE LIKE - 2.1m
 - IN A BATHROOM, LAUNDRY, W.C., PANTRY, STOREROOM, GARAGE OR THE LIKE - 2.1m
 - IN A ROOM WITH A SLOPING CEILING OR PROJECTIONS BELOW THE CEILING LINE WITHIN:
 - A HABITABLE ROOM -
 - IN AN ATTIC - NOT LESS THAN 2.2m FOR AT LEAST 2/3 OF THE FLOOR AREA OF THE ROOM
 - OTHER ROOMS - NOT LESS THAN 2.4m OVER 2/3 OF THE FLOOR AREA OF THE ROOM
 - A NON-HABITABLE ROOM - NOT LESS THAN 2.1m FOR AT LEAST 2/3 OF THE ROOM AREA
 - IN A STAIRWAY, RAMP OR LANDING - 2.0m MEASURE VERTICALLY ABOVE THE NOSING OR SURFACE.

FORCES IN ACCORDANCE WITH AS/NZS 1170.1.

STAIR CONSTRUCTION

- A STAIRWAY MUST BE DESIGNED TO TAKE LOADING FORCES IN ACCORDANCE WITH AS/NZS 1170.1 AND MUST HAVE-
 - NOT MORE THAN 18 AND NOT LESS THAN 2 RISERS IN EACH FLIGHT; AND
 - GOINGS (G), RISERS (R) AND A SLOPE RELATIONSHIP QUANTITY (2R+G) IN ACCORDANCE WITH TABLE 11.2.2A, EXCEPT AS PERMITTED BY (2) AND (3); AND
 - CONSTANT GOINGS, EXCEPT AS PERMITTED BY (3) AND (4), AND THE DIMENSIONS OF GOINGS (G) AND RISERS (R) IN ACCORDANCE WITH (1), (2) AND (3) ARE CONSIDERED CONSTANT IF THE VARIATION BETWEEN-
 - ADJACENT RISERS, OR BETWEEN ADJACENT GOINGS, IS NOT MORE THAN 5 MM; AND
 - THE LARGEST AND SMALLEST RISER WITHIN A FLIGHT, OR THE LARGEST AND SMALLEST GOING WITHIN A FLIGHT, IS NOT MORE THAN 10 MM; AND
 - RISERS WHICH DO NOT HAVE ANY OPENINGS THAT WOULD ALLOW A 125 MM SPHERE TO PASS THROUGH BETWEEN THE TREADS; AND
 - TREADS OF SOLID CONSTRUCTION (NOT MESH OR OTHER PERFORATED MATERIAL) IF THE STAIRWAY IS MORE THAN 10 M HIGH OR CONNECTS MORE THAN 3 STOREYS.
- IN THE CASE OF A STAIRWAY SERVING ONLY NON-HABITABLE ROOMS, SUCH AS ATTICS, STOREROOMS AND THE LIKE THAT ARE NOT USED ON A REGULAR OR DAILY BASIS-
 - THE GOING (G), RISER (R) AND SLOPE RELATIONSHIP QUANTITY (2R + G) IN ACCORDANCE WITH TABLE 11.2.2A MAY BE SUBSTITUTED WITH THOSE IN TABLE 11.2.2B; AND
 - NEED NOT COMPLY WITH 1. (d).
- IN THE CASE OF A STAIRWAY WITH WINDERS
 - A MAXIMUM OF 3 CONSECUTIVE WINDERS IN LIEU OF A QUARTER LANDING IN A FLIGHT AND A MAXIMUM OF 6 CONSECUTIVE WINDERS IN LIEU OF A HALF LANDING IN A FLIGHT; AND
 - THE GOING OF ALL WINDERS IN LIEU OF A QUARTER OR HALF LANDING MAY VARY FROM THE GOING OF THE STRAIGHT TREADS WITHIN THE SAME FLIGHT PROVIDED THAT THE GOING OF SUCH WINDERS IS CONSTANT.
- THE POINT OF MEASUREMENT OF THE GOING (G) IN THE SLOPE RELATIONSHIP QUANTITY (2R + G) FOR TAPERED TREADS AND TREADS IN SPIRAL STAIRWAYS AS DESCRIBED IN TABLE 11.2.2A (SEE FIGURE 11.2.2A, FIGURE 11.2.2B AND FIGURE 11.2.2C) MUST BE-
 - FOR TAPERED TREADS, OTHER THAN TREADS IN A SPIRAL STAIRWAY-
 - NOT MORE THAN 1 M IN WIDTH, THE MIDDLE OF THE UNOBSTRUCTED WIDTH OF THE STAIRWAY (SEE FIGURE 11.2.2B); AND
 - MORE THAN 1 M IN WIDTH, 400 MM FROM THE UNOBSTRUCTED WIDTH OF EACH SIDE OF THE STAIRWAY (SEE FIGURE 11.2.2C); AND
 - FOR TREADS IN SPIRAL STAIRWAYS, THE POINT SEVEN TENTHS OF THE UNOBSTRUCTED WIDTH FROM THE FACE OF THE CENTRE POLE OR SUPPORT TOWARDS THE HANDRAIL SIDE (SEE FIGURE 11.2.2D AND FIGURE 11.2.2E).
- RISER AND GOING DIMENSIONS MUST BE MEASURED IN ACCORDANCE WITH FIGURE 11.2.2F.

RAMPS

- AN EXTERNAL RAMP SERVING AN EXTERNAL DOORWAY OR A RAMP WITHIN A BUILDING MUST-
 - BE DESIGNED TO TAKE LOADING FORCES IN ACCORDANCE WITH AS/NZS 1170.1; AND
 - HAVE A GRADIENT NOT STEEPER THAN 1:8; AND
 - BE PROVIDED WITH LANDINGS COMPLYING WITH 11.2.5 AT THE TOP AND BOTTOM OF THE RAMP AND AT INTERVALS NOT GREATER THAN 15 M.

LANDINGS

- LANDINGS MUST-
 - BE NOT LESS THAN 750 MM LONG AND WHERE THIS INVOLVES A CHANGE IN DIRECTION, THE LENGTH IS MEASURED 500 MM FROM THE INSIDE EDGE OF THE LANDING (SEE FIGURE 11.2.5A); AND
 - HAVE A GRADIENT NOT STEEPER THAN 1:50; AND
 - BE PROVIDED WHERE THE SILL OF A THRESHOLD OF A DOORWAY OPENS ONTO A STAIRWAY OR RAMP THAT PROVIDES A CHANGE IN FLOOR LEVEL OR FLOOR TO GROUND LEVEL GREATER THAN 3 RISERS OR 570 MM (SEE FIGURE 11.2.5B); AND
 - EXTEND ACROSS THE FULL WIDTH OF A DOORWAY.
- IN THE CASE OF A STAIRWAY SERVING ONLY NON-HABITABLE ROOMS, SUCH AS ATTICS, STOREROOMS AND THE LIKE THAT ARE NOT USED ON A REGULAR OR DAILY BASIS, THE REQUIREMENTS OF 1.(a) MAY BE SUBSTITUTED WITH A MINIMUM LENGTH OF LANDING BEING NOT LESS THAN 600 MM LONG.

BARRIERS

- INSTALLED IN ACCORDANCE WITH PART 11.3.4 OF NCC 2022 VOL 2.
- (a) A CONTINUOUS BARRIER MUST BE PROVIDED ALONG THE SIDE OF -
 - A STAIRWAY, RAMP OR THE LIKE; AND
 - A FLOOR, CORRIDOR, HALLWAY, BALCONY, DECK, VERANDAH, MEZZANINE, ACCESS BRIDGE OR THE LIKE; AND
 - ANY ROOF TOP SPACE OR THE LIKE WHICH GENERAL ACCESS IS PROVIDED; AND
 - ANY DELINEATED PATH OF ACCESS TO A BUILDING, WHERE IT IS POSSIBLE TO FALL 1m OR MORE MEASURED FROM THE LEVEL OF THE TRAFFICABLE SURFACE TO THE SURFACE BENEATH (SEE FIGURE 11.3.3a).
- (b) THE REQUIREMENTS OF (a) DO NOT APPLY TO -
 - A RETAINING WALL UNLESS THE RETAINING WALL FORMS PART OF, OR IS DIRECTLY ASSOCIATED WITH A DELINEATED PATH OF ACCESS TO A BUILDING FROM THE ROAD, OR A DELINEATED PATH OF ACCESS BETWEEN BUILDINGS (SEE FIGURE 11.3.3b); OR
 - A BARRIER PROVIDED TO AN OPENABLE WINDOW COVERED BY 11.3.7 AND 11.3.8
- A BARRIER REQUIRED BY 11.3.3 MUST BE IN ACCORDANCE WITH THE FOLLOWING:
 - THE HEIGHT MUST NOT BE LESS THAN 865mm ABOVE THE NOSINGS OF THE STAIR TREADS OR THE FLOOR OF A RAMP OR THE LIKE.
 - THE HEIGHT MUST NOT BE LESS THAN -
 - 1m ABOVE THE FLOOR OF ANY LANDING, CORRIDOR, HALLWAY, BALCONY, DECK, VERANDAH, ACCESS PATH, MEZZANINE, ACCESS BRIDGE, ROOF TOP SPACE OR THE LIKE TO WHICH GENERAL ACCESS IS PROVIDED; OR
 - 865mm ABOVE THE FLOOR OF A LANDING TO A STAIRWAY OR RAMP WHERE THE BARRIER IS PROVIDED ALONG THE INSIDE EDGE OF THE LANDING AND DOES NOT EXCEED A LENGTH OF 500mm.
 - OPENINGS IN BARRIERS (INCLUDING DECORATIVE BALUSTRADES) MUST BE CONSTRUCTED SO THAT THEY DO NOT PERMIT 125mm SPHERE TO PASS THROUGH IT AND FOR STAIRWAYS, THE OPENING IS MEASURED ABOVE THE NOSING LINE OF THE STAIR TREADS.
 - WHERE A REQUIRED BARRIER IS FIXED TO THE VERTICAL FACE FORMING AN EDGE OF A LANDING, BALCONY, DECK, STAIRWAY OR THE LIKE, THE OPENING FORMED BETWEEN THE BARRIER AND THE FACE MUST NOT EXCEED 40mm.
 - FOR THE PURPOSES OF (5), THE OPENING IS MEASURED HORIZONTALLY FROM THE EDGE OF THE TRAFFICABLE SURFACE TO THE NEAREST INTERNAL FACE OF THE BARRIER.
 - A BARRIER TO A STAIRWAY SERVING A NON-HABITABLE ROOM SUCH AS AN ATTIC, STOREROOM OR THE LIKE THAT IS NOT USED ON A REGULAR OR DAILY BASIS, NEED NOT COMPLY WITH (4) IF-
 - OPENINGS ARE CONSTRUCTED SO THAT THEY DO NOT PERMIT A 300 MM SPHERE TO PASS THROUGH; OR
 - WHERE RAILS ARE USED, THE BARRIER CONSISTS OF A TOP RAIL AND AN INTERMEDIATE RAIL, WITH THE OPENINGS BETWEEN RAILS NOT MORE THAN 460 MM.
 - RESTRICTION ON HORIZONTAL ELEMENTS:
 - WHERE IT IS POSSIBLE TO FALL MORE THAN 4 M, ANY HORIZONTAL ELEMENTS WITHIN THE BARRIER BETWEEN 150 MM AND 760 MM ABOVE THE FLOOR MUST NOT FACILITATE CLIMBING.
 - FOR THE PURPOSE OF (a), THE 4 M IS MEASURED FROM THE FLOOR LEVEL OF THE TRAFFICABLE SURFACE TO THE SURFACE BENEATH.
 - A BARRIER CONSTRUCTED OF WIRE IS DEEMED TO MEET THE REQUIREMENTS OF (4) IF IT IS CONSTRUCTED IN ACCORDANCE WITH 11.3.6
 - A GLASS BARRIER OR WINDOW SERVING AS A BARRIER MUST COMPLY WITH H1D8 AND THE RELEVANT PROVISIONS OF THIS PART.
 - A BARRIER, EXCEPT A WINDOW SERVING AS A BARRIER, MUST BE DESIGNED TO TAKE LOADING FORCES IN ACCORDANCE WITH AS/NZS 1170.1.

HANDRAILS

- HANDRAILS TO A STAIRWAY OR RAMP MUST-
 - BE LOCATED ALONG AT LEAST ONE SIDE OF THE STAIRWAY FLIGHT OR RAMP; AND
 - BE LOCATED ALONG THE FULL LENGTH OF THE STAIRWAY FLIGHT OR RAMP, EXCEPT IN THE CASE WHERE A HANDRAIL IS ASSOCIATED WITH A BARRIER THE HANDRAIL MAY TERMINATE WHERE THE BARRIER TERMINATES; AND
 - HAVE THE TOP SURFACE OF THE HANDRAIL NOT LESS THAN 865 MM VERTICALLY ABOVE THE NOSINGS OF THE STAIR TREADS OR THE FLOOR SURFACE OF THE RAMP (SEE FIGURE 11.3.4B); AND
 - BE CONTINUOUS AND HAVE NO OBSTRUCTION ON OR ABOVE THEM THAT WILL TEND TO BREAK A HANDHOLD, EXCEPT FOR NEWEL POSTS, BALL TYPE STANCHIONS, OR THE LIKE.
- THE REQUIREMENTS OF (1) DO NOT APPLY TO-
 - A STAIRWAY OR RAMP PROVIDING A CHANGE IN ELEVATION OF LESS THAN 1m; OR
 - A LANDING; OR
 - A WINDER WHERE A NEWEL POST IS INSTALLED TO PROVIDE A HANDHOLD.

All dimensions in millimetres
unless noted otherwise.
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Construction Notes



CORROSION PROTECTION FOR STRUCTURAL STEEL MEMBERS

1. STRUCTURAL STEEL MEMBERS THAT ARE NOT BUILT INTO A MASONARY WALL MUST;
 - (a) BE PROTECTED AGAINST CORROSION IN ACCORDANCE WITH TABLES 6.3.9A, 6.3.9B AND 6.3.9C; AND
 - (b) WHERE A PAINT FINISH IS APPLIED TO THE SURFACE, BE FREE FROM RUST; AND
 - (c) WHERE ZINC COATINGS ARE APPLIED TO THE SURFACE, BE PROVIDED WITH A BARRIER COAT TO PREVENT DOMESTIC ENAMELS FROM PEELING; AND
 - (d) WHEN CUT OR WELDED ON-SITE, HAVE THOSE AREAS AND ANY OTHER AREAS OF DAMAGE TO PROTECTIVE COATINGS COMPLY WITH (A).

PROTECTIVE COATINGS FOR STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH NCC 2022 VOL. 2
TABLE 3.4.4.2

ENVIRONMENT	LOCATION	MINIMUM PROTECTIVE COATING	
		OPT. 1 (HOT DIP GALVANISING)	OPT. 2 (DUPLEX SYSTEM). SEE TABLE 6.3.9c
Low (mild steel corrosion rate 1.3 to 25 µm/year)	Typically remote inland areas or more than 1 km from sheltered bays	HDG75	-
Medium (mild steel corrosion rate 25-50 µm/year)	Typically more than 1 km from breaking surf or aggressive industrial areas or more than 50 m from sheltered bays	HDG225	-
High (mild steel corrosion rate 50 to 80 µm/year)	Typically more than 200 m from breaking surf or aggressive industrial areas or within 50 m from sheltered bays	HDG450	HDG150 (5 years) 4D (10-15 years) or HDG300 (10 years) 2D (5-10 years)
Very High (mild steel corrosion rate 80 to 200 µm/year)	Typically extends from 100 m inland from breaking surf to 200 m inland from breaking surf, or within 200 m of aggressive industrial areas and within 100 m of breaking surf.	HDG900	HDG300 (5 years) 5D (10-15 years) or HDG600 (10 years) 4D (5-10 years)

HOT DIP GALVANISING AND DUPLEX SYSTEMS MUST BE IN ACCORDANCE WITH AS2312.2. PAINT SYSTEMS IN ACCORDANCE WITH AS2312.1.

CORROSION PROTECTION & COMPATILITY REQUIREMENTS FOR ROOFING

1. SHEET METAL ROOFING MUST BE PROTECTED FROM CORROSION IN ACCORDANCE WITH TABLE 7.2.2a
2. WHERE DIFFERENT METALS ARE USED IN A ROOFING SYSTEM, INCLUDING FLASHINGS, FASTENERS, GUTTERING, DOWNPIPES, ETC., THEY MUST BE COMPATIBLE WITH EACH OTHER AS DESCRIBED IN TABLE 7.2.2b, TABLE 7.2.2c, TABLE 7.2.2c, TABLE 7.2.2d, TABLE 7.2.2e AND-
 - (a) NO LEAD MATERIALS CAN BE USED UPSTREAM FROM ALUMINIUM/ZINC COATED MATERIALS; AND
 - (b) NO LEAD MATERIALS CAN BE USED ON ROOFS THAT FORM PART OF A DRINKING WATER CATCHMENT AREA; AND
 - (c) NO COPPER MATERIALS CAN BE USED UPSTREAM FROM GALVANISED COATED MATERIALS.

PROTECTIVE COATINGS FOR STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH NCC 2022 VOL. 2
TABLE 3.4.4.2

ENVIRONMENT	LOCATION	MIN. METAL COATING IN ACCORDANCE WITH AS1397: METALLIC COATED STEEL	MIN. METAL COATING IN ACCORDANCE WITH AS1397: METALLIC AND ORGANIC COATED STEEL
		Low (mild steel corrosion rate 1.3 to 25 µm/year)	Typically remote inland areas or more than 1 km from sheltered bays
Medium (mild steel corrosion rate 25-50 µm/year)	Typically more than 1 km from breaking surf or aggressive industrial areas or more than 50 m from sheltered bays	Z450 galvanised or AZ150 aluminium/zinc or AM125 aluminium/zinc/magnesium	Z275 galvanised or AZ150 aluminium/zinc or AM100 aluminium/zinc/magnesium
High (mild steel corrosion rate 50 to 80 µm/year)	Typically more than 200 m from breaking surf or aggressive industrial areas or within 50 m from sheltered bays	AZ150 aluminium/zinc or AM125 aluminium/zinc/magnesium	AZ150 aluminium/zinc or AM100 aluminium/zinc/magnesium
Very High (mild steel corrosion rate 80 to 200 µm/year)	Typically extends from 100 m inland from breaking surf to 200 m inland from breaking surf, or within 200 m of aggressive industrial areas and within 100 m of breaking surf.	Not suitable	AZ200 aluminium/zinc or AM150 aluminium/zinc/magnesium
Very High (mild steel corrosion rate 80 to 200 µm/year)	Typically within 100 m inland from breaking surf.	Not suitable	Not suitable



All dimensions in millimetres unless noted otherwise.
PRINT ALL DRAWINGS IN COLOUR

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Construction Notes 2

Wet Areas (To comply with NCC 3.8.1.2 and AS 3740)

Vessels or area where the fixture is installed	Floors and horizontal surfaces	Walls	Wall junctions and joints	Wall/ floor junctions	Penetrations
Shower area					
With preformed shower base	Membrane 'M01' to shower floor. Ceramic floor tiles.	'M01' to min.150mm AFL. Ceramic tiles to shower walls 1800mm above finished floor level of the shower.	Waterproof wall junctions within shower area with Membrane 'M01'.	Waterproof wall/ floor junctions within shower area with Membrane 'M01'.	Waterproof floor penetrations within shower area with Membrane 'M01'.
With step down	Waterproof floor in shower area including step down (M01).	Waterproof (M01) all walls in shower area to 150mm above FFL. Water resistant to 1800mm AFL.	Waterproof wall junctions within shower area with Membrane 'M01'	Waterproof wall / floor junctions within shower area with Membrane 'M01'.	Waterproof tap and spout penetrations with 'Waterbar' tap penetration flange and silicone.
Area outside shower area					
Timber floor	Waterproof floor of the room. Membrane 'M02'	N/A	N/A	Waterproof wall / floor junctions. Membrane 'M02'.	N/A
Concrete floor	Water resistant floor of the room. Ceramic floor tiles.	N/A	N/A	Waterproof wall / floor junctions. Membrane 'M02'.	N/A
Area adjacent to bath					
Timber floor	Waterproof floor of the room. Membrane 'M01'.	a) 150mm min.high ceramic tile splashback to perimeter of bath. b) Ceramic tile upstand from floor level to underside lip of bath.	Silicone to junctions within 150mm above bath.	Ceramic tile upstand to extent of bath.	Waterproof tap and spout penetrations in horizontal surfaces with 'Waterbar' tap penetration flange and silicone.
Other areas					
Laundry/ and WC.	Water resistant floor of the room. Ceramic floor tiles.	N/A	N/A	Waterproof wall / floor junctions. Membrane 'M02'.	N/A
Walls adjoining sink, basin or laundry tub.	N/A	150mm min.high ceramic tiled splashback for extent to vessel, where the vessel is within 75mm of a wall.	Waterproof wall junction where vessel is fixed to a wall with silicone.	N/A	Waterproof tap and spout penetrations if within splashback with 'Waterbar' tap penetration flange and silicone.

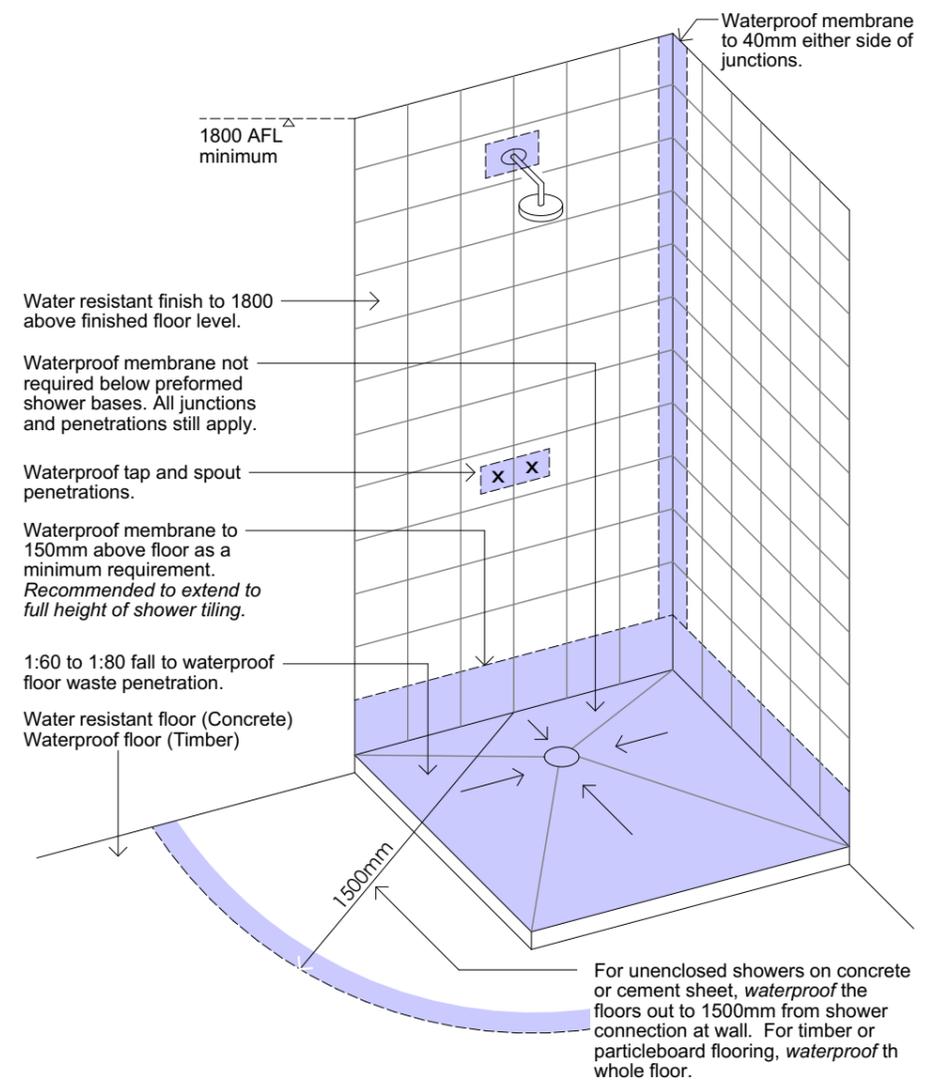
KEY

Membrane 'M01': **Ardex** (or similar) shower waterproofing kit complete with reinforcing mat, primer, neutral cure silicone and membrane to manufacturer's recommendations.

Membrane 'M02': **Ardex** (or similar) water based acrylic polyurethane membrane applied by either brush or roller in a consistent thickness to manufacturer's recommendations.

N/A: Means not applicable

NOTE: Any silicone used in a wet area must be mould resistant.



1
-
Detail - Shower Waterproofing



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Construction Notes -
Wet Areas

THESE NOTES MUST BE READ AND UNDERSTOOD BY ALL INVOLVED IN THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO: OWNER, BUILDER, SUB-CONTRACTORS, CONSULTANTS, OPERATORS, RENOVATORS, MAINTAINERS AND DEMOLISHERS.

1. FALLS SLIPS AND TRIPS

1.1 WORKING AT HEIGHTS

1.1.1 DURING CONSTRUCTION

WHEREVER POSSIBLE, COMPONENTS FOR THIS BUILDING SHOULD BE PREFABRICATED OFF-SITE OR AT GROUND LEVEL TO MINIMISE THE RISK OF WORKERS FALLING MORE THAN TWO METRES. HOWEVER, CONSTRUCTION OF THIS BUILDING WILL REQUIRE WORKERS TO BE WORKING AT HEIGHTS WHERE A FALL IN EXCESS OF TWO METRES IS POSSIBLE AND INJURY IS LIKELY TO RESULT FROM SUCH A FALL. THE BUILDER SHOULD PROVIDE A SUITABLE BARRIER WHEREVER A PERSON IS REQUIRED TO WORK IN A SITUATION WHERE FALLING MORE THAN TWO METERS IS A POSSIBILITY.

1.1.2 DURING OPERATION OR MAINTENANCE

HOUSES OR OTHER LOW-RISE BUILDINGS WHERE SCAFFOLDING IS APPROPRIATE:

CLEANING AND MAINTENANCE OF WINDOWS, WALLS, ROOFS OR OTHER COMPONENTS OF THIS BUILDING WILL REQUIRE PERSONS TO BE SITUATED WHERE A FALL FROM A HEIGHT IN EXCESS OF TWO METRES IS POSSIBLE. WHERE THIS TYPE OF ACTIVITY IS REQUIRED, SCAFFOLDING, LADDERS AND TRESTLES SHOULD BE USED IN ACCORDANCE WITH RELEVANT CODES OF PRACTICE, REGULATIONS OR LEGISLATION.

BUILDINGS WHERE SCAFFOLDING, LADDERS AND TRESTLES ARE NOT APPROPRIATE:

CLEANING AND MAINTENANCE OF WINDOWS, WALLS, ROOFS OR OTHER COMPONENTS OF THIS BUILDING WILL REQUIRE PERSONS TO BE SITUATED WHERE A FALL FROM A HEIGHT IN EXCESS OF TWO METRES IS POSSIBLE. WHERE THIS TYPE OF ACTIVITY IS REQUIRED, FALL BARRIERS OR PERSONAL PROTECTIVE EQUIPMENT (PPE) SHOULD BE USED IN ACCORDANCE WITH RELEVANT CODES OF PRACTICE, REGULATIONS OR LEGISLATION.

1.1.3 ACHORAGE POINTS (NON -RESIDENTIAL ONLY)

ACHORAGE POINTS FOR PORTABLE SCAFFOLD OR FALL ARREST DEVICES HAVE BEEN INCLUDED IN THE DESIGN FOR USE BY MAINTENANCE WORKERS. ANY PERSONS ENGAGED TO WORK ON THE BUILDING AFTER COMPLETION OF CONSTRUCTION WORK SHOULD BE INFORMED ABOUT THE ANCHORAGE POINTS.

1.2 SLIPPERY OR ENEVEN SURFACES

1.2.1 FLOOR FINISHES- SPECIFIED

IF FINISHES HAVE BEEN SPECIFIED BY THE DESIGNER, THESE HAVE BEEN SELECTED TO MINIMISE THE RISK OF FLOORS AND PAVED AREAS BECOMING SLIPPERY WHEN WET OR WHEN WALKED ON WITH WET SHOES/FEET. ANY CHANGE TO THE SPECIFIED FINISH SHOULD BE MADE IN CONSULTATION WITH THE DESIGNER OR, IF THIS IS NOT PRACTICAL, SURFACES WITH AN EQUIVALENT OR BETTER SLIP RESISTANCE SHOULD BE CHOSEN.

1.2.2 FLOOR FINISHES- BY OWNER

IF THE DESIGNER HAS NOT BEEN INVOLVED IN THE SELECTION OF SURFACE FINISHES, THE OWNER IS RESPONSIBLE FOR THE SELECTION OF SURFACE FINISHES IN THE PEDESTRIAN -TRAFFICABLE AREAS OF THE BUILDING. SURFACES SHOULD BE SELECTED IN ACCORDANCE WITH AS HB 197-1999 AND AS/NZ 4586:2004.

1.2.3 STEPS, LOOSE OBJECTS AND UNEVEN SURFACES

DUE TO THE DESIGN REQUIREMENTS FOR THE BUILDING, STEPS AND/OR RAMPS ARE INCLUDED IN THE BUILDING THAT MAY BE A HAZARD TO WORKERS CARRYING OBJECTS OR OTHERWISE OCCUPIED. STEPS SHOULD BE CLEARLY MARKED WITH BOTH VISUAL AND TACTILE WARNINGS DURING CONSTRUCTION, MAINTENANCE, DEMOLITION AND AT ALL TIMES WHEN THE BUILDING OPERATES AS A WORKPLACE. BUILDING OWNERS AND OCCUPIERS SHOULD MONITOR THE PEDESTRIAN ACCESS WAYS AND, IN PARTICULAR, ACCESS TO AREAS WHERE MAINTENANCE IS ROUTINELY CARRIED OUT, TO ENSURE THAT SURFACES HAVE NOT MOVED OR CRACKED SUCH THAT THEY BECOME UNEVEN AND PRESENT A TRIP HAZARD. SPILLS, LOOSE MATERIAL, STRAY OBJECTS OR ANY OTHER MATTER THAT MAY CAUSE A SLIP OR TRIP SHOULD BE CLEANED OR REMOVED FROM ACCESS WAYS. CONTRACTORS SHOULD BE REQUIRED TO MAINTAIN A TIDY WORK SITE DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION TO REDUCE RISK OF TRIPS AND FALLS AT THE WORKPLACE. MATERIALS FOR CONSTRUCTION OR MAINTENANCE SHOULD BE STORED IN DESIGNATED AREAS WAY FROM ACCESS WAYS AND WORK AREAS.

2. FALLING OBJECTS

2.1 LOOSE MATERIAL OR SMALL OBJECTS

CONSTRUCTION, MAINTENANCE OR DEMOLITION WORK ON OR AROUND THE BUILDING IS LIKELY TO INVOLVE PERSONS WORKING ABOVE GROUND LEVEL OR ABOVE FLOOR LEVELS. WHERE THIS OCCURS, ONE OF THE FOLLOWING MEASURES SHOULD BE TAKEN TO AVOID OBJECTS FALLING, FROM THE AREA WHERE WORK IS BEING CARRIED OUT, ONTO PERSONS BELOW.

1. PREVENT OR RESTRICT ACCESS TO AREAS BELOW WHERE THE WORKER IS BEING CARRIED OUT.
2. PROVIDE TOE BOARDS TO SCAFFOLDING AND WORK PLATFORMS.
3. PROVIDE A PROTECTIVE STRUCTURE BELOW THE WORK AREA.
4. ENSURE THAT ALL PERSONS BELOW THE WORK AREA HAVE PERSONAL PROTECTIVE EQUIPMENT.

2.2 BUILDING COMPONENTS

DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION OF THE BUILDING, PARTS OF THE STRUCTURE INCLUDING FABRICATED STEELWORK, HEAVY PANELS AND MANY OTHER COMPONENTS WILL REMAIN STANDING PRIOR OR AFTER SUPPORTING PARTS ARE IN PLACE. CONTRACTORS SHOULD ENSURE THAT TEMPORARY BRACING OR OTHER REQUIRED SUPPORT IS IN PLACE AT ALL TIMES WHEN COLLAPSE, WHICH MAY INJURE PERSONS IN THE AREA, IS A POSSIBILITY.

MECHANICAL LIFTING OF MATERIALS AND COMPONENTS DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION PRESENTS A RISK OF FALLING OBJECTS. CONTRACTORS SHOULD ENSURE THAT APPROPRIATE LIFTING DEVICES ARE USED, THAT LOADS ARE PROPERLY SECURED, AND THAT ACCESS TO THE AREAS BELOW THE LOAD IS PREVENTED OR RESTRICTED.

3. TRAFFIC MANAGEMENT

BUILDINGS ON A MAJOR ROAD, NARROW ROAD OR STEEPLY INCLINED ROAD:

PARKING OF VEHICLES OR LOADING/UNLOADING OF VEHICLES ON THE ROADWAY MAY CAUSE A TRAFFIC HAZARD. DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION OF THE BUILDING, DESIGNATED PARKING FOR WORKERS AND LOADING AREAS SHOULD BE PROVIDED. TRAINED TRAFFIC MANAGEMENT PERSONNEL SHOULD BE RESPONSIBLE FOR SUPERVISION OF THESE AREAS.

BUILDING WHERE ON SITE LOADING/UNLOADING IS RESTRICTED:

CONSTRUCTION OF THE BUILDING MAY REQUIRE LOADING OR UNLOADING MATERIALS ON THE ROADWAY. DELIVERIES SHOULD BE WELL PLANNED TO AVOID CONGESTION OF LOADING AREAS AND TRAINED TRAFFIC MANAGEMENT PERSONNEL SHOULD BE USED TO SUPERVISE LOADING/UNLOADING AREAS.

ALL BUILDINGS:

BUSY CONSTRUCTION AND DEMOLITION SITES PRESENT A RISK OF COLLISION WHEN DELIVERIES AND OTHER TRAFFIC ARE MOVING WITHIN THE SITE. A TRAFFIC MANAGEMENT PLAN SUPERVISED BY TRAINED TRAFFIC MANAGEMENT PERSONNEL SHOULD BE IMPLEMENTED FOR THE WORK SITE.

4. SERVICES

GENERAL:

RUPTURE OF SERVICES DURING EXCAVATION FOR OTHER ACTIVITY CREATES A VARIETY OF RISKS INCLUDING RELEASE OF HAZARDOUS MATERIALS. EXISTING SERVICES MAY BE LOCATED ON OR AROUND THE BUILDING SITE. WHERE KNOWN, THESE ARE INDICATED ON THE DRAWING, BUT THE EXACT LOCATION AND EXTENT OF THE SERVICES MAY VARY FROM THAT INDICATED. SERVICES SHOULD BE LOCATED USING AN APPROPRIATE SERVICE (SUCH AS DIAL BEFORE YOU DIG, TELSTRA, ETC). APPROPRIATE EXCAVATION PRACTICE SHOULD BE USED AND, WHERE NECESSARY, SPECIALIST CONTRACTORS SHOULD BE ENGAGED.

LOCATIONS WITH UNDERGROUND POWER LINES:

UNDERGROUND POWER LINES MAY BE LOCATED IN OR AROUND THE SITE. ALL UNDERGROUND POWER LINES MUST BE DISCONNECTED OR ACCURATELY LOCATED AND ADEQUATE WARNING SIGNS USED PRIOR TO ANY CONSTRUCTION, MAINTENANCE OR DEMOLITION WORK COMMENCING.

LOCATIONS WITH OVERHEAD POWER LINES:

OVERHEAD POWERLINES MAY BE LOCATED ON OR NEAR THE SITE. THESE POSE A RISK OF ELECTROCUTION IF STRUCK OR APPROACHED BY LIFTING DEVICES OR OTHER PLANT AND PERSONS WORKING ABOVE GROUND LEVEL. WHERE THERE IS A DANGER OF THIS OCCURRING, POWER LINES SHOULD BE, WHERE PRACTICAL, DISCONNECTED OR RELOCATED. WHERE THIS IS NOT PRACTICAL, ADEQUATE WARNING IN THE FORM OF BRIGHT-COLOURED TAPE OR SIGNAGE SHOULD BE USED, OR A PROTECTIVE BARRIER PROVIDED.

5. MANUAL TASKS

COMPONENTS WITHIN THIS DESIGN WITH A MASS IN EXCESS OF 25KG SHOULD BE LIFTED BY TWO OR MORE WORKERS OR BY A MECHANICAL LIFTING DEVICE. WHERE THIS IS NOT PRACTICAL, SUPPLIERS OR FABRICATORS SHOULD BE REQUIRED TO LIMIT THE COMPONENT MASS.

ALL MATERIALS PACKAGING, BUILDING AND MAINTENANCE COMPONENTS SHOULD CLEARLY SHOW THE TOTAL MASS OF PACKAGES AND WHERE PRACTICAL ALL ITEMS SHOULD BE STORED ON SITE IN A WAY THAT MINIMISES BENDING BEFORE LIFTING. ADVICE SHOULD BE PROVIDED ON SAFE LIFTING METHODS IN ALL AREAS WHERE LIFTING MAY OCCUR. CONSTRUCTION, MAINTENANCE AND DEMOLITION OF THE BUILDING REQUIRE THE USE OF PORTABLE TOOLS AND EQUIPMENT. THESE SHOULD BE FULLY MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND NOT USED WHERE FAULTY OR, IN THE CASE OF ELECTRICAL EQUIPMENT, NOT CARRYING A CURRENT ELECTRICAL SAFETY TAG. ALL SAFETY GUARDS AND DEVICES SHOULD BE REGULARLY CHECKED AND PERSONAL PROTECTIVE EQUIPMENT SHOULD BE USED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.

6. HAZARDOUS SUBSTANCES

6.1 ASBESTOS

FOR ALTERATIONS TO OR DEMOLITION OF A BUILDING CONSTRUCTED PRIOR TO 1990, IF THE BUILDING WAS CONSTRUCTED PRIOR TO:

1990- IT MAY CONTAIN ASBESTOS

1986- IT IS LIKELY TO CONTAIN ASBESTOS

EITHER IN CLADDING MATERIAL, OR IN FIRE-RETARDANT INSULATION MATERIAL. IN EITHER CASE, THE BUILDER SHOULD CHECK, AND IF NECESSARY, TAKE APPROPRIATE ACTION BEFORE DEMOLISHING, CUTTING, SANDING, DRILLING OR OTHERWISE DISTURBING THE EXISTING STRUCTURE.

6.2 POWDERED MATERIALS

MANY MATERIALS USED IN CONSTRUCTION OF THIS BUILDING CAN CAUSE HARM IF INHALED IN POWDERED FORM. PERSONS WORKING ON OR IN THE BUILDING DURING CONSTRUCTION. OPERATIONAL MAINTENANCE OR DEMOLITION SHOULD ENSURE GOOD VENTILATION AND WEAR PERSONAL PROTECTIVE EQUIPMENT, INCLUDING PROTECTION AGAINST INHALATION WHILE USING POWDERED MATERIAL OR WHEN SANDING, DRILLING OR OTHERWISE DISTURBING THE POWDERED MATERIAL.

6.3 TREATED TIMBER

THE DESIGN OF THE BUILDING MAY INCLUDE PROVISIONS FOR INCLUSION OF TREATED TIMBER WITHIN THE STRUCTURE. DUST OR FUMES FROM THE MATERIAL CAN BE HARMFUL. PERSONS WORKING ON OR IN THE BUILDING DURING CONSTRUCTION, OPERATIONAL MAINTENANCE OR DEMOLITION SHOULD ENSURE GOOD VENTILATION AND WEAR PERSONAL PROTECTIVE EQUIPMENT, INCLUDING PROTECTION AGAINST INHALATION OF HARMFUL MATERIAL WHEN SANDING, DRILLING OR USING TREATED TIMBER IN ANY WAY THAT MAY CAUSE HARMFUL MATERIAL TO BE RELEASED. DO NOT BURN TREATED TIMBER.

6.4 VOLATILE ORGANIC COMPOUNDS

MANY TYPES OF GLUES, SOLVENTS, SPRAY PACKS, PAINTS, VARNISHES AND SOME CLEANING MATERIALS AND DISINFECTANTS HAVE DANGEROUS EMISSIONS. AREAS WHERE THESE ARE USED SHOULD BE KEPT WELL VENTILATED WHILE THE MATERIAL IS BEING USED AND FOR A PERIOD AFTER INSTALLATION. PERSONAL PROTECTIVE EQUIPMENT MAY ALSO BE REQUIRED. THE MANUFACTURER'S RECOMMENDATIONS FOR USE MUST BE CAREFULLY CONSIDERED AT ALL TIMES.

6.5 SYNTHETIC MINERAL FIBRE

GLASS FIBRE, ROCK WOOL, CERAMIC AND OTHER MATERIAL USED FOR THERMAL OR ACOUSTIC INSULATION MAY CONTAIN SYNTHETIC MINERAL FIBRE WHICH MAY BE HARMFUL IF INHALED, OR IF IT COMES INTO CONTACT WITH THE SKIN, EYES, OR OTHER SENSITIVE PARTS OF THE BODY. PERSONAL PROTECTIVE EQUIPMENT, INCLUDING PROTECTION AGAINST INHALATION OF HARMFUL MATERIAL, SHOULD BE USED WHEN INSTALLING, REMOVING OR WORKING NEAR BULK INSULATION MATERIAL.

6.6 TIMBER FLOORS

THE BUILDING MAY CONTAIN TIMBER FLOORS THAT HAVE AN APPLIED FINISH, AREAS WHERE FINISHES ARE APPLIED SHOULD BE KEPT WELL VENTILATED DURING SANDING AND APPLICATION AND FOR A PERIOD AFTER INSTALLATION. PERSONAL PROTECTIVE EQUIPMENT MAY ALSO BE REQUIRED. THE MANUFACTURER'S RECOMMENDATIONS FOR USE MUST BE CAREFULLY CONSIDERED AT ALL TIMES.

7. CONFINED SPACES

7.1 EXCAVATION

CONSTRUCTION OF THE BUILDING AND SOME MAINTENANCE ON THE BUILDING MAY REQUIRE EXCAVATION AND INSTALLATION OF ITEMS WITHIN THE EXCAVATION. WHERE PRACTICAL, INSTALLATION SHOULD BE CARRIED OUT USING METHODS THAT DO NOT REQUIRE WORKERS TO ENTER THE EXCAVATION. WHERE THIS IS NOT PRACTICAL, ADEQUATE SUPPORT FOR THE EXCAVATED AREA SHOULD BE PROVIDED TO PREVENT COLLAPSE. WARNING SIGNS AND BARRIERS TO PREVENT ACCIDENTAL OR UNAUTHORISED ACCESS TO ALL EXCAVATIONS SHOULD BE PROVIDED.

7.2 ENCLOSED SPACES

FOR BUILDINGS WITH ENCLOSED SPACES WHERE MAINTENANCE OR OTHER ACCESS MAY BE REQUIRED: ENCLOSED SPACES WITHIN THE BUILDING MAY PRESENT A RISK TO PERSONS ENTERING FOR CONSTRUCTION, MAINTENANCE OR ANY OTHER PURPOSE. THE DESIGN DOCUMENTATION CALLS FOR WARNING SIGNS AND BARRIERS TO UNAUTHORISED ACCESS, WHERE WORKERS ARE REQUIRED TO ENTER ENCLOSED SPACES, AIR TESTING EQUIPMENT AND PERSONAL PROTECTIVE EQUIPMENT SHOULD BE PROVIDED.

7.3 SMALL SPACES

FOR BUILDINGS WITH SMALL SPACES WHERE MAINTENANCE OR OTHER ACCESS MAY BE REQUIRED: SOME SMALL SPACES WITHIN THE BUILDING MAY REQUIRE ACCESS BY CONSTRUCTION AND MAINTENANCE WORKERS. THE DESIGN DOCUMENTATION CALLS FOR WARNING SIGNS AND BARRIERS TO UNAUTHORISED ACCESS. THESE SHOULD BE MAINTAINED THROUGHOUT THE LIFE OF THE BUILDING. WHERE WORKERS ARE REQUIRED TO ENTER SMALL SPACES, THEY SHOULD BE SCHEDULED SO THAT ACCESS IS FOR SHORT PERIODS. MANUAL LIFTING AND OTHER MANUAL ACTIVITY SHOULD BE RESTRICTED IN SMALL SPACES.

8. PUBLIC ACCESS

PUBLIC ACCESS TO CONSTRUCTION AND DEMOLITION SITES AND TO AREAS UNDER MAINTENANCE CAUSES RISK TO WORKERS AND THE PUBLIC. WARNING SIGNS AND SECURE BARRIERS TO UNAUTHORISED ACCESS SHOULD BE PROVIDED. WHERE ELECTRICAL INSTALLATIONS, EXCAVATIONS, PLANT OR LOOSE MATERIALS ARE PRESENT, THEY SHOULD BE SECURED WHEN NOT FULLY SUPERVISED.

9. OPERATIONAL USE OF BUILDING

RESIDENTIAL BUILDINGS

THE BUILDING HAS BEEN DESIGNATED AS A RESIDENTIAL BUILDING. IF THE BUILDING, AT A LATER DATE, IS USED OR INTENDED FOR USE AS A WORKPLACE, THE PROVISIONS OF THE HEALTH AND SAFETY ACT 2011 OR SUBSEQUENT REPLACEMENT LEGISLATION SHOULD BE APPLIED TO THE NEW USE.

NON-RESIDENTIAL BUILDINGS

NON-RESIDENTIAL BUILDINGS WHERE THE END-USE HAS NOT BEEN IDENTIFIED: THE BUILDING HAS BEEN DESIGNED TO REQUIREMENTS OF THE CLASSIFICATION IDENTIFIED ON THE DRAWINGS. THE SPECIFIC USE OF THE BUILDINGS IS NOT KNOWN AT THE TIME OF THE DESIGN AND A FURTHER ASSESSMENT OF THE WORKPLACE HEALTH AND SAFETY ISSUES SHOULD BE UNDERTAKEN AT THE TIME OF FIT-OUT FOR THE END USER.

NON-RESIDENTIAL BUILDINGS WHERE THE END-USE IS KNOWN:

THE BUILDING HAS BEEN DESIGNED TO REQUIREMENTS OF THE CLASSIFICATION IDENTIFIED ON THE DRAWINGS. WHERE A CHANGE OF USE OCCURS AT A LATER DATE, A FURTHER ASSESSMENT OF THE WORKPLACE HEALTH AND SAFETY ISSUES SHOULD BE UNDERTAKEN.

10. OTHER HIGH-RISK ACTIVITY

ALL ELECTRICAL WORK SHOULD BE CARRIED OUT IN ACCORDANCE WITH CODE OF PRACTICE: MANAGING ELECTRICAL RISKS AT THE WORKPLACE, AS/NZS 3012 AND ALL LICENSING REQUIREMENTS.

ALL WORK USING PLANT SHOULD BE CARRIED OUT IN ACCORDANCE WITH CODES OF PRACTICE: MANAGING RISKS OF PLANT AT THE WORKPLACE.

ALL WORK SHOULD BE CARRIED OUT IN ACCORDANCE WITH CODES OF PRACTICE: MANAGING NOISE AND PREVENTING HEARING LOSS AT WORK.

DUE TO THE HISTORY OF SERIOUS INCIDENTS, IT IS RECOMMENDED THAT PARTICULAR CARE BE EXERCISED WHEN UNDERTAKING WORK INVOLVING STEEL CONSTRUCTION AND CONCRETE PLACEMENT. ALL THE ABOVE APPLIES.

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Construction Notes -
Safety Notes

SUMMARY OF CONSTRUCTION IN BUSHFIRE AREAS				
	BAL 12.5	BAL 19	BAL 29	BAL 40 (REFER SPECIFIC REQUIREMENTS)
BEARERS AND JOISTS - ENCLOSED	TIMBER OR STEEL AS USUAL	TIMBER OR STEEL AS USUAL	TIMBER OR STEEL AS USUAL	
BEARERS AND JOISTS - UNENCLOSED	- NON-COMBUSTIBLE - BUSHFIRE-RESISTING TIMBER - A COMBINATION OF ITEMS ABOVE.	TIMBER OR STEEL AS USUAL	TIMBER OR STEEL AS USUAL MORE THAN 400MM AFL. BUSHFIRE RESISTING TIMBER OR NON COMBUSTIBLE LINING LESS THAN 400MM AFL	
FLOORING - UNENCLOSED	- NON-COMBUSTIBLE - BUSHFIRE-RESISTING TIMBER -TIMBER, PARTICLEBOARD OR PLYWOOD FLOORING WHERE THE UNDERSIDE IS LINED WITH SARKING-TYPE MATERIAL OR MINERAL WOOL INSULATION - A COMBINATION OF ANY OF ITEMS ABOVE.	- NON-COMBUSTIBLE - BUSHFIRE-RESISTING TIMBER -TIMBER, PARTICLEBOARD OR PLYWOOD FLOORING WHERE THE UNDERSIDE IS LINED WITH SARKING-TYPE MATERIAL OR MINERAL WOOL INSULATION - A COMBINATION OF ANY OF ITEMS ABOVE.	- NON-COMBUSTIBLE - BUSHFIRE-RESISTING TIMBER -TIMBER, PARTICLEBOARD OR PLYWOOD FLOORING WHERE THE UNDERSIDE IS LINED WITH SARKING-TYPE MATERIAL OR MINERAL WOOL INSULATION - A COMBINATION OF ANY OF ITEMS ABOVE.	
ENCLOSED SUB-FLOOR SPACES OF VERANDAHS, DECKS, STEPS AND LANDINGS	F5 TREATED PINE OR STEEL FRAMING AND SUPPORTS AS USUAL. NONCOMBUSTIBLE CLADDING FIBRE CEMENT MIN 6MM THICK.	F5 TREATED PINE OR STEEL FRAMING AND SUPPORTS AS USUAL. NONCOMBUSTIBLE CLADDING FIBRE CEMENT MIN 6MM THICK.	F5 TREATED PINE OR STEEL FRAMING AND SUPPORTS AS USUAL. NONCOMBUSTIBLE CLADDING FIBRE CEMENT MIN 6MM THICK.	
UNENCLOSED SUB-FLOOR SPACES OF VERANDAHS, DECKS, STEPS AND LANDINGS	F5 TREATED PINE OR STEEL FRAMING AND SUPPORTS AS USUAL.	F5 TREATED PINE OR STEEL FRAMING AND SUPPORTS AS USUAL.	BUSHFIRE RESISTING TIMBER OR STEEL TO SUPPORTS AND FRAMING	
DECKING WITH ENCLOSED OR UNENCLOSED SUBFLOOR MORE THAN 300MM FROM GLAZED ELEMENT	TIMBER AS USUAL	TIMBER AS USUAL	TIMBER AS USUAL	
DECKING WITH ENCLOSED OR UNENCLOSED SUBFLOOR LESS THAN 300MM FROM GLAZED ELEMENT	BUSHFIRE RESISTANT TIMBER OR NONCOMBUSTIBLE MATERIAL SUCH AS TILE ON CEMENT SHEET	BUSHFIRE RESISTANT TIMBER OR NONCOMBUSTIBLE MATERIAL SUCH AS TILE ON CEMENT SHEET	BUSHFIRE RESISTANT TIMBER OR NONCOMBUSTIBLE MATERIAL SUCH AS TILE ON CEMENT SHEET	
FASCIA, BARGE BOARDS AND OUTRIGGERS	TIMBER AS USUAL	TIMBER AS USUAL	BUSHFIRE RESISTANT TIMBER OR CEMENT SHEET MIN 6MM	
EAVES LINING	FIBRE CEMENT AS USUAL	FIBRE CEMENT AS USUAL	CEMENT SHEET MIN 4.5MM	
SHEET ROOF	FOIL BACKED INSULATION BLANKETS OVER BATTENS	FOIL BACKED INSULATION BLANKETS OVER BATTENS	FOIL BACKED INSULATION BLANKETS OVER BATTENS	
WINDOWS AND SCREENS - FINISHING 400MM ABOVE AN EXTERNAL HORIZONTAL SURFACE	ALUMINIUM FRAMED AS USUAL. SCREENS TO OPERABLE PARTS. ANNEALED GLASS	ALUMINIUM FRAMED AS USUAL. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE. 5MM TOUGHENED GLASS.	ALUMINIUM FRAMED AS USUAL. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE. 5MM TOUGHENED GLASS.	

SUMMARY OF CONSTRUCTION IN BUSHFIRE AREAS				
	BAL 12.5	BAL 19	BAL 29	BAL 40 (REFER SPECIFIC REQUIREMENTS)
WINDOWS AND SCREENS - FINISHING CLOSER THAN 400MM ABOVE AN EXTERNAL HORIZONTAL SURFACE	ALUMINIUM FRAMED AS USUAL. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE. GRADE A SAFETY GLASS.	ALUMINIUM FRAMED AS USUAL. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE. 5MM TOUGHENED GLASS.	ALUMINIUM FRAMED AS USUAL. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE. 5MM TOUGHENED GLASS.	
EXTERNAL LIGHTWEIGHT CLADDING - FINISHING 400MM ABOVE AN EXTERNAL HORIZONTAL SURFACE	TIMBER OR OTHER PRODUCTS AS USUAL.	TIMBER OR OTHER PRODUCTS AS USUAL.	BUSHFIRE RESISTANT TIMBER, WITH A VAPOUR PERMIABLE SARKING ATTACHED TO THE OUTSIDE OF THE FRAME OR 6MM THICK FIBRE CEMENT SHEET	
EXTERNAL LIGHTWEIGHT CLADDING - FINISHING CLOSER THAN 400MM ABOVE AN EXTERNAL HORIZONTAL SURFACE	BUSHFIRE RATED TIMBER OR NON COMBUSTIBLE MATERIAL OR FIBRE CEMENT AT LEAST 6MM THICK	BUSHFIRE RATED TIMBER OR NON COMBUSTIBLE MATERIAL OR FIBRE CEMENT AT LEAST 6MM THICK	BUSHFIRE RESISTANT TIMBER, WITH A VAPOUR PERMIABLE SARKING ATTACHED TO THE OUTSIDE OF THE FRAME OR 6MM THICK FIBRE CEMENT SHEET	
EXTERNAL SIDE HUNG DOORS	ALUMINIUM FRAMED GLAZED DOORS WITH MIN 4MM GRADE A SAFETY GLASS OR 35MM SOLID TIMBER BELOW 400MM AFL	ALUMINIUM FRAMED GLAZED DOORS WITH MIN 5MM TOUGHENED GLASS OR 35MM SOLID TIMBER BELOW 400MM AFL	ALUMINIUM FRAMED GLAZED DOORS WITH MIN 5MM TOUGHENED GLASS OR 35MM SOLID TIMBER BELOW 400MM AFL	
EXTERNAL SLIDING DOORS	ALUMINIUM FRAMED GLAZED DOORS WITH MIN 4MM GRADE A SAFETY GLASS. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE	ALUMINIUM FRAMED GLAZED DOORS WITH MIN 4MM GRADE A SAFETY GLASS. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE	ALUMINIUM FRAMED GLAZED DOORS WITH MIN 4MM GRADE A SAFETY GLASS. SCREENS TO OPERABLE PARTS WITH A MESH MADE OF CORROSION RESISTANT STEEL, BRONZE OR ALUMINIUM WITH A MAX 2MM APERTURE	
BALUSTRADES, HANDRAILS AND UNROOFED STRUCTURES	NO SPECIFIC REQUIREMENTS	NO SPECIFIC REQUIREMENTS	NO SPECIFIC REQUIREMENTS	
GARAGES, CARPORTS, VERANDAHS AND SIMILAR ROOFED STRUCTURES WHERE CLOSER THAN 6M TO MAIN BUILDING OR ATTACHED	NO SPECIFIC REQUIREMENTS OTHER THAN ROOF MUST BE NON-COMBUSTIBLE	NO SPECIFIC REQUIREMENTS OTHER THAN ROOF MUST BE NON-COMBUSTIBLE	NO SPECIFIC REQUIREMENTS OTHER THAN ROOF MUST BE NON-COMBUSTIBLE	
VEHICULAR ACCESS BCA TAS 3.7.4.1	CONSTRUCT ROAD TO A STANDARD NOT LESS THAN A MODIFIED 4C ACCESS ROAD			
WATER SUPPLY BCA TAS 3.7.4.2	EXTERIOR ELEMENTS OF A CLASS 1 BUILDING MUST BE WITHIN 120M LONG HOSE CONNECTED TO: - A FIRE HYDRANT WITH APPROVED FLOW RATE, OR - A STORED WATER SUPPLY IN A WATER TANK, SWIMMING POOL OR DAM AVAILABLE FOR FIRE FIGHTING AT ALL TIMES WHICH HAS A CAPACITY OF AT LEAST 10,000L FOR EACH SEPARATE BUILDING - HAVE NONCOMBUSTIBLE PIPES AND BE MORE THAN 6M FROM A BUILDING - BE WITHIN 3M FROM A HARDSTAND AREA - HAVE AN OPENING IN THE TOP OF NOT LESS THAN 250MM DIAMETER OR BE FITTED WITH A DN65 WITH A DIN OR EN STANDARD FORGED STORZ 65MM ADAPTOR FITTED WITH A SUCTION WASHER TO SUIT TASFIRE EQUIPMENT.			
SERVICE PIPES (WATER AND GAS)	- ALL EXPOSED PIPES SHALL BE METAL - ALL OTHER MATERIALS SHALL BE AT LEAST 300MM BELOW GROUND LEVEL			



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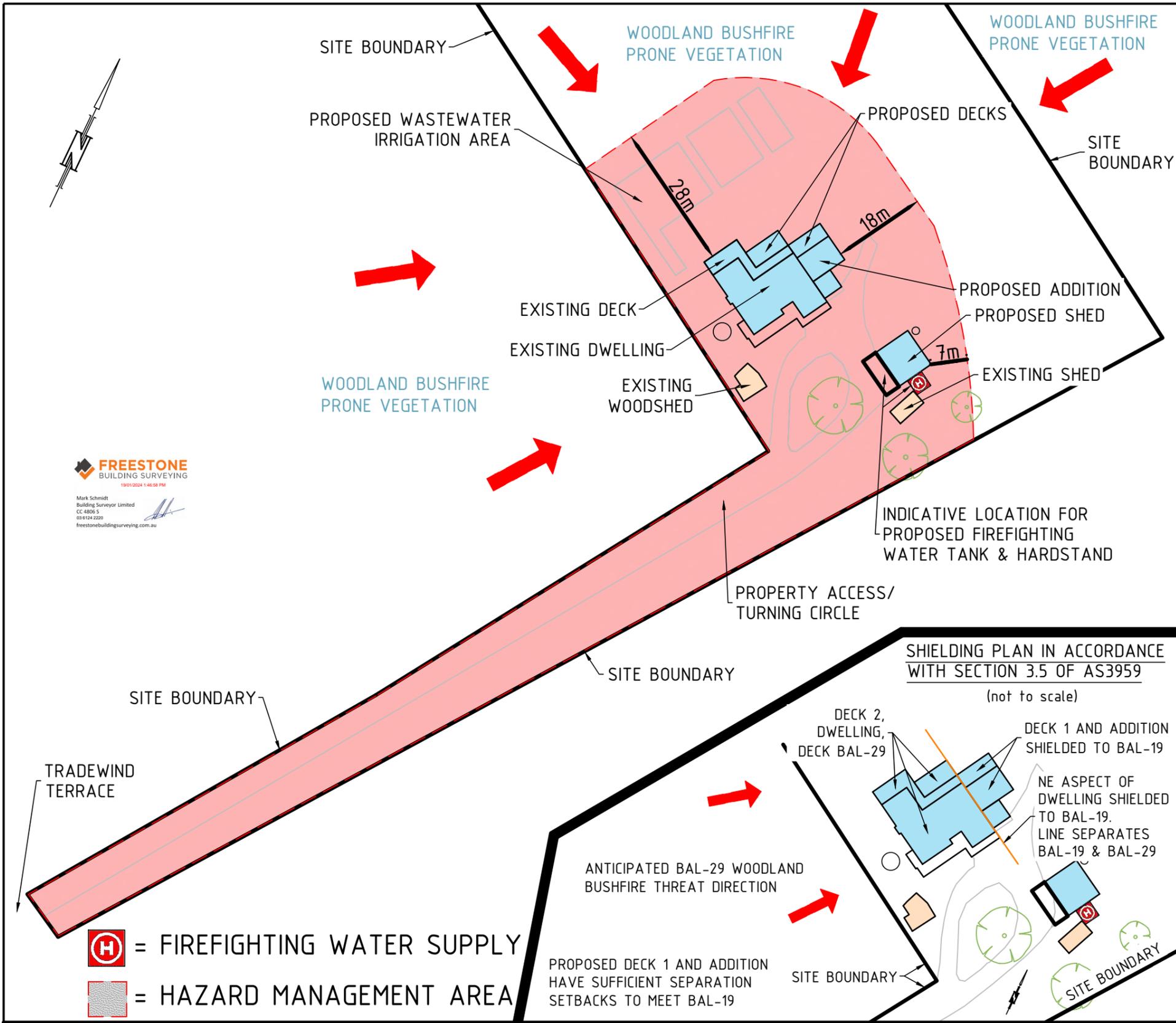
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REV | AMENDMENT | DATES

A.23
Bushfire
Requirements - BAL
29



VEGETATION:
 IN ACCORDANCE WITH TABLE 2.6 IN AS3959, 2018.
 FROM THE PROPOSED ADDITION, EXISTING DWELLING AND DECKS, SEPARATION DISTANCES ARE REQUIRED TO:

- A MINIMUM 28m ON THE WESTERN ASPECT,
- A MINIMUM 18m ON THE NORTHERN ASPECT,
- TO THE PROPERTY BOUNDARY ON ALL OTHER ASPECTS (7m FROM PROPOSED SHED).

NOTE: RESURVEY OF PROPERTY BOUNDARIES HAS REVEALED THE SOUTH/SOUTH WEST BOUNDARY IS LESS THAN 10m FROM THE EXISTING DWELLING (±0.5m CHANGE). AS THE BOUNDARY STANDS, THERE IS SUFFICIENT SEPARATION TO MEET THE MINIMUM 10m SEPARATION FOR BAL-29. IF THE NEIGHBOURS AT 30 TRADEWIND TERRACE ARE AWARE OF THIS AND INTEND TO MOVE THEIR BOUNDARY AS PER SURVEY, THE BOUNDARY FENCES ACT OF 1908 STATES "Where any fence is to be erected on land covered with standing bush or scrub, and the required notices as hereinbefore provided have been given, the person erecting the fence shall clear the bush and scrub and remove fallen timber for a width of not less than 2 metres on each side along the entire length of the fence". REFER TO THE REPORT FOR THE REMAINDER OF TEXT. IF THE BOUNDARY FENCE REMAINS AS IS, THE EXISTING DWELLING IS BAL-29 COMPLIANT AND IF THE FENCE IS MOVED, THE 2m MINIMUM CLEARING SATISFIES THE MIN 10m SETBACKS FOR BAL-29. TO SATISFY HMA VEGETATION REQUIREMENTS, GRASS MUST BE REGULARLY MOWN TO A NOMINAL 100mm OR LESS HEIGHT AS PER AS3959 2018 CLAUSE 2.2.3.2(F). GROUND AND MID-LEVEL GROWTH IS TO BE SLASHED AND MAINTAINED. SOME EXISTING EUCALYPTS WITHIN HMA MAY BE RETAINED IN LINE WITH BELOW AS WELL AS TFS GUIDELINES FOR HMA'S CONTAINED WITHIN THE BUILDING FOR BUSHFIRE BOOKLET DATED JUNE 2020 AT WWW.FIRE.TAS.GOV.AU.

GENERAL VEGETATION MANAGEMENT INFORMATION:
 NEW VEGETATION MAY BE PLANTED AND EXISTING VEGETATION MAY BE RETAINED WITHIN THE HMA BUT MUST SATISFY LOW THREAT CONDITIONS IN ACCORDANCE WITH AS3959 2018 CLAUSE 2.2.3.2(D)(E)(F). AS A GENERAL RULE/GUIDE:
 VEGETATION 0.1-1m IN HEIGHT MAY BE PLANTED/RETAINED NOT CLOSER THAN 2m FROM DWELLING AND DECKS.
 SHRUBS UP TO 2m IN HEIGHT CAN BE PLANTED/RETAINED EITHER INDIVIDUALLY OR IN SINGLE ROWS BUT MUST BE SPACED WITH A MINIMUM 6m BETWEEN FOLIAGE AND SHOULD NOT BE WITHIN 6m OF THE DWELLING OR DECKS.
 LARGE PLANTS 4m OR MORE IN HEIGHT CAN BE PLANTED/RETAINED AND SHOULD HAVE LOW AND MID-LEVEL GROWTH UP TO 2m IN HEIGHT TO BE TRIMMED AND MAINTAINED OVER TIME. SPACING BETWEEN CROWNS IS TO BE A MINIMUM OF 30m.
 VEGETATION 2m OR MORE IN HEIGHT SHOULD NOT BE PLANTED/RETAINED WITHIN 10m OF THE DWELLING AND DECKS.
 ALL VEGETATION 1-4m IN HEIGHT SHOULD BE SPACED FROM LARGE VEGETATION (>4m) AT LEAST 8m FROM TREE CROWN (MEASURED VERTICALLY).
 PLANT DEBRIS SHOULD BE REGULARLY CLEARED/REMOVED AND FIREWOOD BE STORED APPROPRIATELY EITHER UNDERCOVER, PROTECTED FROM POSSIBLE EMBER ATTACK OR STACKED MORE THAN 6m FROM THE DWELLING.

SITE ACCESS:
 SITE ACCESS TO COMPLY WITH TABLE 2(B) OF DIRECTOR'S DETERMINATION - BUSHFIRE HAZARD AREAS VERSION 1.1 2021. COMPLIANT TURNING AREA TO BE EXTENDED AS PER PLANS BY MK DESIGN AND SURFACE TO BE UPGRADED TO REMOVE EROSION RUTS.

WATER SUPPLY:
 SITE MUST PROVIDE A STATIC WATER SUPPLY IN LINE WITH TABLE 3B OF DIRECTOR'S DETERMINATION - BUSHFIRE HAZARD AREAS VERSION 1.1 2021. MUST BE WITHIN 90m OF THE FURTHEST POINT OF PROPOSAL (AS A HOSE LAY) AND BE WITHIN 3m OF A MINIMUM 3m WIDE HARDSTAND THAT IS WITHIN 3m OF ACCESS ROAD. HARDSTAND TO BE AT LEAST 6m FROM DWELLING.

RECOMMENDATIONS:
 MINIMUM SEPARATION DISTANCES TO BE MAINTAINED AS LOW THREAT AND IN ACCORDANCE WITH CLAUSE 2.2.3.2 OF AS3959 2018, THIS BHMP AND BHMP REPORT. THE HMA CREATED BY THESE SETBACKS WILL ALLOW A BAL-19 COMPLIANT SOLUTION FOR ALL ASPECTS OF THE PROPOSED ADDITION AND DECK 1 DUE TO SHIELDING (IN ACCORDANCE WITH SECTION 3.5 IN AS3959 2018). SHIELDED NORTH EASTERN SIDE OF EXISTING DWELLING IS BAL-19. PROPOSED DECK 2 IS BAL-29 AS WELL AS EXISTING DWELLING & DECK WHICH ARE TO BE UPGRADED TO THIS STANDARD. WE RECOMMEND ANY LANDSCAPING USE PLANTS OF LOW FLAMMABILITY RATINGS AS LISTED IN THE TASMANIA FIRE SERVICE BOOKLET FIRE RESISTING GARDEN PLANTS FOR THE URBAN FRINGE AND RURAL AREAS, 2017. CONSTRUCTION REQUIREMENTS FOR THE PROPOSED ADDITION, DECK 1 AS WELL AS THE SHIELDED NORTH EASTERN ASPECT OF EXISTING DWELLING (AS SHOWN) MUST COMPLY WITH CONSTRUCTION STANDARDS AS DETAILED BY AS3959, 2018 SECTIONS 3 AND 6, CLAUSES 6.2 TO 6.8 FOR BAL-19. CONSTRUCTION REQUIREMENTS FOR REMAINDER OF EXISTING DWELLING, EXISTING DECK AND PROPOSED DECK 2 MUST COMPLY WITH CONSTRUCTION STANDARDS AS DETAILED BY AS3959, 2018 SECTIONS 3 AND 7, CLAUSES 7.2 TO 7.8 FOR BAL-29.



H = FIREFIGHTING WATER SUPPLY
■ = HAZARD MANAGEMENT AREA

BUSHFIRE HAZARD MANAGEMENT PLAN
 SCALE 1:750

			CLIENT: BOICO & COOK	SHEET: BUSHFIRE HAZARD MANAGEMENT PLAN	DRAWN: SW	APPROVED: SW BFP-130
			ADDRESS: 20 TRADEWIND TERRACE SANDFORD	PROJECT: PROPOSED ALTERATIONS / ADDITIONS AND SHED	SCALE: 1:750	SIZE: A3
B	BUILDING APPROVAL	01/11/2023			PROJECT No. K22-5	SHEET No.
A	BUILDING APPROVAL	24/5/2023		ISSUE: BUILDING APPROVAL		REV No. B
REV.	DESCRIPTION	DATE				

FOOTING/SLAB SCHEDULE & NOTES

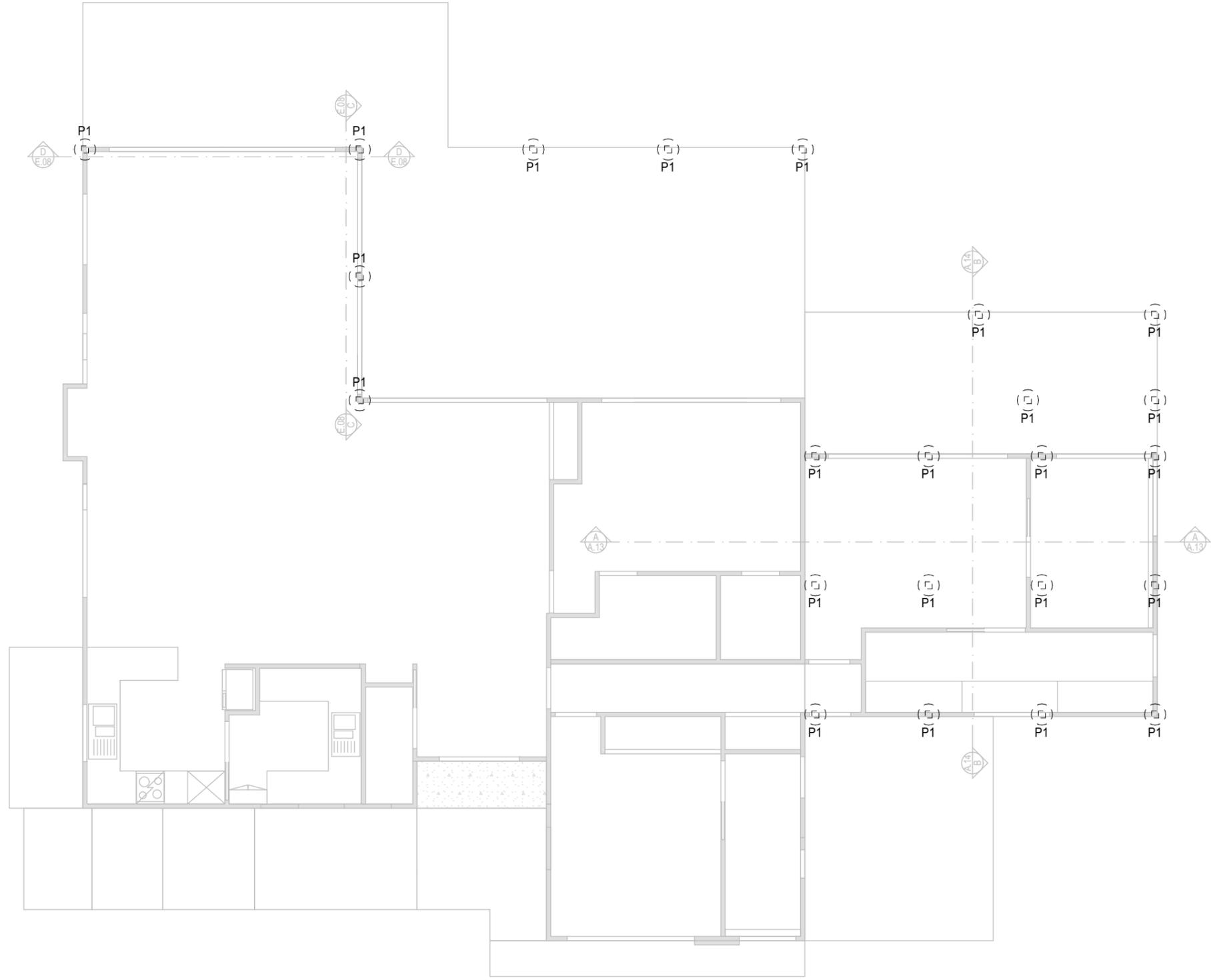
SOIL CLASSIFICATION
as per AS2870-2011 *Refer to GES soil report*

Soil Class - Class A

FOOTING SCHEDULE

P1 - 450 dia mass concrete bored pier to rock, 150 x 10 cast in plate with 4/N12 lugs 300 long, 100 crank, dome surface away from cast-in plate.

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Signature *[Signature]* Date 11/12/2023
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NOTES

- Construction Notes**
Double check all existing measurements & roof pitch prior to construction.
- Compliance - Bushfire**
All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.
- Compliance - Natural Assets**
All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.
- Important notice to the attention of the owner**
The owners attention is drawn to the fact that foundations and associated drainage on all sites requires continuing maintenance to assist footing performance. Advice for foundation maintenance is contained in the CSIRO building technology file 18 and it is the owner's responsibility to maintain the site in accordance with this document.
- Beware of underground services**
The location of underground services approximate only & their exact location should be proven onsite by the relevent authorities. No guarantee is given that all services are shown.



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	MATT KENNEDY DRAFTING & DESIGN	 BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA	CLIENT:	JOB NO:	PROPOSAL	DATE		REV	AMENDMENT	DATES	E.01 Footing Plan
			BOICO & COOK ADDRESS: 20 TRADEWIND TCE, SANDFORD	2153 PROJECT STAGE BA	ADDITION SCALE 1:100@A3						

FLOOR FRAMING SCHEDULE & NOTES

FLOOR FRAMING SCHEDULE

B1 - 2/140 x 45 F17 continuous floor bearer, max span 2600.

B2 - 200 PFC with 6 CFW tot top of steel posts & 8 PL cleats with 2/M12 bolts to joists, min 60 between bolts & min 60 between bolts & timber edge/end. Bearers at end of joists to be in plane with joists, bearers midspan to be under joists.

LD1 - 190 x 45 minimum grade F17 timber ledger fixed through to internal floor structure, locally pack as required. Use only bushfire-resisting timber compliant with AS 3959 (2018 Amendment 2) for a BAL 29 rating and a Natural Durability Class Outside above-ground of 1 per AS 5604 (2005 Amendment 1). Structure to be detailed and finished to avoid ponded or trapped water on timber and minimise contact areas between timbers.

J1 - 190 x 45 F17 floor joist @ 450 c/c, max span 3000.

J2 - 190x 45 minimum grade F17 timber joists at 450 centres. Use only bushfire-resisting timber compliant with AS 3959 (2018 Amendment 2) for a BAL 29 rating and a Natural Durability Class Outside above-ground of 1 per AS 5604 (2005 Amendment 1). Structure to be detailed and finished to avoid ponded or trapped water on timber and minimise contact areas between timbers.

J3 - 2/190 x 45 F17 double floor joist supporting TR1 via saddle connection, treat to H3 spec if not flashed & protected from weather exposure, max span 2400, 2/M12 through upstand of 150 x 100 x 10 UA with 6 CFW to existing subfloor steel posts. Consult structural engineer if longer span is required.

J4 - 2/190 x 45 F17/LVL equivalent double floor joists supporting TR1 via saddle connection, treat to H3 spec if not flashed & protected from weather exposure, max span 2400, 2/M12 bolts through upstand of 150 x 90 x 8 UA with 6 CFW to existing subfloor steel posts. Consult structural engineer if longer span required.

TR1 - 2/190 x 45 F17 double floor joist to saddle connect, treat to H3 spec if not flashed & protected from weather exposure, max span 2900.

BR1 - 30 x 1.0 tensioned diagonal galvanised steel strap bracing in deck plane

C1 - 89 x 3.5 SHS subfloor post, 6 CFW to cast-in base plate, 150 x 90 x 8 UA welded to top, 200 long with 4/M12 bolts to B1 where joints occur, 2/M12 bolts to B1 elsewhere.

C2 - 89 x 3.5 SHS deck post, 6 CFW to cast-in base plate, 150 x 90 x 8 UA welded to top, 200 long with 4/M12 bolts to B2 & B3 where joints occur, 2/M12 bolts to B2 & B3 elsewhere.

NOTES

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.

All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.

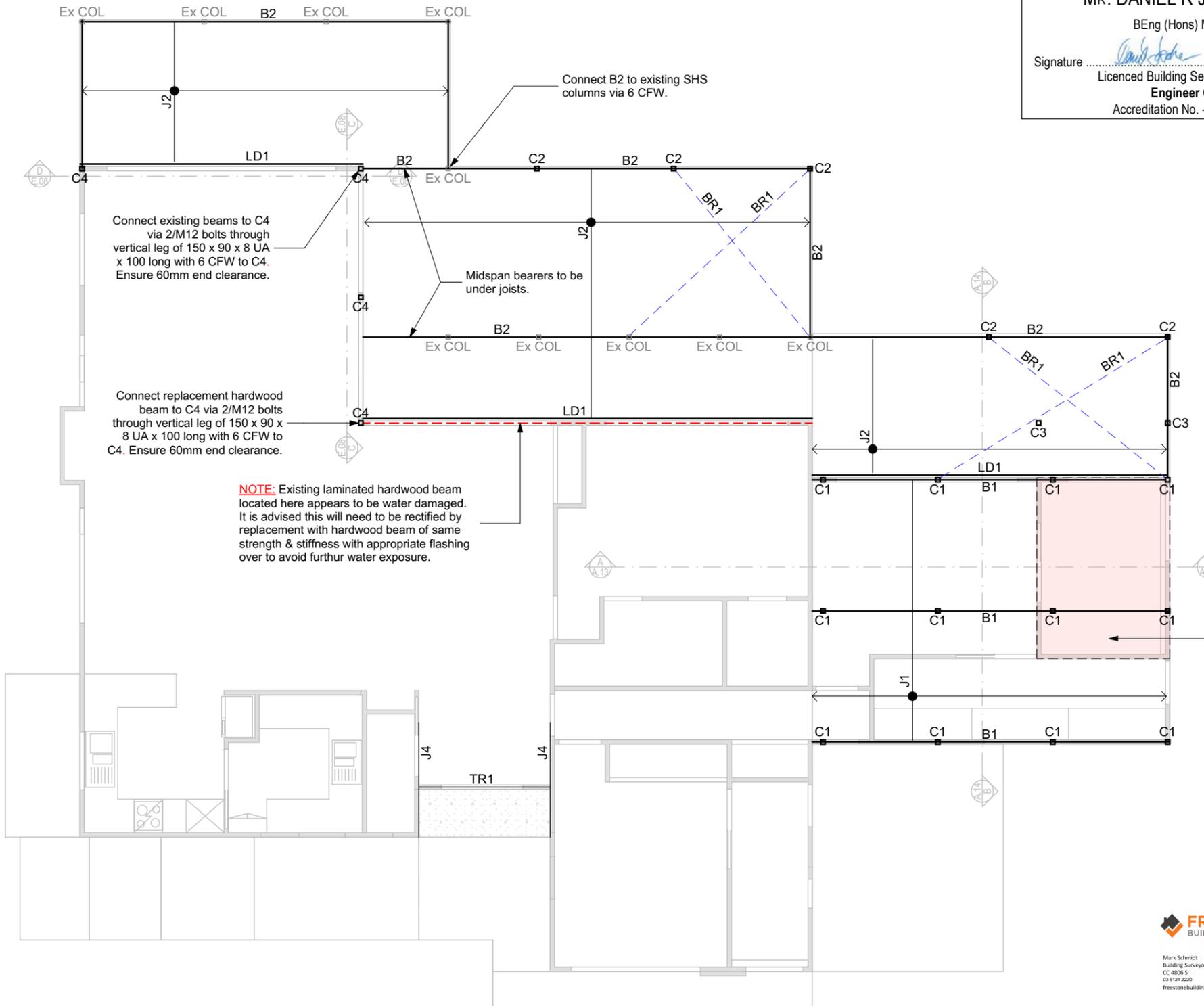
Bracing & tie downs are to comply with as1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



MR. DANIEL R J GARDNER
 BEng (Hons) MIEAust
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<p>MATT KENNEDY DRAFTING & DESIGN</p>	<p>bdaa BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA</p>	CLIENT:	JOB NO:	PROPOSAL	DATE	REV	AMENDMENT	DATES	<p>E.02</p> <p>Floor Framing Plan</p>
		<p>BOICO & COOK</p> <p>ADDRESS:</p> <p>20 TRADEWIND TCE, SANDFORD</p>	<p>2153</p>	<p>ADDITION</p> <p>PROJECT STAGE</p> <p>BA</p>	<p>9/05/2023</p> <p>SCALE</p> <p>1:100@A3</p>				

SUBFLOOR BRACING SCHEDULE & NOTES

SUBFLOOR BRACING SCHEDULE

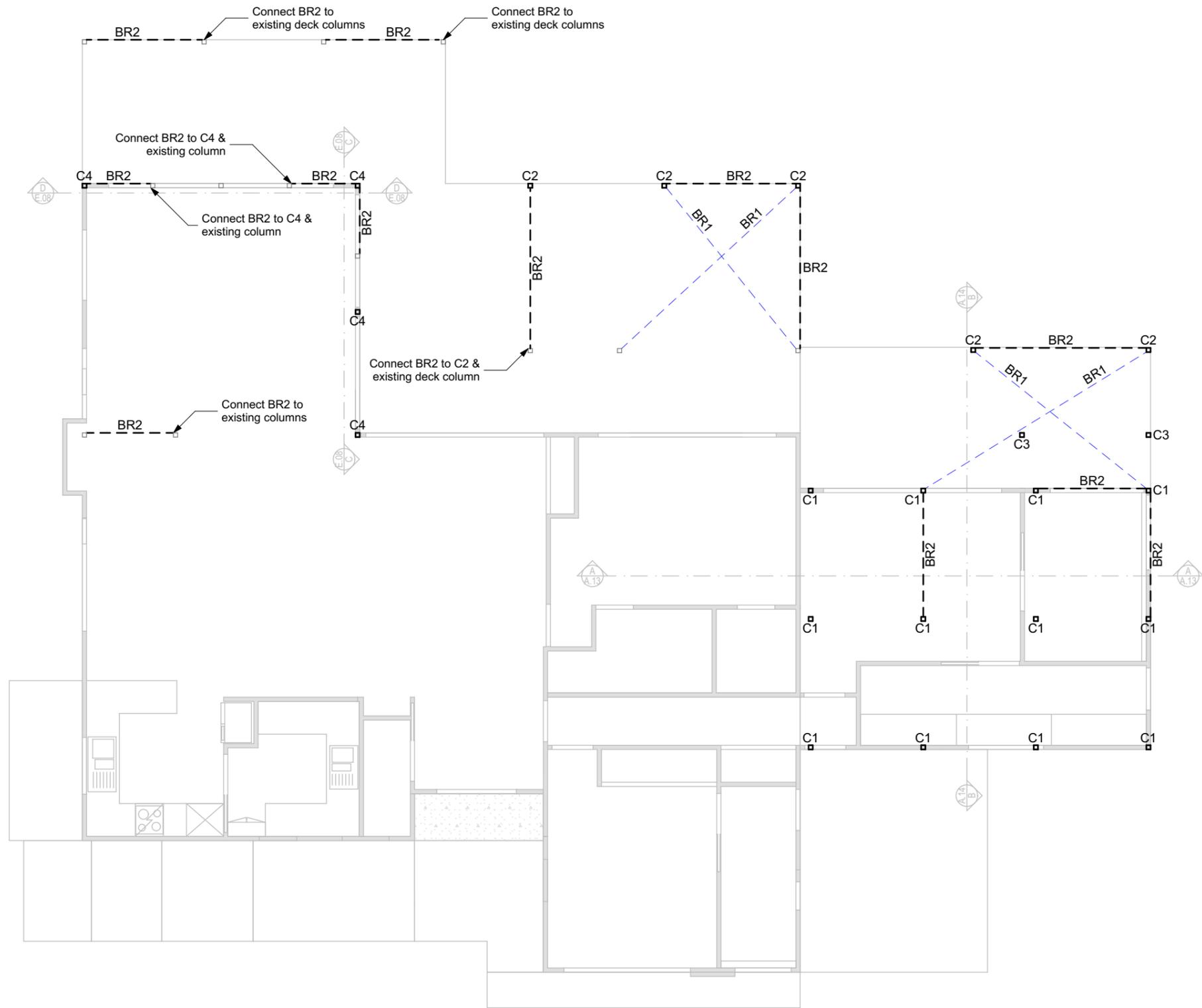
BR1 - 30 x 1.0 tensioned diagonal galvanised steel strap bracing in deck plane

BR2 - Reidbar RB16 diagonal subfloor rod braces, fix through 10 PL cleats with M16 HDG bolts to C1 & C2.

C1 - 89 x 3.5 SHS subfloor post, 6 CFW to cast-in base plate, 150 x 90 x 8 UA welded to top, 200 long with 4/M12 bolts to B1 where joints occur, 2/M12 bolts to B1 elsewhere.

C2 - 89 x 3.5 SHS deck post, 6 CFW to cast-in base plate, 150 x 90 x 8 UA welded to top, 200 long with 4/M12 bolts to B2 & B3 where joints occur, 2/M12 bolts to B2 & B3 elsewhere.

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NOTES

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.

All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.

Bracing & tie downs are to comply with as1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.

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REV | AMENDMENT | DATES

E.03

Subfloor Bracing Plan

WALL FRAMING SCHEDULE & NOTES

WALL FRAMING SCHEDULE

C3 - 89 x 3.5 SHS full height verandah post supporting beams,
6 CFW to cast-in base plate, 150 x 90 x 8 UA welded to top, 200 long with
4/M12 bolts to VB1 where joints occur, 2/M12 bolts to VB1 elsewhere.

C4 - 89 x 5 SHS full height verandah post supporting L6 PFC lintel,
4/M12 Chemset 101 anchors to existing footing with min 100 embedment
depth, 6 CFW face weld to L6.

VB1 - 190 x 45 F17/LVL Equivalent verandah beam.

JAMB STUDS TO END END FOR WALL OPENINGS

>1500 - 2/90 x 45 MGP10 double studs
>3700 use 2/90 x 45 F17 double studs
>4500 consult structural engineer for advice

LINTEL SCHEDULE

L1 - 90 x 45 F17/LVL Equivalent lintel.

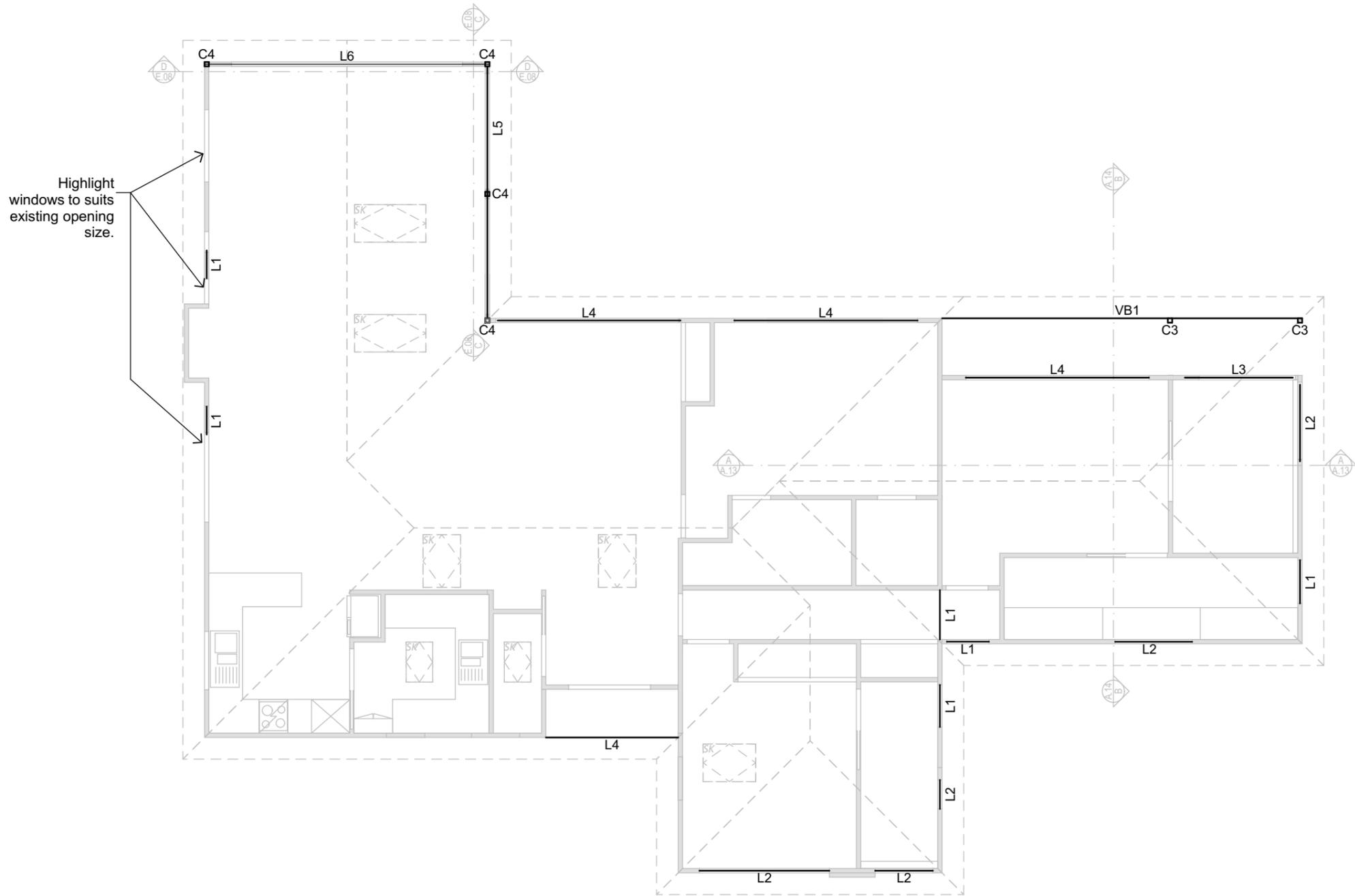
L2 - 140 x 45 F17/LVL Equivalent lintel.

L3 - 190 x 45 F17/LVL Equivalent lintel.

L4 - 290 x 45 F17/LVL Equivalent lintel.

L5 - 200 PFC lintel, weld each end to face of SHS column with 6 CFW all
round.

L6 - 230 PFC lintel, weld each end to face of SHS column with 6 CFW all
round.



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Engineer Civil
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NOTES

Construction Notes

Builder to confirm on site that existing roof is trussed & bearing on
external walls only, if otherwise contact structural engineer for design
changes.

Double check all existing measurements & roof pitch prior to
construction.

All timber framing to have min. 150mm ground clearance for
ventilation purposes per NCC requirements.

All timber construction to be in accordance with as 1684.2
(Residential timber framed construction) and the NCC.

Bracing & tie downs are to comply with as 1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 -
Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL
assessment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with
recommendations in Natural Resources Assessment provided by Enviro-
Dynamics.



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REV	AMENDMENT	DATES

E.04
Wall Framing Plan

WALL BRACING SCHEDULE & NOTES

WIND CLASSIFICATION
as per AS2870-2011 *Refer to Doyle Soil soil report*

Wind Classification: N3
Region: A
Terrain Category: TC2.5
Topography: T2
Shielding: NS
Design Wind Gust Speed (V_{hw}): 50m/s

WALL BRACING SCHEDULE

d - AS1684.2 type (d) 30 x 0.8 tensioned diagonal galvanised strap bracing panel, 2400 long UNO.

h(B) - AS1684.2 type (h) B plywood bracing panel, 900 long UNO.

g - AS1684.2 type (g) plywood bracing panel, 600 long UNO.

PF1 - Welded portal frame from PFC & supporting SHS columns anchored to footing.

PF2 - Welded portal frame from PFC & supporting SHS columns anchored to footing.

ZB - 450 long SHS steel 'Z' bracing panel per detail, full height from footings to top plate.

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NOTES

Construction Notes

Builder to confirm on site that existing roof is trussed & bearing on external walls only, if otherwise contact structural engineer for design changes.

Double check all existing measurements & roof pitch prior to construction.

All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.

All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.

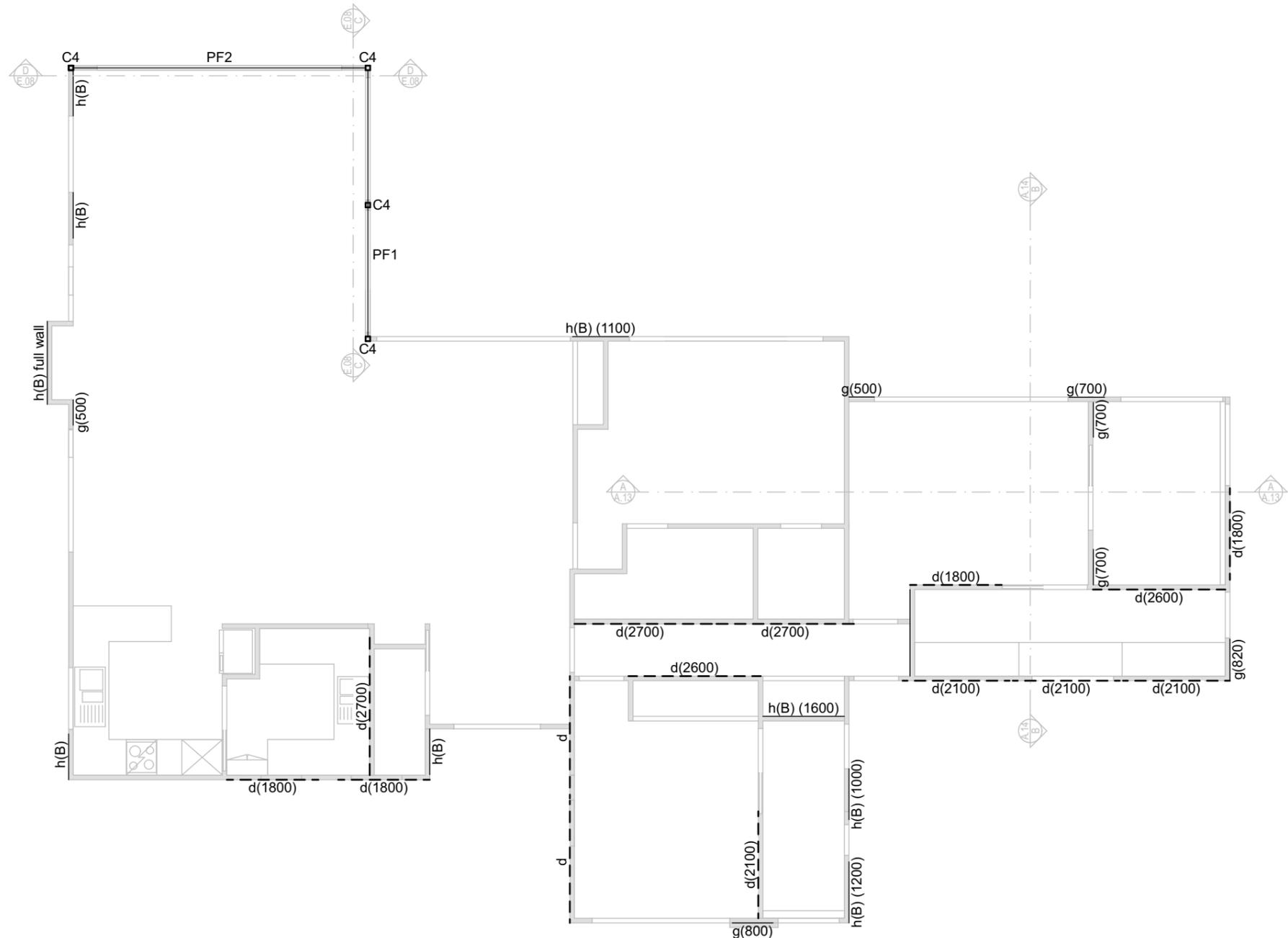
Bracing & tie downs are to comply with as1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



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REV	AMENDMENT	DATES

E.05

Wall Bracing Plan

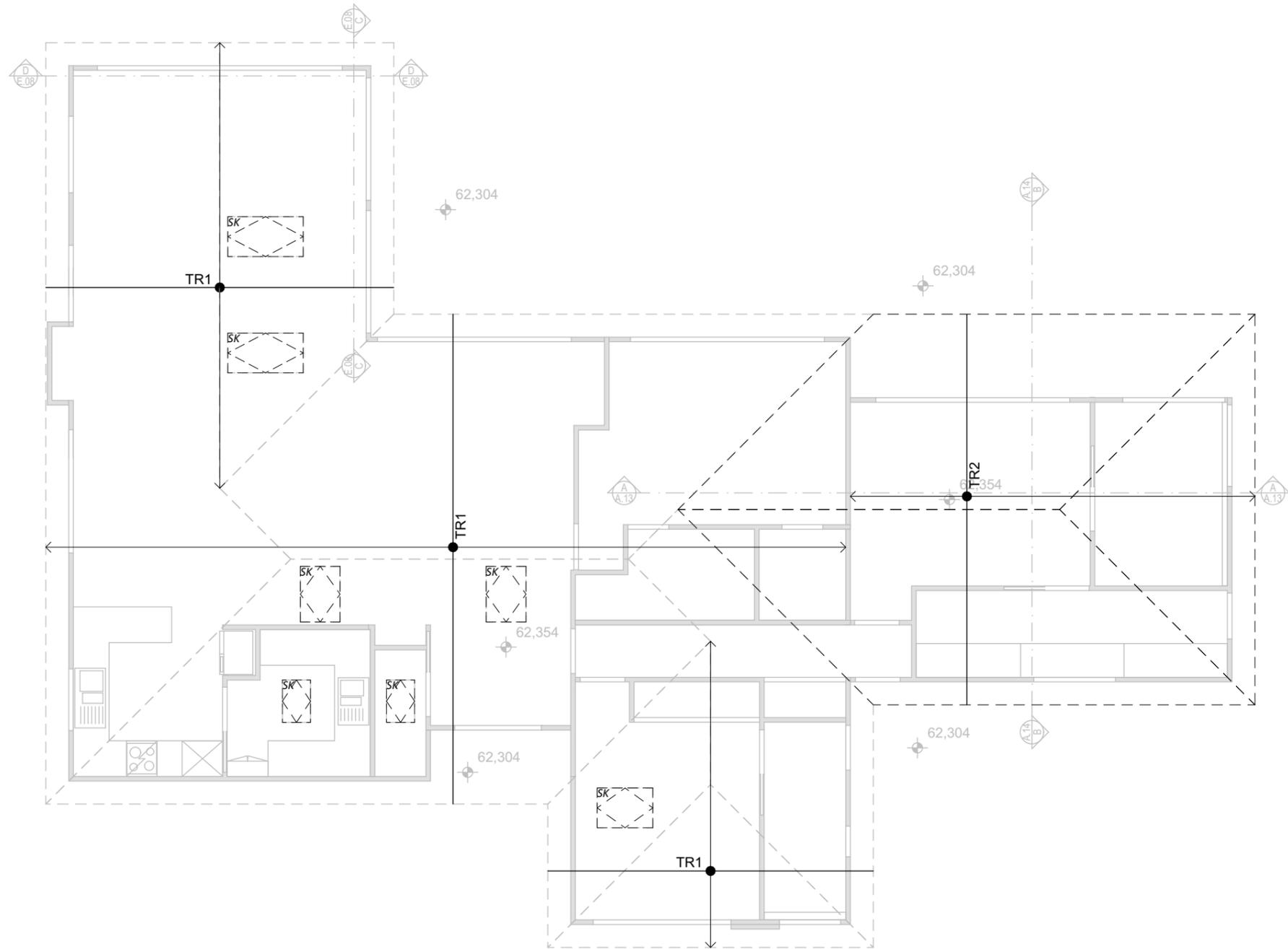
ROOF FRAMING SCHEDULE & NOTES

WIND CLASSIFICATION
as per AS2870-2011 *Refer to Doyle Soil soil report*

Wind Classification: N3
Region: A
Terrain Category: TC2.5
Topography: T2
Shielding: NS
Design Wind Gust Speed (V_{h,w}): 50m/s

ROOF FRAMING SCHEDULE

TR1 - Existing timber roof truss
TR2 - New timber roof truss to truss manufacturers specification.
SK - Skylight



NOTES

Construction Notes

Builder to confirm on site that existing roof is trussed & bearing on external walls only, if otherwise contact structural engineer for design changes.

Double check all existing measurements & roof pitch prior to construction.

All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.

All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.

Bracing & tie downs are to comply with as1684.2 and the NCC.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Construction of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

All Construction & demolition works to be in accordance with recommendations in Natural Resources Assesment provided by Enviro-Dynamics.



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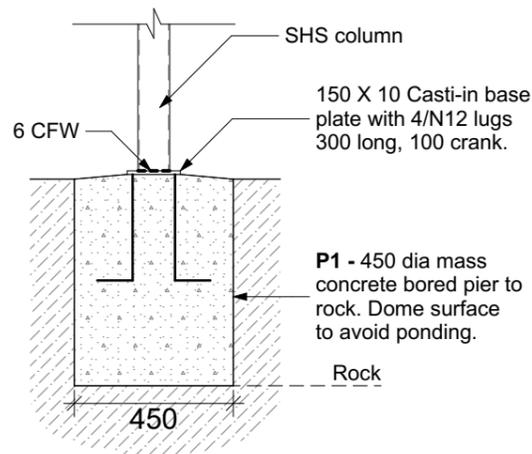
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ADDITION
PROJECT STAGE
BA

DATE
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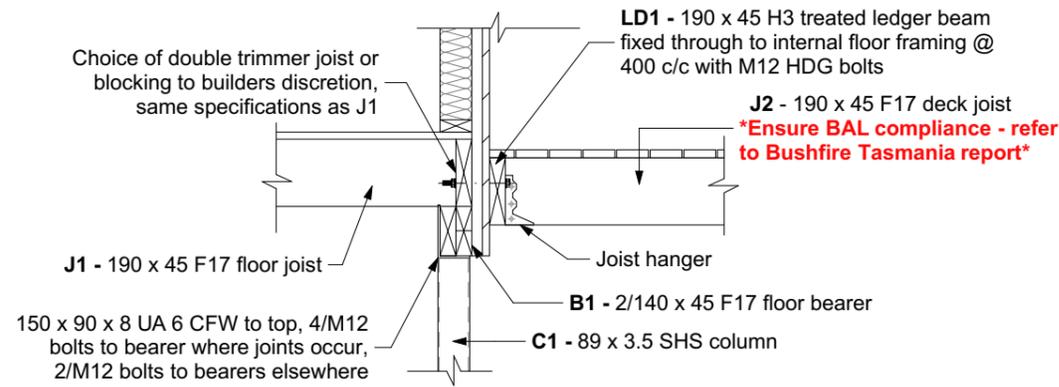


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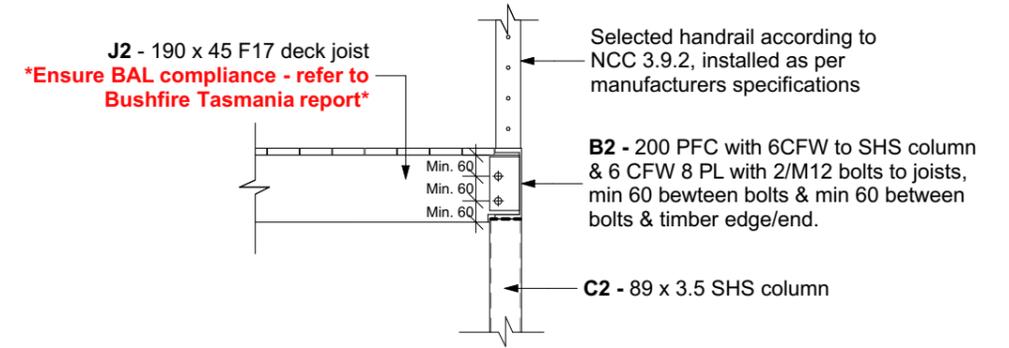
E.06
Roof Framing Plan



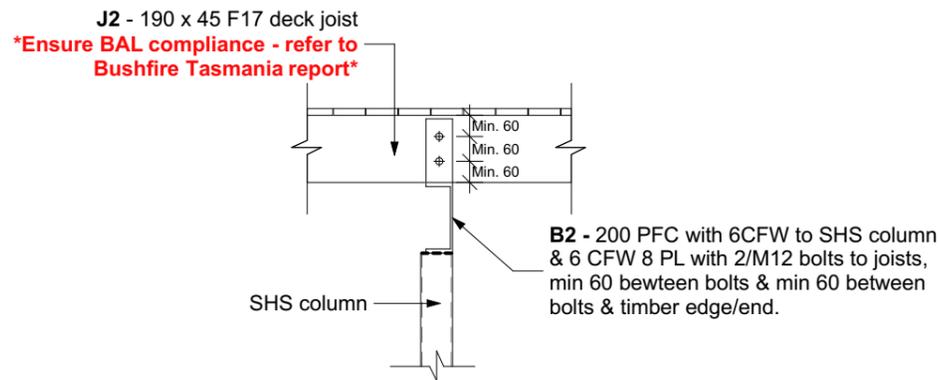
1 P1 Detail
1:20 @ A3



2 LD1 Connection Detail
1:20 @ A3

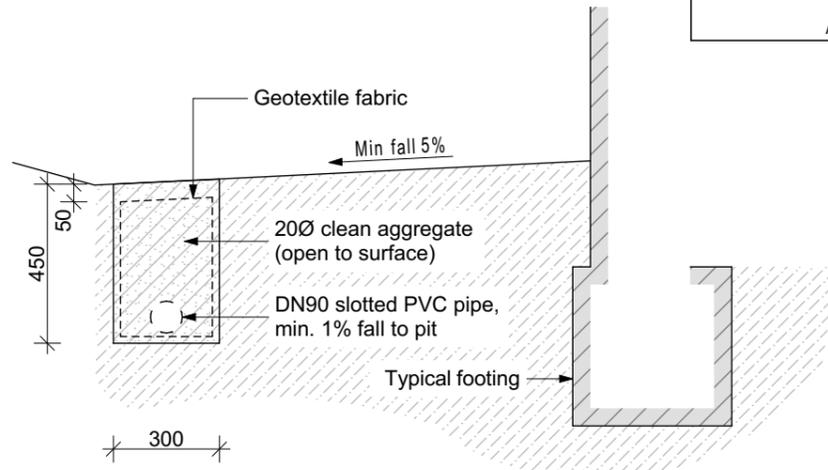


3 Deck Bearer / Column Connection Detail
1:20 @ A3

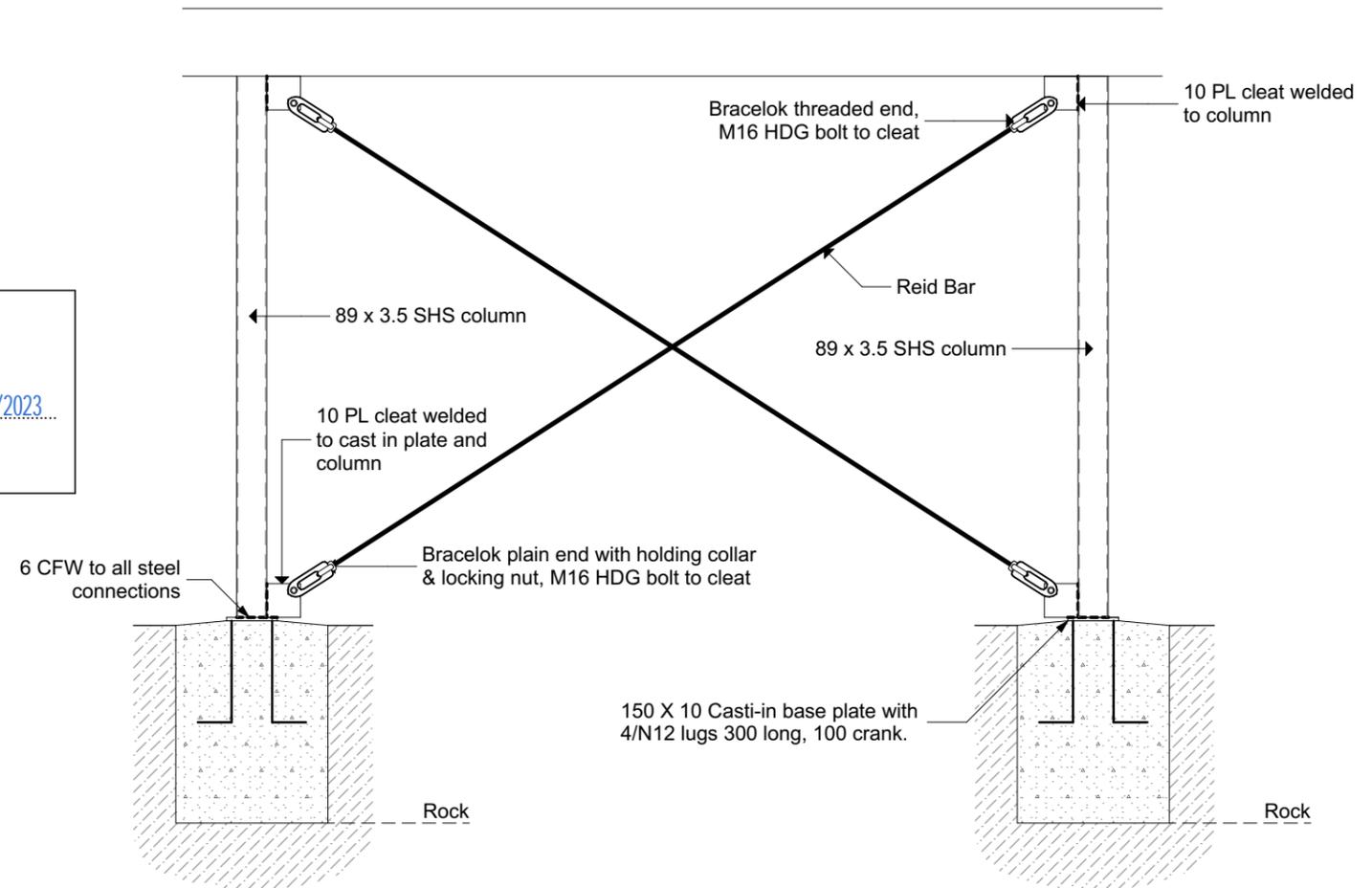


4 Midspan Bearer Connection Detail
1:20 @ A3

MR. DANIEL R J GARDNER
BEng (Hons) MIEAust
Signature *[Signature]* Date 11/12/2023
Licenced Building Services Provider
Engineer Civil
Accreditation No. - CC 5147 U



5 Typical AG Drain Detail
1:20 @ A3



6 BR2 Detail
1:20 @ A3



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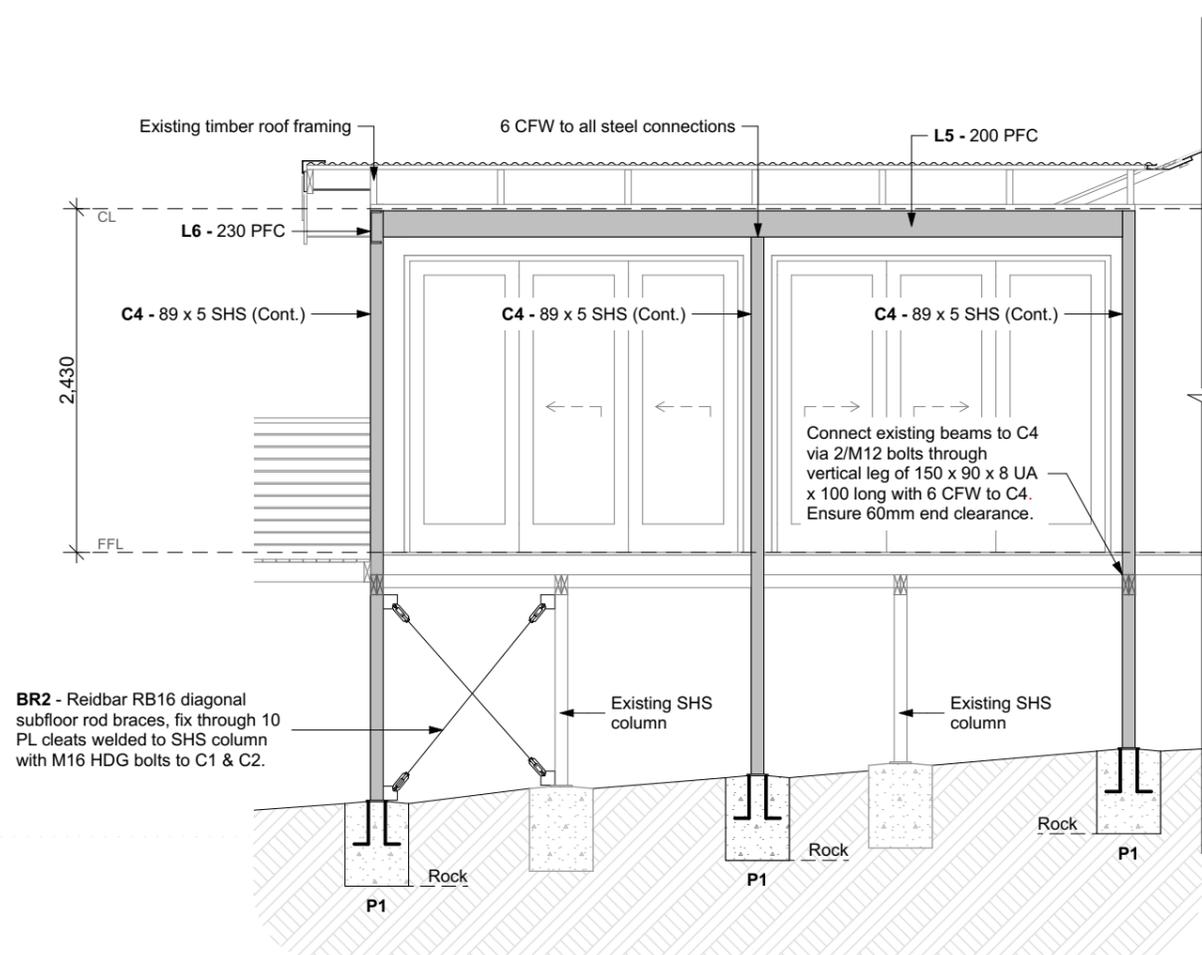
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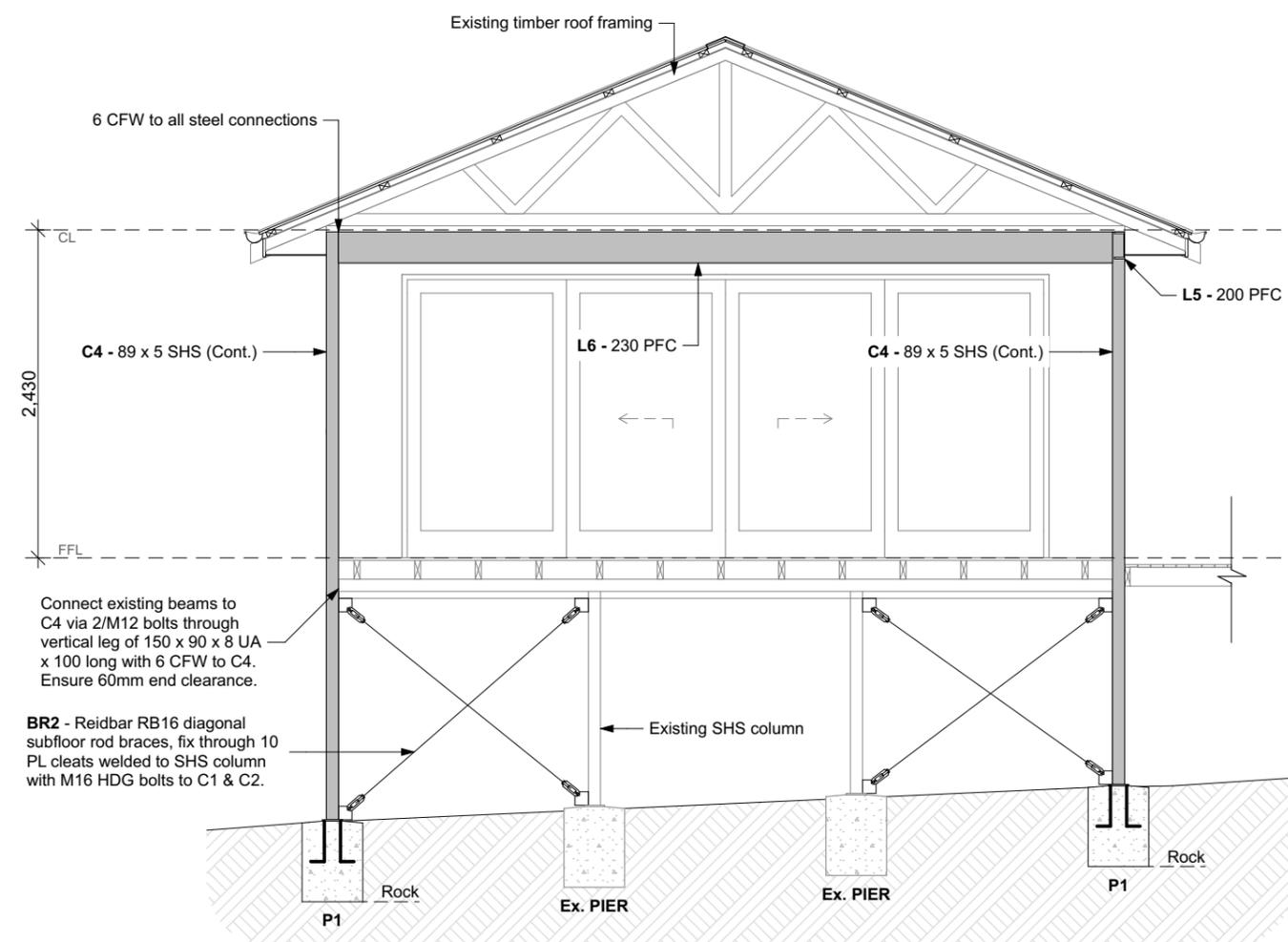
REV	AMENDMENT	DATES

E.07

Details



1 Section C - PF1 Detail
1:50 @ A3



2 Section D - PF2 Detail
1:50 @ A3

Mr. DANIEL R J GARDNER
BEng (Hons) MIEAust

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Engineer Civil
Accreditation No. - CC 5147 U

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PROJECT STAGE: **BA**

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SCALE: **1:50@A3**

REV	AMENDMENT	DATES

E.08

Portal Frame Details

SITE INFORMATION

Title Reference: 43698/73
 Property ID: 7639341
 Council: Clarence City Council
 Planning Zone: Rural Living
 Code Overlays: Low Landslip Hazard Band
 Priority Vegetation Area
 Bushfire-Prone Areas

Covenants:
 Covenants in Schedule of Easements - SP43698

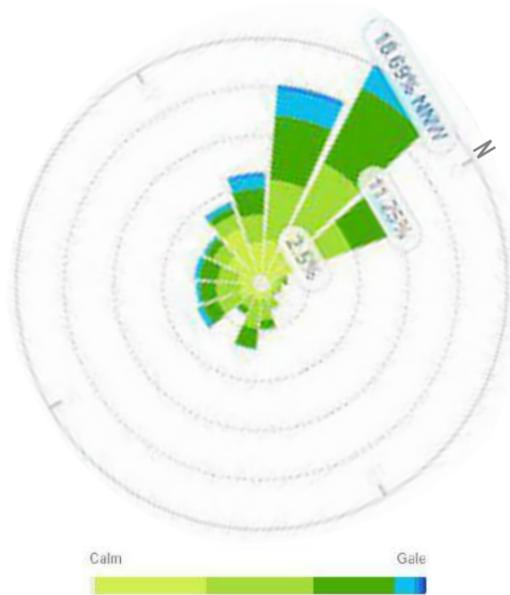
Soil Classification: Class S
 as per AS2870-2011 *Refer to GES soil report*
 Wind Classification: N3
 Region: A
 Terrain Category: TC2.5
 Topography: T2
 Sheilding: NS
 Design Wind Gust Speed (V_{h,u}): 50m/s

Bushfire Attack Level (BAL)
 Refer to Bushfire Tasmania BAL report
 Dwelling Addition: BAL-29
 Deck Addition: BAL-19

NCC Building Class: 1a
 Land area: 2.05ha
 Building Area - Existing: 178.11m²
 Building Area - Addition: 41.66m²
 (PDPLANPMTD-2022/031639)
 Deck Area - Existing: 46.82m²
 Deck Area - Addition: 49.16m²
 (PDPLANPMTD-2022/031639)

Building Area- Shed: 60.00m²

WIND ROSE



All dimensions in millimetres unless noted otherwise.

PRINT ALL DRAWINGS IN COLOUR



FREESTONE
 BUILDING SURVEYING
 23/01/2024 9:30:00 AM
 Mark Schmidt
 Building Surveyor Limited
 CC 4026/5
 03 6124 2220
 freestonebuildingsurveying.com.au

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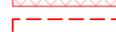
REV | AMENDMENT | DATES

SH.01

Location Plan

SITE PLAN LEGEND & NOTES

LEGEND

-  Proposed Buildings
-  Existing Buildings
-  Proposed Landscaping
-  Existing Gravel Driveway
-  Waste Water Irrigation
-  Bushfire Hazard Management Area
-  100Ø PVC-U Class SN4 stormwater pipes @ min. 1% (to AS/NZ 1254:2010)
-  100Ø PVC-U Class SN4 stormwater pipes @ min. 1% (to AS/NZ 1254:2010)
-  Site Boundary
-  Contour
-  Existing Tree

NOTES

Soil & Water Management Strategies

Downpipes to be connected into stormwater system as soon as the roof is installed.

Install AG drain prior to footing excavation.

Excavated material placed up-slope of AG drain. To be removed when building works are complete and used as fill on site for any low points. Install a sediment fence on the downslope side of material.

Where disturbed areas will remain uncovered for 14 days or more, cover with waterproof blanket /wood chippings or similar.

Protect downstream on-site drainage pits by placing sediment traps around the top side/s.

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

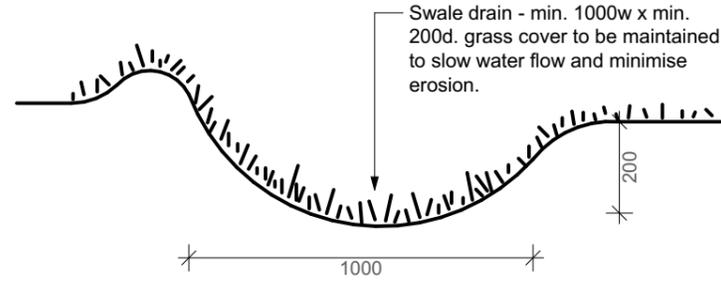
All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.

Important notice to the attention of the owner

The owners attention is drawn to the fact that foundations and associated drainage on all sites requires continuing maintenance to assist footing performance. Advice for foundation maintenance is contained in the CSIRO building technology file 18 and it is the owner's responsibility to maintain the site in accordance with this document.

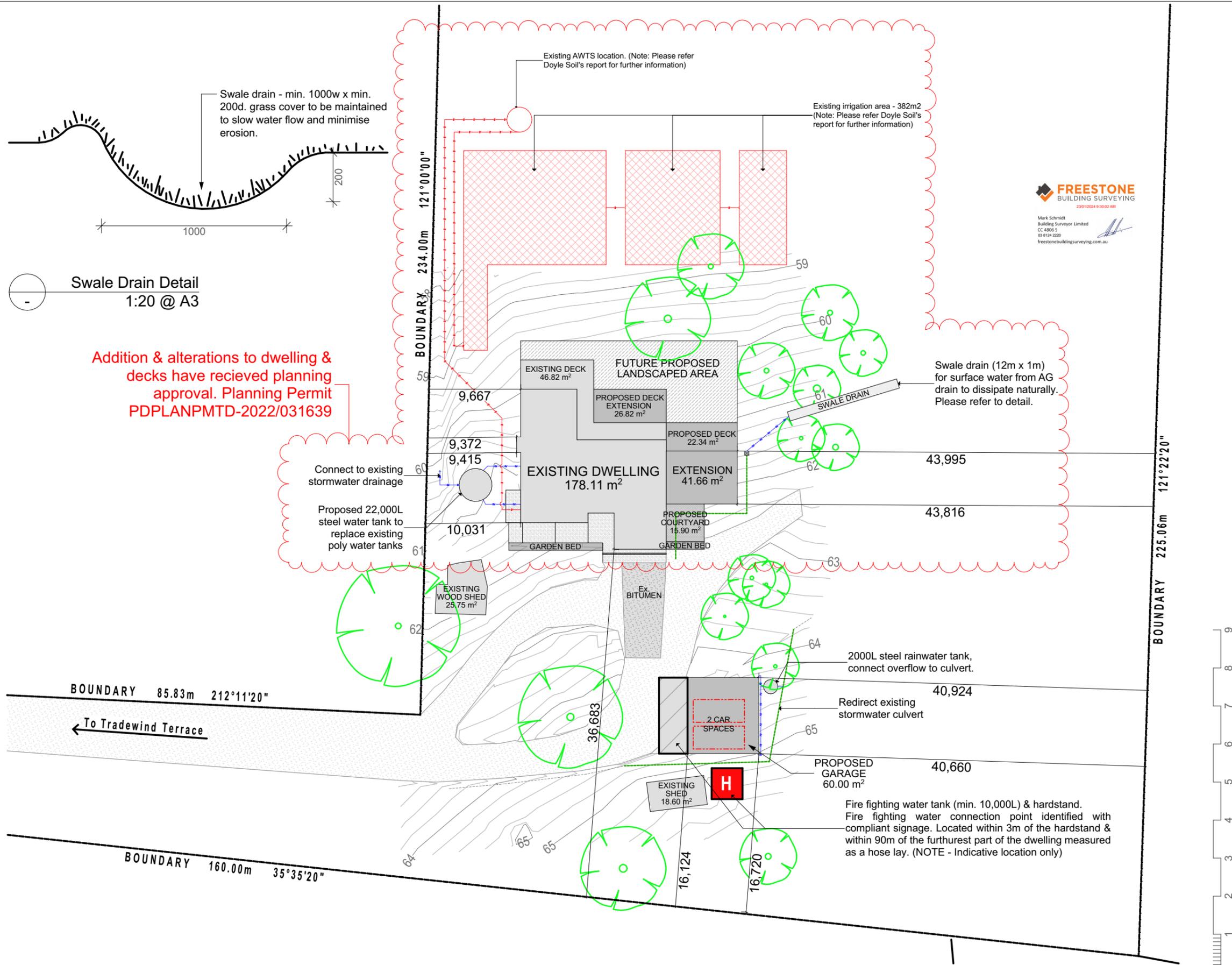
Beware of underground services

The location of underground services approximate only & their exact location should be proven onsite by the relevant authorities. No guarantee is given that all services are shown.



Swale Drain Detail
1:20 @ A3

Addition & alterations to dwelling & decks have recieved planning approval. Planning Permit PDPLANPMTD-2022/031639



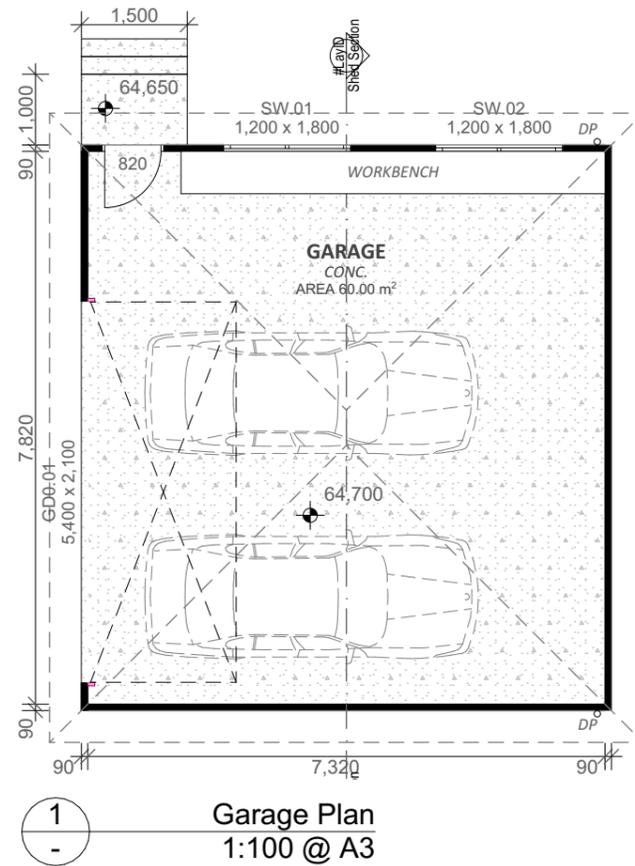
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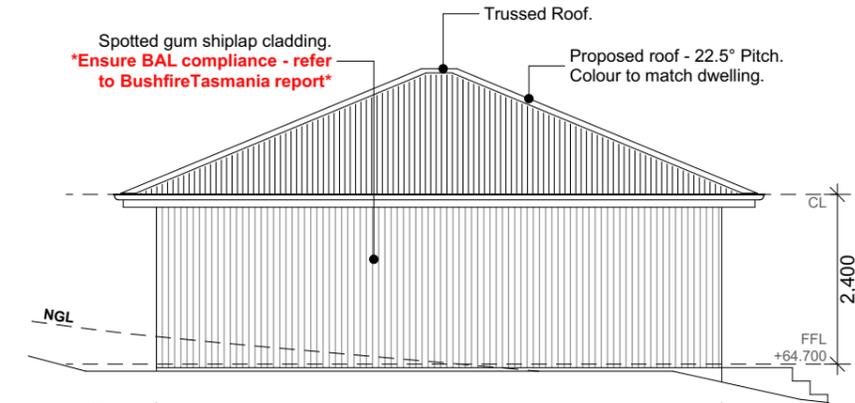
RENOVATION LEGEND & NOTES

LEGEND

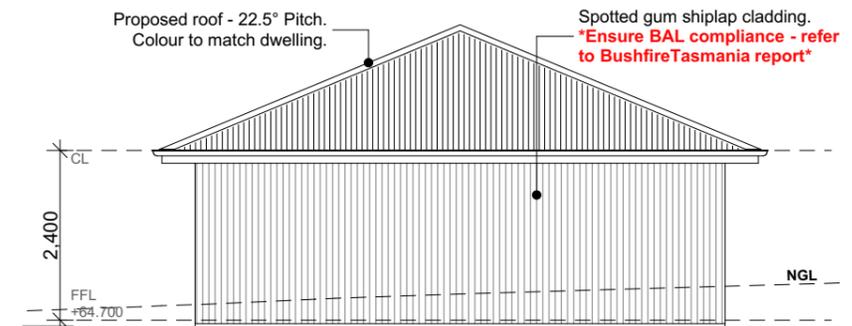
- New construction
- CONC.** Concrete slab to engineers specifications.
- DP** DN90 uPVC downpipe, painted to match adjacent wall surface. Install IO's above ground level; for flushing & cleaning.



Garage Plan
1:100 @ A3



North-East Elevation - Garage
1:100 @ A3

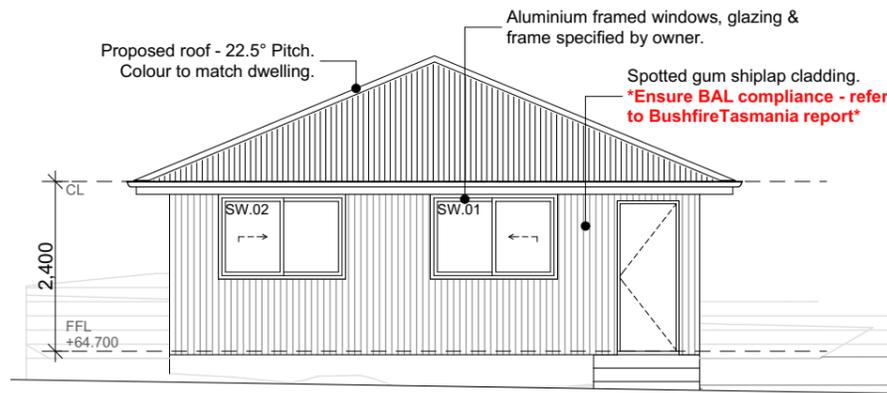


South-East Elevation - Garage
1:100 @ A3

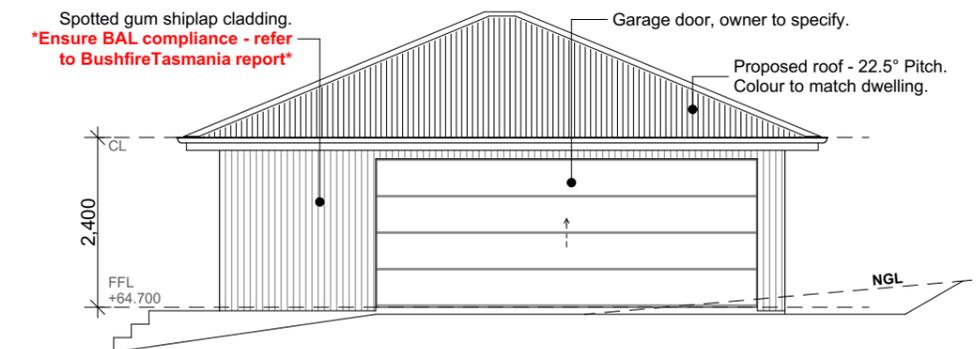
NOTES

Construction Notes

- Double check all existing measurements & roof pitch prior to construction.
- All structural steel members that are not built in to a masonry wall must be protected against Medium Corrosion Environment as per table 6.3.9a of the NCC 2022 Vol 2.
- Sheet metal roofing & flashings must be protected against Medium Corrosion Environment as per table 7.2.2a of the NCC 2022 Vol 2.
- All timber framing to have min. 150mm ground clearance for ventilation purposes per NCC requirements.
- All timber construction to be in accordance with as 1684.2 (Residential timber framed construction) and the NCC.
- Bracing & tie downs are to comply with as 1684.2 and the NCC.
- Compliance - Bushfire**
- All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assessment provided by Bushfire Tasmania.
- Compliance - Natural Assets**
- All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.



North-West Elevation - Garage
1:100 @ A3



South-West Elevation - Garage
1:100 @ A3



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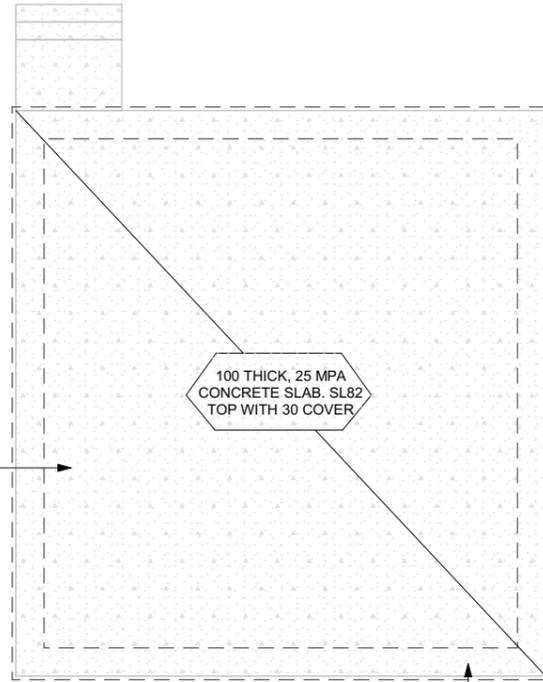
SH.03
Garage Plan & Elevations

FOOTING/SLAB SCHEDULE & NOTES

SOIL CLASSIFICATION
as per AS2870-2011 *Refer to GES soil report*

Soil Class - Class A

SLAB TO BE FOUNDED ON NATURAL MATERIAL WITH MIN 50 kPa BEARING CAPACITY. IF FILL ENCOUNTERED AT GARAGE LOCATION CONTACT DESIGN ENGINEER.



450W x MIN 300 DEEP EDGE BEAM WITH 4-L8 TM BOTTOM WITH 50 COVER. 1/N12 PERIMETER TOP. EDGE BEAM TO BE FOUNDED ENTIRELY ON ROCK. EITHER INCREASE DEPTH AS NECESSARY OR PROVIDE MIN 450 BORED PIERS OR BUCKET SCOOPS TO ROCK WITH 1/N16 CENTRAL.

1 - Shed - Footing Plan
1:100 @ A3

NOTES

Construction Notes

Double check all existing measurements & roof pitch prior to construction.

Compliance - Bushfire

All construction works to be in accordance with AS3959:2018 - Constructions of Buildings in Bushfire-Prone Areas. Please refer to BAL assesment provided by Bushfire Tasmania.

Compliance - Natural Assets

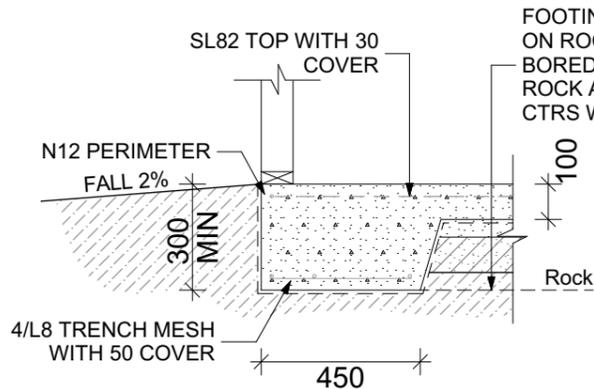
All Construction & demolition works to be in accordance with recommendations in Natural Resources Assessment provided by Enviro-Dynamics.

Important notice to the attention of the owner

The owners attention is drawn to the fact that foundations and associated drainage on all sites requires continuing maintenance to assist footing performance. Advice for foundation maintenance is contained in the CSIRO building technology file 18 and it is the owner's responsibility to maintain the site in accordance with this document.

Beware of underground services

The location of underground services approximate only & their exact location should be proven onsite by the relevant authorities. No guarantee is given that all services are shown.



3 - Edge Beam Detail
1:20 @ A3

FOOTING TO BE FOUNDED ENTIRELY ON ROCK OTHERWISE PROVIDE BORED PIER/BUCKET SCOOPS TO ROCK AT CORNERS AND MAX 3000 CTRS WITH 1/N16 CENTRAL.

Mr. DANIEL R J GARDNER
BEng (Hons) MIEAust
Signature: *[Signature]* Date: 11/12/2023
Licenced Building Services Provider
Engineer Civil
Accreditation No. - CC 5147 U

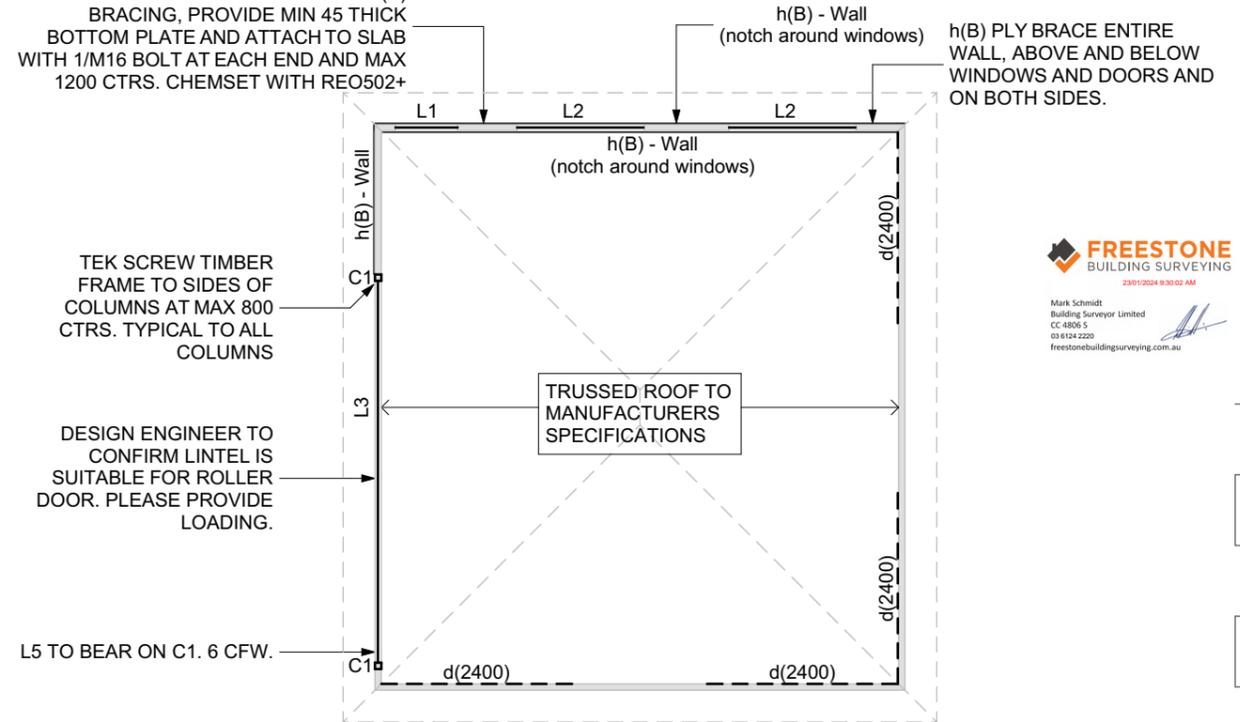
WALL FRAMING SCHEDULE:

- L1: 90x35 F17/LVL LINTEL.
- L2: 140x35 F17/LVL LINTEL.
- L3: 190x35 F17/LVL LINTEL.
- C1: 89x3.5 SHS COLUMN.

NOTES:

- TRUSS MANUFACTURER TO CONFIRM LINTEL CAPACITY FOR CONCENTRATED LOADS.
- UNLESS OTHERWISE NOTED PROVIDE 2/90x35 F17 JAMB STUDS TO SIDE OF OPENING > 1000 WIDE AND PROVIDE 2/90x45 F17 JAMB STUDS TO SIDE OF OPENING > 2000.
- TYPICAL TIE DOWN (TYPE A) TO SIDES OF LINTELS 30x0.8 G.I. STRAP WITH 6/30x2.8 DIAMETER NAILS EACH END OF STRAP AND M10 BOLTS TO FLOOR. PROVIDE DOUBLE STRAP TIE DOWN (TYPE B) AND M12 BOLT TO FLOOR FRAMING TO ALL LINTELS SPANNING 1400 AND GREATER.

WHERE A LOWER FLOOR WALL IS BRACED ON BOTH SIDES WITH h(B) BRACING, PROVIDE MIN 45 THICK BOTTOM PLATE AND ATTACH TO SLAB WITH 1/M16 BOLT AT EACH END AND MAX 1200 CTRS. CHEMSET WITH RE0502+



TEK SCREW TIMBER FRAME TO SIDES OF COLUMNS AT MAX 800 CTRS. TYPICAL TO ALL COLUMNS

DESIGN ENGINEER TO CONFIRM LINTEL IS SUITABLE FOR ROLLER DOOR. PLEASE PROVIDE LOADING.

L5 TO BEAR ON C1. 6 CFW.

2 - Shed - Wall & Roof Framing Plan
1:100 @ A3



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PROJECT STAGE: **DA**

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SH.04
Footings & Framing Plan

ENGINEERING NOTES - RESIDENTIAL

GENERAL REQUIREMENTS AND RESPONSIBILITIES

- ENGINEERING DRAWINGS SHALL BE READ IN CONJUNCTION WITH ASSOCIATED ARCHITECTURAL, SURVEYOR'S AND SUB-CONTRACTOR'S DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER.
- CERTIFIED PLANS SHALL TAKE PRECEDENCE OVER THESE NOTES.
- THE BUILDER AND SUB-CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND LEVELS ON SITE PRIOR TO COMMENCING WORK.
- THE BUILDER SHALL NOTIFY THE ENGINEER OF ANY STRUCTURAL ISSUES OR DISCREPANCIES THAT ARISE DURING CONSTRUCTION PRIOR TO COMMENCING THOSE WORKS.
- THE BUILDER IS RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION AND CERTIFICATION OF ALL TEMPORARY WORK, PROPPING, NEEDLING, FALSE WORK, BRACING, AND SO FORTH, NECESSARY TO COMPLETE THE WORK.
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH RELEVANT LOCAL REGULATIONS, NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND SAA CODES. THE REFERENCES GIVEN IN THESE NOTES PRESCRIBE THE MINIMUM STANDARD OF WORKS. THE BUILDER IS EXPECTED TO CONSULT ALL RELEVANT STANDARDS.
- PROPRIETARY AND PREFABRICATED ITEMS SHALL BE USED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ENGINEERING SITE INSPECTIONS REQUIRE A MINIMUM OF 24 HOURS NOTICE.
- THE BUILDER MUST ENSURE THAT CONSTRUCTION METHODS DO NOT CAUSE INSTABILITY OR APPLY ABNORMAL STRESS TO STRUCTURES OR FOUNDATIONS.

TABLE 1 - DESIGN LOADINGS (U.N.O.)

ELEMENT	MAXIMUM LIVE ACTION
BALCONIES	2.0 kPa (200 kg/m ²)
RESIDENTIAL FLOORS	1.5 kPa (150 kg/m ²)
RESIDENTIAL DRIVEWAYS	2.5 kPa (250kg/m ²)
RESIDENTIAL GARAGES	2.5 kPa (250kg/m ²)

SITE PREPARATION, DRAINAGE & MAINTENANCE

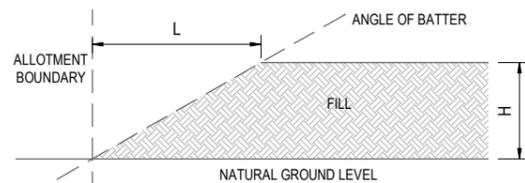
- ALL SITE WORKS SHALL BE IN ACCORDANCE WITH NCC, CSIRO BTF 18, 19, 22 AND AS2870.
- ALL TREES, STUMPS, ROOTS AND OTHER VEGETATION SHALL BE REMOVED TO A SATISFACTORY DEPTH BELOW THE NATURAL SURFACE WHERE SUPPORTING FILL, CONCRETE FOOTINGS OR CONCRETE SLABS.
- IN ALL BUT FREE DRAINING SOILS AN AG-DRAIN SHOULD BE PROVIDED TO THE UPSLOPE OF FOOTINGS PRIOR TO EXCAVATION AS PER DETAIL 3.
- WHERE AN EXCAVATION OR FILL REGION REQUIRES A BATTERED BANK THE ANGLE OF THE BANK SHALL BE SELECTED TO SUIT THE BANK MATERIAL. AS A GUIDE REFER TO DETAIL 1.
- THE FINISHED GROUND SURFACE AT THE PERIMETER OF ALL FOOTINGS, INCLUDING THE GROUND AT THE BASE OF A CUTTING, SHALL FALL AWAY AT MIN. 5% OVER 1m AND SHALL BE COVERED IN A SUITABLE MATERIAL TO CONTROL EVAPORATION AND AVOID THE INGRESS OF SURFACE WATER AS PER DETAIL 3.
- SERVICES PARALLEL TO THE EDGE OF A FOOTING SHALL NOT EXTEND BELOW A LINE DRAWN AT 30° (IN SAND) OR 45° (IN FIRM CLAY) FROM THE BOTTOM EDGE OF THE FOOTING AS PER DETAIL 4.
- EXCAVATIONS NEAR THE EDGE OF THE FOOTING SYSTEM SHALL BE BACKFILLED IN SUCH A WAY AS TO MINIMISE THE INGRESS OF WATER INTO THE FOUNDATION. FILL SHALL BE MOIST CLAY COMPACTED BY HAND RODDING OR TAMPING. POROUS MATERIAL SUCH AS SAND, GRAVEL OR BUILDING RUBBLE SHOULD NOT BE USED.
- WATER RUN-OFF SHALL BE COLLECTED AND CHANNELLED AWAY FROM THE HOUSE DURING CONSTRUCTION AND DOWN PIPES SHALL BE TEMPORARILY CONNECTED TO DRAINAGE SYSTEM DURING CONSTRUCTION.
- THE OVERFLOW/DISCHARGE FROM HOT WATER CYLINDERS AND HEAT PUMPS SHALL BE PLUMBED INTO A DRAINAGE SYSTEM
- APPROPRIATE CONSIDERATION SHOULD BE GIVEN TO THE PLANTING DISTANCE OF TREES AND SHRUBS FROM THE EDGE OF A FOOTING. DETAILS OF CORRECT PLANTING DISTANCES CAN BE FOUND IN AS2870 APPENDIX B AND CSIRO BTF 18. A GUIDE FOR PLANTING DISTANCES IS GIVEN IN DETAIL 2.

DETAIL 1 - UNPROTECTED EMBANKMENTS (NOT SUPPORTING STRUCTURES)

BATTER BANKS TO SAFE ANGLE OF REPOSE. IF SITE CONDITIONS ARE NOT SUITABLE FOR BATTERED BANK NOTIFY ENGINEER TO PROVIDE SUITABLE RETAINING WALL DESIGN.

EMBANKMENTS THAT ARE TO BE LEFT EXPOSED MUST BE STABILISED BY VEGETATION OR SIMILAR WORKS TO PREVENT SOIL EROSION. PROVIDE A SURFACE WATER INTERCEPTOR TO THE TOP OF BANKS WHERE THE UP-SLOPE GRADIENT EXCEEDS 1:5.

CUTS AND FILL MAX 2m HIGH FROM NATURAL GROUND
FILL SHALL BE COMPACTED IN MAX 150mm LAYERS
WHERE COMPACTED FILL SUPPORTS FOOTINGS OR SLABS IT SHALL BE COMPACTED IN ACCORDANCE WITH Part 4.2 OF ABCB HOUSING PROVISIONS

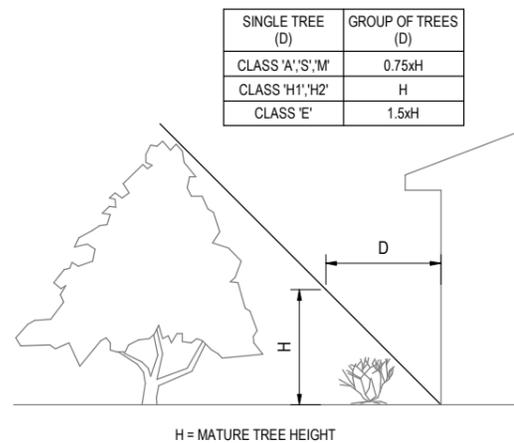


DISCLAIMER ENGINEERING NOTES ARE INTENDED FOR USE AS A GUIDE TO RELEVANT CODES, REGULATIONS AND STANDARDS FOR THE BUILDER OR CONTRACTOR DURING THE CONSTRUCTION PROCESS, THEY SHALL NOT REPLACE THEM IN ANY WAY. TYPICAL NOTES ABOVE SHALL NOT BE USED TO CONTRAVENE APPROVED WORKING DRAWINGS OR TO SPECIFY UNAPPROVED WORKS.

TABLE 2 - GUIDE TO EMBANKMENT SLOPES

SOIL TYPE (* REFER 4.2.2 ABCB HOUSING PROVISIONS)	EMBANKMENT SLOPES H:L	
	COMPACTED FILL	CUT
STABLE ROCK (A*)	3:3	8:1
SAND (A*)	1:2	1:2
CLAY	FIRM CLAY (M-E)	1:1
	SOFT CLAY (M-E)	NOT SUITABLE

DETAIL 2 - RECOMMENDED PLANTING DISTANCES FOR TREES AND SHRUBS



LEVELS FOR CLASS 1 BUILDINGS

- LEVELS SHALL COMPLY WITH THE REQUIREMENTS OF THE NCC AND OTHER RELEVANT AUTHORITIES BELOW IS A GUIDE FOR STRUCTURAL ADEQUACY REFER BUILDING DESIGNERS AND NCC DOCUMENTATION FOR JOB SPECIFIC REQUIREMENTS
 - THE MINIMUM HEIGHT OF A SLAB ABOVE FINISHED GROUND LEVEL SHALL BE 150mm, EXCEPT IN SANDY, WELL DRAINED AREAS WHERE THE MINIMUM HEIGHT SHALL BE 100mm. THESE HEIGHTS CAN BE REDUCED LOCALLY TO 50mm WHERE THERE IS AN ADJOINING PAVED AREA THAT SLOPES AWAY FROM THE BUILDING. THESE RESTRICTIONS DO NOT APPLY TO BELOW GROUND SLABS WHICH ARE PROTECTED BY FULLY WATER-PROOFED AND DRAINED RETAINING WALLS.
 - THE MINIMUM SLAB HEIGHT MAY BE ALSO BE AFFECTED BY OVERFLOW GULLY RISERS, DAMP PROOF COURSES IN MASONRY WALLS AND OTHER FLOOR LEVEL RESTRICTIONS.
 - A MINIMUM OF 150 mm CLEARANCE BELOW BEARERS SHALL BE MAINTAINED IN TIMBER FRAMED CONSTRUCTION FOR SUB-FLOOR VENTILATION AS PER PART 6.2 ABCB HOUSING PROVISIONS
 - THE ENGINEER MUST BE NOTIFIED IF SITE LEVELS DIFFER FROM THOSE SHOWN ON SITE PLANS.

CONTROLLED FILL

- CONTROLLED FILL SHALL BE LAID IN STRICT IN ACCORDANCE WITH AS2870 AND AS3798 REQUIREMENTS. THE FOLLOWING METHOD IS APPROVED BY ALDANMARK P/L:
 - FILL MATERIAL SHALL BE WELL GRADED FCR
 - THE SUB GRADE SHALL BE CHECK FOR BEARING CAPACITY WHICH IS A MINIMUM OF 50 kPa FOR SLABS AND A MINIMUM OF 100 kPa FOR FOOTINGS
 - THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 150mm
 - THE FILL SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95% FOR RESIDENTIAL APPLICATIONS. IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS LEVEL OF COMPACTION IS ACHIEVED
- IMPORTED MATERIAL, CONTRARY TO THE ABOVE SPECIFICATION, INTENDED FOR USE AS STRUCTURAL FILL SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO USE.

CONCRETE

- CONCRETE SHALL BE NOT LESS THAN N20 GRADE, WITH 20mm NOMINAL MAXIMUM AGGREGATE SIZE. SLUMP SHALL BE SELECTED TO SUIT THE CONSTRUCTION CONDITIONS. UNLESS NOTED OTHERWISE THE MINIMUM APPROPRIATE SPECIFICATIONS FROM AS3600 AND AS 2870 SHALL BE ADOPTED. AS A GUIDE FOR CONCRETE PROPERTIES REFER TABLE 3.
- SAWN CONTROL JOINTS SHALL BE CONSTRUCTED AS SOON AS POSSIBLE WITHOUT RAVELING THE JOINT, GENERALLY THIS SHALL BE WITHIN 24 HOURS.
- CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS USING CURRENT BEST PRACTICE METHODS.
- CONCRETE SHALL BE MECHANICALLY VIBRATED U.N.O.
- ADDITIONAL WATER SHALL NOT BE ADDED TO THE CONCRETE ON SITE UNLESS SIGNED BY THE DRIVER AND APPROVED BY THE SUPPLIER.
- WHERE BRITTLE FLOOR COVERINGS ARE TO BE USED OVER AN AREA GREATER THAN 16m² EXTRA MEASURES SHALL BE TAKEN TO CONTROL THE EFFECT OF SHRINKAGE CRACKING INCLUDING ONE OF THE FOLLOWING:
 - THE AMOUNT OF SHRINKAGE REINFORCEMENT SHALL BE INCREASED TO A MINIMUM OF SL92 OR EQUIVALENT THROUGHOUT THE AFFECTED SLAB PANELS. ALTERNATIVELY, AN ADDITIONAL SHEET OF SLAB MESH SHALL BE PLACED OVER THE AFFECTED AREA.
 - THE BEDDING SYSTEM FOR BRITTLE COVERINGS SHALL BE SELECTED ON THE BASIS OF THE EXPECTED SLAB MOVEMENT AND THE CHARACTERISTICS OF THE FLOOR COVERING.
 - THE PLACEMENT OF FLOOR COVERINGS SHALL BE DELAYED. A MINIMUM PERIOD OF THREE MONTHS DRYING OF THE CONCRETE IS USUALLY REQUIRED BEFORE THE PLACEMENT OF BRITTLE FLOOR COVERINGS.

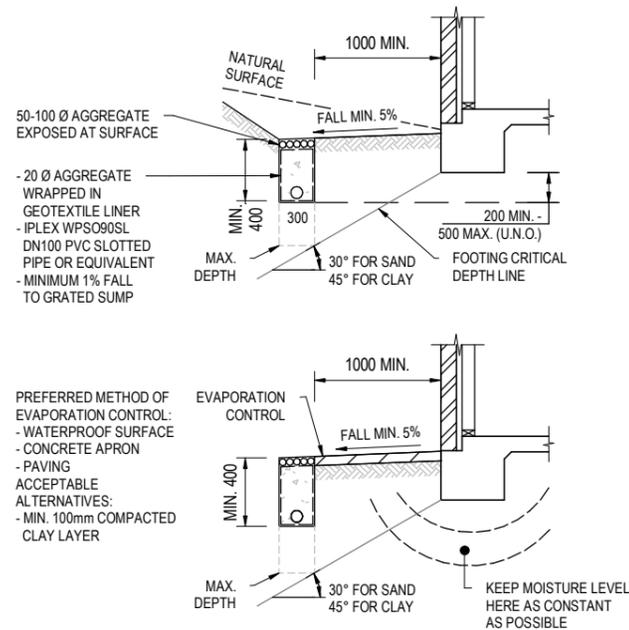
TABLE 3 - CONCRETE MEMBER PROPERTIES (U.N.O.)

ELEMENT	MIN. GRADE	SLUMP	MIN. COVER
STRIP FOOTING	N20	100mm	50mm
MASS PIERS	N20	100mm	50mm
SLAB ON GROUND (INTERNAL)	N25	100mm	25mm
SLAB ON GROUND (EXTERNAL)	N25	100mm	40mm
SUSPENDED SLAB (INTERNAL)	N32	100mm	25mm
SUSPENDED SLAB (EXTERNAL)	N32	100mm	40mm
COLUMNS (INTERNAL)	N32	100mm	30mm
COLUMNS (EXTERNAL)	N32	100mm	50mm
RETAINING WALL	N25	120mm	50mm

NOMINAL SLUMP INDICATED - MODIFY TO SUIT ATMOSPHERIC CONDITIONS AT TIME OF POURING

DETAIL 3 - SUB-SOIL DRAINAGE & FOUNDATION MAINTENANCE

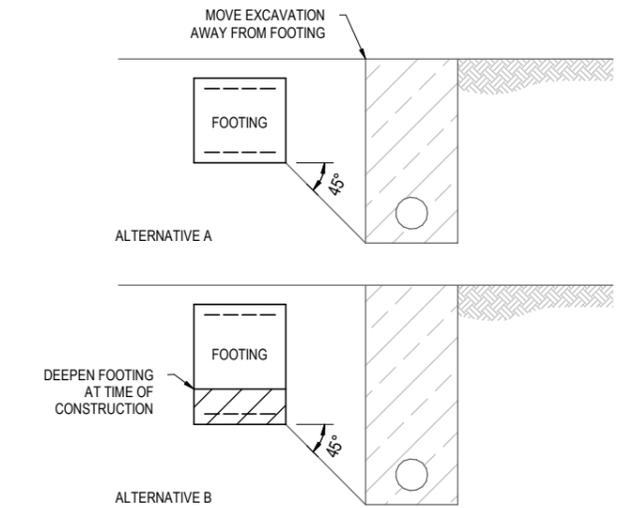
DRAINAGE AND MAINTENANCE SHALL BE IN ACCORDANCE WITH CERTIFIED PLANS AND AS A MINIMUM NCC, CSIRO AND AS2870 REQUIREMENTS. THE FOLLOWING DETAILS SHALL APPLY TO SLAB AND STRIP FOOTINGS EQUALLY.



DETAIL 4 - PROXIMITY OF SERVICES TO FOOTINGS

EXISTING SERVICE TRENCHES OR EXCAVATIONS FOR SERVICES PARALLEL TO THE EDGE OF THE FOOTING SHALL NOT EXTEND BELOW A LINE DRAWN AT 30° (SAND) OR 45° (FIRM CLAY) FROM THE BOTTOM EDGE OF THE FOOTING.

TRENCH EXCAVATIONS ARE TO BE KEPT AWAY FROM THE FOOTING AS DETAILED IN ALTERNATIVE 'A' BELOW. IF FUTURE DEEP EXCAVATIONS ARE REQUIRED CLOSE TO THE BUILDING THE FOUNDING DEPTHS OF THE FOOTING SHALL BE INCREASED AT THE TIME OF CONSTRUCTION. DETAILS ARE SHOWN BELOW.



STRUCTURAL STEEL

- ALL STRUCTURAL STEEL TO COMPLY WITH REQUIREMENTS OF AS4100 AND AS/NZ4600.
- DESIGN SHALL CONFORM TO AS4100 AND AS/NZ4600. FABRICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE PROVISIONS OF AS4100.
- U.N.O STRUCTURAL SECTIONS ARE TO BE:
 - GRADE 250 HOT ROLLED PLATES COMPLYING WITH AS3678;
 - GRADE 250 HOT ROLLED FLATS, TFC, TFB, ANGLES 100x100 EA OR 125x75 UA AND SMALLER COMPLYING WITH AS3679.1;
 - GRADE 300 WB, WC COMPLYING WITH AS3679.2;
 - GRADE 350 RHS, CHS COMPLYING WITH AS1163.
- ALL STEEL WORK IS TO BE CLEANED TO A SUITABLE AS1627 CLASS AND COATED WITH AN APPROVED CORROSION PROTECTION PRODUCT AS PER NCC CL 6.3.9 OF THE ABCB HOUSING PROVISIONS.

WELDING

- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS1554.1.
- NOMINAL TENSILE STRENGTH OF WELD METAL >430 MPa U.N.O. ALL WELDS TO BE 6mm CFW SP CATEGORY U.N.O. INSPECTION TO BE CARRIED OUT AS PER AS1554.1.
- ALL GP/SP WELDS TO BE 100% VISUALLY SCANNED U.N.O.



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DESCRIPTION	DATE	APPROVAL
BUILDING APPROVAL	12/12/2023	MG



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PROJECT:	PROPOSED GARAGE
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ADDRESS:	20 TRADEWIND TERRACE SANDFORD TAS 7020
CLIENT:	ANDREW BOICO & BELINDA COOK

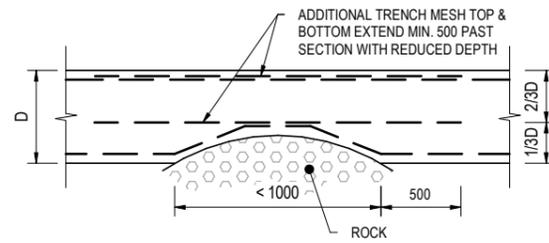
SHEET:	ENGINEERING NOTES
SCALE:	TOTAL SHEETS: A3
PROJECT No. 22E103-26	SHEET No. EN01 REV. 0

ENGINEERING NOTES - RESIDENTIAL

STRIP FOOTINGS

- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS2870.
- STRIP FOOTINGS BE FOUNDED IN NATURAL SOIL WITH AN ALLOWABLE BEARING PRESSURE OF ≥ 100 kPa.
- WHERE A FOOTING OR EDGE BEAM ENCOUNTERS A SINGLE LOCAL ROCK OUTCROP OR FLOATER OVER A LENGTH OF LESS THAN 1m, THE DEPTH OF THE FOOTING OR EDGE BEAM CAN BE REDUCED BY UP TO ONE THIRD PROVIDED THAT THE AMOUNT OF TOP AND BOTTOM REINFORCEMENT IS DOUBLED AND EXTENDED 500mm PAST THE SECTION WITH REDUCED DEPTH AS PER **DETAIL 5**.
- THE BASE OF STRIP FOOTINGS MAY BE SLOPED NOT MORE THAN 1 IN 10 OR STEPPED IN ACCORDANCE WITH AS2870 5.4.3. AS ILLUSTRATED IN **DETAIL 6**.
- SERVICE PENETRATIONS SHALL BE PERMITTED ONLY THROUGH THE MIDDLE THIRD OF EDGE BEAMS AND STRIP FOOTINGS. THE PIPE SHALL BE SLEEVED SO AS TO PROVIDE A MINIMUM OF 20mm CLEARANCE OR 40mm FOR H2 AND E SITES BETWEEN THE FOOTING AND PIPE AS PER **DETAIL 7**.

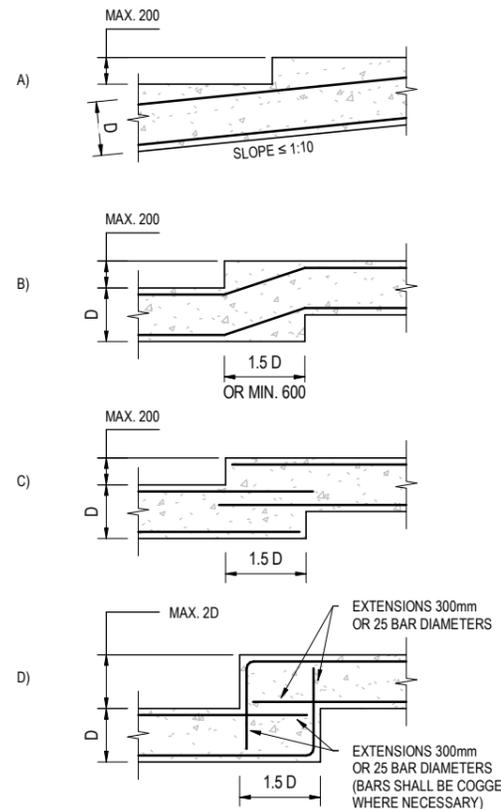
DETAIL 5 - REQUIREMENT FOR ROCK OUTCROP



SLABS, EDGE BEAMS AND STIFFENED RAFTS

- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS2870 AND AS3798.
- SLAB PANELS, INTERNAL BEAMS AND LOAD SUPPORTING THICKENINGS ARE TO BE FOUNDED ON APPROVED ENGINEERED FILL OR NATURAL GROUND WITH A MINIMUM BEARING CAPACITY OF 50 kPa.
- U.N.O. EDGE BEAMS SHALL FOUND ON NATURAL GROUND WITH A MINIMUM BEARING CAPACITY OF 100 kPa.
- A BLINDING LAYER OF SAND SHALL BE PROVIDED AS REQUIRED TO PREVENT PENETRATION OF THE MOISTURE BARRIER DURING CONSTRUCTION.
- TO REDUCE THE EFFECTS OF SWELLING CLAY ON M, H1, H2 & E SITES CONCRETE SHALL BE FORMED IN EXCAVATIONS SUCH THAT IT DOES NOT SPLAY OUT AT THE SURFACE AS PER **DETAIL 8**.
- THE SLAB MESH SHALL BE PLACED TOWARDS THE TOP OF THE SLAB OR WITHIN THE ZONE DEFINED BY COVER LIMITS U.N.O.
- AT RE-ENTRANT CORNERS 3-L11TM OR 3-N12 BARS, SHALL BE PLACED DIAGONALLY ACROSS THE CORNER. THE FIRST BAR SHOULD BE PLACED 40mm FROM THE CORNER WITH SUBSEQUENT BARS AT 100mm CENTRES. ALL SUCH REINFORCEMENT SHALL HAVE A MINIMUM LENGTH OF 2000mm U.N.O.
- SERVICE PENETRATIONS THROUGH EDGE BEAMS AND INTERNAL THICKENINGS SHALL BE PROVIDED AS PER STRIP FOOTINGS (SEE NOTE SF5). THE EFFECT OF OTHER SERVICE PENETRATIONS SHALL BE TAKEN INTO ACCOUNT BY THE PROVISION OF EXTRA CONCRETE DEPTH OR REINFORCEMENT AS DETERMINED BY THE ENGINEER ON SITE.
- U.N.O. SLAB HAS NOT BEEN DESIGN FOR A POLISHED OR EXPOSED SURFACE FOR SPECIFIC REQUIREMENTS CONSULT THE ENGINEER.
- THE RAFT OR SLAB SHALL BE PROVIDED WITH A VAPOUR BARRIER, OR WHERE REQUIRED, A DAMP PROOFING MEMBRANE.
- VAPOUR BARRIERS AND DAMP-PROOFING MEMBRANES SHALL BE MIN. 200um (0.2mm) THICK POLYETHYLENE FILM BRANDED CONTINUOUSLY AS2870 CONCRETE UNDERLAY WITH MEDIUM (OR HIGH AS APPROPRIATE) IMPACT RESISTANCE RATING, TOGETHER WITH THE MANUFACTURER OR DISTRIBUTORS NAME, TRADEMARK OR CODE.
- BOTH VAPOUR BARRIERS AND DAMP-PROOFING MEMBRANES SHALL BE INSTALLED AS FOLLOWS:
 - THE SHEET SHALL BE PLACED BENEATH THE SLAB SO THAT THE BOTTOM SURFACE OF THE SLAB IS ENTIRELY UNDERLAID WITH MINIMUM 200mm TURNED DOWN INTO INTERNAL AND EDGE BEAMS.
 - LAPPING AT JOINTS SHALL BE NOT LESS THAN 200mm FOR CONTINUITY.
 - PENETRATIONS BY PIPES OR PLUMBING FITTINGS SHALL BE TAPED OR SEALED WITH A CLOSE FITTING SLEEVE OR MADE CONTINUOUS WITH THE VAPOUR BARRIER OR DAMP-PROOF MEMBRANE BY TAPING OR BY LAPPING.

DETAIL 6 - STEPPING OF STRIP FOOTINGS / EDGE BEAMS



NOTE: ENGINEER IS TO BE CONSULTED FOR STEPS IN STRIP FOOTINGS / EDGE BEAMS BEYOND THE SCOPE INDICATED ABOVE

SCREW PILES

- CONTRACTOR SHALL INSTALL SCREW PILES IN ACCORDANCE WITH AS2159-2009 AND KATANA COMPLIANCE AND INSTALLATION MANUAL FOR A SAFE WORKING LOAD (SWL) OF 80 KN UNLESS OTHERWISE NOTED.
- PILING DEPTH TO BE CONFIRMED BY PILING CONTRACTOR TO MEET (SWL) BUT MIN DEPTH SHALL BE 3M OR 1.25HS, WHICHEVER IS GREATER, UNLESS OTHERWISE APPROVED BY ALDANMARK.
- PILING CONTRACTOR TO REFER ANY INCONSISTENCIES IN PILE DEPTHS TO ALDANMARK FOR APPROVAL PRIOR TO COMPLETION OF PILING WORKS.
- POSITIONAL TOLERANCES FOR PILES TO BE IN ACCORDANCE WITH CLAUSE 7.2.1 OF AS2159-2009.
- DURABILITY REQUIREMENTS FOR PILES SHALL BE IN ACCORDANCE WITH CLAUSE 6.3 OF AS2159-2009 TO SATISFY THE SITE EXPOSURE CLASSIFICATION FOR A MIN 50 YEAR DESIGN LIFE.
- PILE CAPS AND ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH KATANA COMPLIANCE AND INSTALLATION MANUAL.
- CONTRACTOR TO PROVIDE PILE LOG AND FORM 55 INCLUDING LOCATION, DEPTH OF PILES AND ASSOCIATED LOAD TESTING RESULTS CONFIRMING (SWL) ACHIEVED.

STEEL REINFORCEMENT

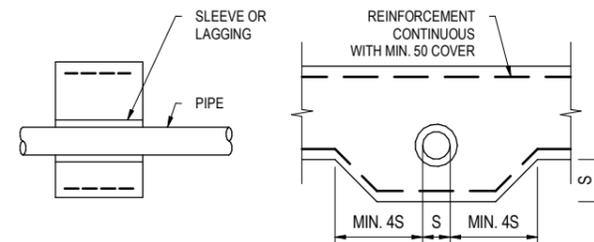
- REINFORCING FABRIC AT THE EDGES OF SLABS AND BEAMS SHALL TERMINATE NO FURTHER THAN 65mm FROM THE EDGE OF THE SLAB OR BEAM.
- TRENCH MESH SHALL HAVE ALL CROSS WIRES CUT FLUSH WITH THE OUTER MAIN WIRES WHERE LAPPED AT T- AND L- INTERSECTIONS.
- REINFORCING BARS SHALL HAVE A LENGTH AT SPLICES NOT LESS THAN 500mm AT T AND L-INTERSECTIONS AND SHALL BE CONTINUED ACROSS THE FULL WIDTH OF THE INTERSECTION.
- AT L-INTERSECTIONS, OUTER BARS SHALL BE BENT AND CONTINUED 500 mm, OR A BENT LAP BAR 500 MM LONG ON EACH EXTERNAL LEG SHALL BE PROVIDED.
- SLAB MESH SHALL BE LAPPED BY ONE FULL PANEL SUCH THAT THE OUTERMOST TRANSVERSE WIRE OF ONE PANEL OVERLAPS THE TWO OUTERMOST TRANSVERSE WIRES OF THE LAPPED PANEL.
- ALL LAP LENGTHS SHALL COMPLY WITH AS2870 AND AS3600. AS A GUIDE FOR LAP LENGTHS REFER **TABLE 4**.

TABLE 4 - NOMINAL LAP LENGTHS

BAR / REINFORCING TYPE	LAP LENGTH
N12	500mm
N16	700mm
N20	1000mm
SLAB MESH	ONE PANEL
TRENCH MESH (SPLICE)	500mm
TRENCH MESH ('L' OR 'T' INTERSECTION)	WIDTH OF FABRIC

DETAIL 7 - PENETRATIONS THROUGH FOOTINGS

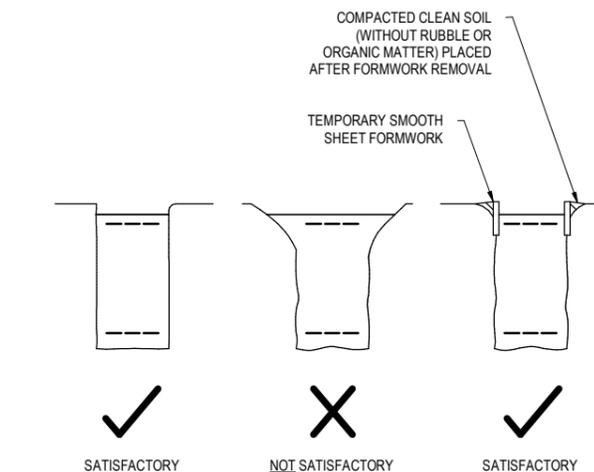
PIPES THROUGH FOOTINGS AND SLAB BEAMS SHOULD BE LAGGED. SLAB BEAM DEPTHS AND FOOTING DEPTHS SHOULD ALSO BE INCREASED AS INDICATED BELOW. ON CLASS M, H1, H2 AND E SITES PLUMBING SHALL INCORPORATE FLEXIBLE CONNECTIONS TO ACCOMMODATE GROUND MOVEMENT. PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH HYDRAULIC DESIGNER'S DETAILS AND IN ACCORDANCE WITH AS2870, AS3500.2 CL 5.6 AND APPENDIX G PLUMBING FOR CLASS P SITES SHALL BE DESIGNED BY A SUITABLY QUALIFIED PRACTITIONER TO MEET THE SITE SPECIFIC CONDITIONS.



NOTE: SLEEVE DIAMETER (S) TO PROVIDE MIN. 20mm RADIAL CLEARANCE TO SERVICE PIPE OR MIN. 40mm ON CLASS H2 AND E SITES

DETAIL 8 - EXCAVATION ON CLASS M, H1, H2 & E SITES

TO REDUCE THE EFFECTS OF SWELLING CLAY, CONCRETE SHALL NOT BE ALLOWED TO SPLAY OUT NEAR THE SURFACE. IF THE EXCAVATIONS DO NOT PROVIDE FOR THIS THEN SMOOTH SHEET FORMWORK SHOULD BE PROVIDED AS SHOWN BELOW.



RETAINING WALLS

- ALL WORK TO BE IN ACCORDANCE WITH AS4678, AS3600, AS3700 AND THE CMAA DESIGN AND CONSTRUCTION GUIDE.
- GROUT FOR FILLING OF BLOCK WORK WALLS TO BE MIN 25 MPa WITH MAXIMUM AGGREGATE SIZE OF 10mm. SLUMP SHALL BE MAXIMUM REQUIRED TO ALLOW PUMPING AND PLACEMENT BUT LIMITED TO 120mm.
- COVER TO REINFORCEMENT SHALL BE A MINIMUM OF 50 mm FOR FOOTINGS AND 65mm FOR GROUTED BLOCK WALLS, MEASURED FROM EXTERNAL FACE OF BLOCKWORK.
- ALLOW MINIMUM 3 DAYS FOR MORTAR TO CURE BEFORE GROUT FILLING MASONRY BLOCK WALLS.
- ALLOW MINIMUM 14 DAYS FOR GROUT TO CURE PRIOR TO BACKFILLING BEHIND WALLS.
- DRAINAGE SHALL BE PROVIDED AT THE REAR OF THE WALL COMPRISING OF (AS A MINIMUM) A MIN. 90mm DIAMETER SLOTTED PVC PIPE POSITIONED TO FALL AT NO LESS THAN 1:100 AND A MIN. 300mm WIDE DRAINAGE LAYER FILLED WITH 20mm CLEAN AGGREGATE TO FULL HEIGHT OF WALL. GEOTEXTILE FABRIC SHALL BE PROVIDED TO THE UPSLOPE SIDE OF THE DRAINAGE LAYER.
- ARTICULATION JOINTS SHALL BE AS SPECIFIED BY THE ENGINEER.
- BLOCK WORK CAVITIES SHALL BE KEPT FREE OF MORTAR DROPPINGS. CLEANOUT BLOCKS SHALL BE PROVIDED TO THE BOTTOM COURSE IF REQUIRED.
- ALL RETAINING WALLS SHALL BE WATERPROOFED WITH A SUITABLE PROPRIETY PRODUCT U.N.O. PROTECTIVE BACKING SHEET SHALL BE INSTALLED PRIOR TO PLACEMENT OF AGGREGATE BACKFILL.

UN-REINFORCED MASONRY

- ALL MASONRY TO CONFORM TO THE REQUIREMENTS OF AS3700, NCC AND THE CONCRETE AND MASONRY ASSOCIATION OF AUSTRALIA CONCRETE MASONRY HANDBOOK U.N.O.
- SINGLE LEAF MASONRY CONSTRUCTION TO BE IN ACCORDANCE WITH CONCRETE MASONRY ASSOCIATION OF AUSTRALIA DESIGN MANUAL FOR SINGLE LEAF CONSTRUCTION U.N.O.
- MASONRY LINTELS SHALL COMPLY WITH NCC REQUIREMENTS U.N.O.
- WALL TIES SHALL BE IN ACCORDANCE WITH CL 5.6.5 OF ABCB HOUSING PROVISIONS. FOR BRICK VENER CONSTRUCTION TYPICALLY SPACED AT 450 CENTRES HORIZONTALLY AND 600 CENTRES VERTICALLY
- VERTICAL ARTICULATION JOINTS ARE TO BE PROVIDED AS PER CL 5.6.8 OF ABCB HOUSING PROVISIONS.
- ENGAGED MASONRY PIERS IN SUBFLOOR WALLS SUPPORTING FRAMING SHALL BE IN ACCORDANCE WITH CL 5.2.6 OF THE ABCB HOUSING PROVISIONS. ENGAGED PIERS AT MAX 1600mm CENTRES FOR 90mm BLOCKWORK AND 1800mm CENTRES FOR 110mm BLOCKWORK MAX 1200mm HIGH, UNLESS NOTED OTHERWISE
- ISOLATED MASONRY PIERS SHALL BE PROVIDED AS PER NCC CL 5.5.6 OF ABCB HOUSING PROVISIONS. I.e. PIERS SHALL BE 230sq. TO MAX HEIGHT 1500mm AND 350sq. TO MAX TOTAL HEIGHT 2400mm.
- PROVIDE DAMP PROOF COURSE AROUND ALL WINDOWS AND AT FLOORS TO ARCHITECTURAL DETAILS.
- PROVIDE WEEP HOLES AND CLEAN CAVITY FROM ALL OBSTRUCTIONS.

REINFORCED MASONRY

- ALL MASONRY TO CONFORM TO THE REQUIREMENTS OF AS3700, NCC AND THE CONCRETE AND MASONRY ASSOCIATION OF AUSTRALIA CONCRETE MASONRY HANDBOOK U.N.O.
- ALL BLOCKWORK WALLS SHALL BE CONSTRUCTED IN UNITS WITH A MINIMUM CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH $f_{cu} = 15$ MPa.
- UNLESS NOTED OTHERWISE THE NOMINAL PROPORTIONS BY VOLUME OF MORTAR SHALL BE CLASS M3 AND HAVE NOMINAL PROPERTIES OF 1 : 1 : 6 OF CEMENT, LIME, SAND. NO PLASTICISERS SHALL BE USED IN THE MIX.
- GROUT USED TO FILL CAVITIES AND CORES IN REINFORCED MASONRY SHALL HAVE A MINIMUM 28 COMPRESSIVE STRENGTH f_c OF 25MPa AND A SLUMP OF 225 \pm 25mm. MAXIMUM AGGREGATE SHALL BE OF 10mm ROUNDED GRAVEL.
- PROVIDE CLEAN OUT HOLES AT BASE OF PILASTERS AND EVERY CORE OF REINFORCED WALLS. CLEAN OUT AND WET DOWN CORES BEFORE GROUTING. ALL CORES CONTAINING VERTICAL AND HORIZONTAL REINFORCEMENT ARE TO BE GROUTED.
- FULLY BED FACE SHELLS AND CROSS WEBS IN HOLLOW BLOCK WALLS. SOLID OR CORED UNITS SHALL BE LAID ON A FULL BED OF MORTAR.
- HOLLOW BLOCKWORK OPENINGS GREATER THAN 600mm VERTICALLY OR HORIZONTALLY SHALL BE TRIMMED AT THE SIDES AND BOTTOM BY FILLING ONE CORE AND REINFORCED WITH 1N12 EXTENDING 600mm PAST OPENING. THE TOP OF THE OPENING SHALL HAVE A REINFORCED LINTEL BEAM, ARCH BAR OR STEEL ANGLE SUPPORT AS DETAILED.
- ALL TIES AND REINFORCEMENT SHALL HAVE MINIMUM CLEAR COVER OF 65mm TO EXTERNAL FACE OF MASONRY. TIES SHALL CONFORM TO AS2699. ALL TIES SHALL BE BY "CERRA METALWORKS" OR APPROVED EQUIVALENT. THE TIES SHALL BE FIXED TO THE MANUFACTURER'S RECOMMENDATIONS BUT WITH A MINIMUM OF 2 No. RAMSET 3.8mm DIAMETER DRIVE PINS. ALL TIES SHALL BE AT 400mm MAXIMUM CENTRES UNLESS NOTED OTHERWISE.
- NO CAVITY OR CORE SHALL BE FILLED TO A HEIGHT GREATER THAN 1200mm WITHOUT SUITABLE SHORING



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DISCLAIMER ENGINEERING NOTES ARE INTENDED FOR USE AS A GUIDE TO RELEVANT CODES, REGULATIONS AND STANDARDS FOR THE BUILDER OR CONTRACTOR DURING THE CONSTRUCTION PROCESS, THEY SHALL NOT REPLACE THEM IN ANY WAY. TYPICAL NOTES ABOVE SHALL NOT BE USED TO CONTRAVENE APPROVED WORKING DRAWINGS OR TO SPECIFY UNAPPROVED WORKS.

		DRAWN:	--
		CHECKED:	--
		DESIGN:	DG
		CHECKED:	SP
0	BUILDING APPROVAL	12/12/2023	VERIFIED: MG
	DESCRIPTION	DATE	APPROVAL



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PROJECT:	PROPOSED GARAGE
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CLIENT:	ANDREW BOICO & BELINDA COOK

SHEET:	ENGINEERING NOTES
SCALE:	TOTAL SHEETS: A3
PROJECT No.	22E103-26
SHEET No.	EN02
REV.	0

ENGINEERING NOTES - RESIDENTIAL

TIMBER FRAMING

- ALL FRAMING TO CONFORM TO AS1684.2 AND NCC REQUIREMENTS U.N.O.
- TIE DOWN CONNECTIONS AND BRACING SHALL BE PROVIDED IN ACCORDANCE WITH AS1684.2 ENGINEERING NOTES MAY BE USED AS A GUIDE.
- BRACING SHALL BE PROVIDED IN ACCORDANCE WITH AS1684.2 TABLE 8.18 AS ILLUSTRATED BY DETAILS 9, 10 AND 11.
- PROPRIETARY TIMBER BEAMS AND JOISTS U.N.O. SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. ALTERNATIVE OPTIONS TO BE APPROVED BY ENGINEER OR CERTIFIED BY SUPPLIER.
- SHEET METAL TIMBER CONNECTIONS SHALL BE GANGNAIL, TECO, PRYDA BRAND STANDARD ITEMS FIXED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
- SPLICES IN SPEED-BRACES SHALL BE MADE OVER TIMBER MEMBERS WITH A MINIMUM OF 3 NAILS THROUGH THE 2-SPEED-BRACES INTO THE TIMBER.
- SHEET STEEL CONNECTORS SHALL BE GALVANIZED.
- NAILS USED EXTERNALLY SHALL BE ZINC PLATED.
- BOLTS SHALL BE ZINC PLATED.
- LINTELS SHALL BE CHECKED BY TRUSS MANUFACTURER FOR ABILITY TO SUPPORT CONCENTRATED LOADS IMPARTED BY GIRDER TRUSSES.
- WHERE THE NAIL LENGTH IS NOT SPECIFIED THE MINIMUM DEPTH OF PENETRATION INTO THE RECEIVING MEMBER SHALL BE A MINIMUM OF 10 TIMES THE NAIL DIAMETER INTO SIDE GRAIN AND 15 TIMES THE NAIL DIAMETER INTO END GRAIN.
- UNLESS SPECIFIED OTHERWISE THE MINIMUM DIAMETER OF GUN DRIVEN NAILS SHALL BE 3.05mm FOR HARDWOOD AND 3.33mm FOR SOFTWOOD. WHERE PLAIN SHANK HAND DRIVEN NAILS ARE USED IN LIEU OF GUN DRIVEN NAILS THEY SHALL BE A MINIMUM DIAMETER OF 3.15mm FOR HARDWOOD AND 3.75mm FOR SOFTWOOD.

**TABLE 5 - TIE DOWN FOR N3 (Vu = 50m/s) SITES
SINGLE OR UPPER STOREY SHEET ROOF**

JOINT	MINIMUM FIXING REQUIREMENT
BEARER TO FOOTING (BRICK VENEER)	30 x 1.0 G.I. STRAP WRAPPED AROUND BEARER AND CAST INTO FOOTING
BEARER TO CONCRETE STUMP	M10 THREADED ROD COGGED AND EMBEDDED MIN. 300mm INTO FOOTING AND FIXED THROUGH BEARER WITH NUT AND WASHER
BEARER TO STEEL/TIMBER STUMP	1 / M10 BOLT THROUGH BEARER AND STUMP
FJ JOIST TO BEARER	MINIMUM NAIL FIXING + 30 x 0.8 G.I. STRAP NAILED TO FACE OF STUD AND WRAPPED UNDER BEARER WITH MIN. 4 / 2.8 Ø CLOUTS EACH END SPACED AS FOLLOWS:

UPLIFT LOAD WIDTH	MIN. SPACING
≤1500	SKEW NAILS ONLY
≤7500	1800 φ

UPLIFT LOAD WIDTH	MIN. SPACING
≤1500	SKEW NAILS ONLY
≤5500	1800 φ
≤7500	900 φ

UPLIFT LOAD WIDTH	MIN. SPACING
≤1500	SKEW NAILS ONLY
≤5500	1800 φ
≤7500	900 φ

UPLIFT LOAD WIDTH	MIN. SPACING
≤1500	SKEW NAILS ONLY
≤5500	1800 φ
≤7500	900 φ

UPLIFT LOAD WIDTH	MIN. SPACING
≤1500	SKEW NAILS ONLY
≤5500	1800 φ
≤7500	900 φ

UPLIFT LOAD WIDTH	MIN. SPACING
≤1500	SKEW NAILS ONLY
≤5500	1800 φ
≤7500	900 φ

**TABLE 5 - TIE DOWN FOR N3 (Vu = 50m/s) SITES
SINGLE OR UPPER STOREY SHEET ROOF**

JOINT	MINIMUM FIXING REQUIREMENT
CEILING JOIST TO TOP PLATE	SKEWED MINIMUM NAIL FIXING
CEILING JOIST TO RAFTER	MINIMUM NAIL FIXING
TOP PLATE TO RAFTER/TRUSS:	
- COUPLED ROOF	SKEWED MINIMUM NAIL FIXING + 30 x 0.8 G.I. STRAP LOOPED OVER EACH RAFTER AND WRAPPED UNDER THE TOP PLATE WITH MIN. 4 / GALV. CLOUTS EACH END (2.8 Ø x 25 FOR HARDWOOD, 2.8 Ø x 30 FOR PINE) PLUS 2 / 75mm SKEW NAILS THROUGH RAFTER INTO TOP PLATE
- NON COUPLED ROOF	AS PER COUPLED ROOF
- TRUSS ROOF	AS PER TRUSS MANUFACTURER'S TIE DOWN SPECIFICATION. IN THE ABSENCE OF MANUFACTURER'S TIE DOWN SPECIFICATION ADOPT AS A MINIMUM 30 x 0.8 G.I. STRAP LOOPED OVER EACH TRUSS AND WRAPPED UNDER THE TOP PLATE WITH 4 GALV. CLOUTS EACH END (2.8 Ø x 25 FOR HARDWOOD, 2.8 Ø x 30 FOR PINE) PLUS 2 / 75mm SKEW NAILS THROUGH RAFTER INTO TOP PLATE
COLLAR TIES TO RAFTERS	1 / M10 BOLT FOR TIES OVER 4.2m OR 3 / 75mm NAILS FOR TIES UP TO 4.2m.
STEEL BEAM TO RAFTER / TRUSS	WELD 75 x 6 STEEL CLEATS OF SUITABLE LENGTH TO STEEL BEAM AT RAFTER / TRUSS LOCATIONS. PROVIDE 2 / M10 OR 1 / M12 BOLT AND WASHERS THROUGH RAFTER / TRUSS AND CLEAT
PURLIN TO RAFTER	PROVIDE 1 / MIN. 100mm LONG TYPE 17 BUGLE SCREW AT EVERY PURLIN TO RAFTER / TRUSS JUNCTION (MAX. 900 φ) FOR PINE RAFTERS / TRUSSES. PROVIDE 1 / 75mm TYPE 17 BUGLE SCREW AT EVERY PURLIN TO RAFTER / TRUSS JUNCTION (MAX. 900 φ) FOR HARDWOOD RAFTERS / TRUSSES

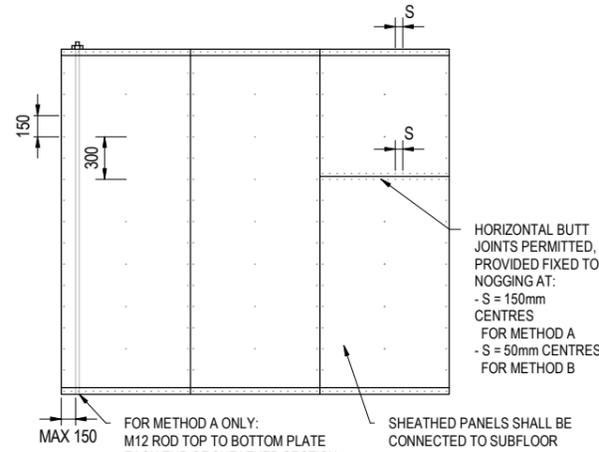
NOTES

- A MINIMUM NAIL FIXING SHALL BE 2 / 75 x 3.15 (HARDWOOD) OR 2 / 75 x 3.33 (SOFTWOOD) GLUE COATED GUN DRIVEN NAILS.
- ADDITIONAL ANCHORS MAY BE REQUIRED AT ENDS OF BRACING UNITS TO COMPLY WITH AS1684.2 REFER TO BRACING DETAILS.
- TO DETERMINE UPLIFT WIDTH REFER AS1684.2 FIGURE 9.5

DETAIL 9 - AS1684.2 BRACING TYPE (H) TABLE 8.18

(H) METHOD A - PLYWOOD 5.6 kN/m
METHOD B - PLYWOOD 5.2 kN/m

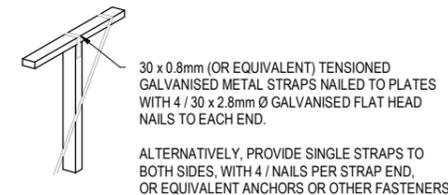
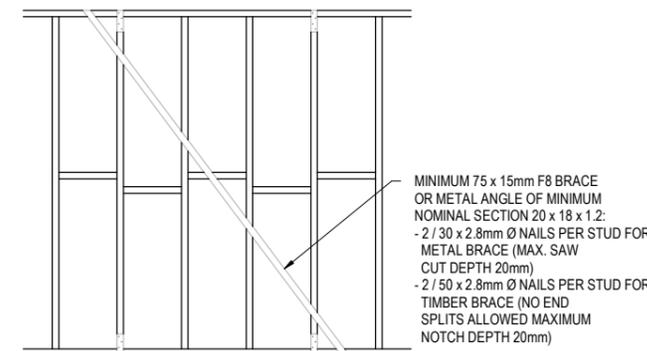
PLYWOOD SHALL BE NAILED TO FRAME USING 30 x 2.8 Ø FLAT HEAD NAILS OR EQUIVALENT. METHOD A REQUIRES M12 RODS AT EACH END OF SHEATHED SECTION TOP PLATE TO BOTTOM PLATE OR FLOOR FRAME. METHOD B HAS NO RODS BUT SHEATHING SHALL BE NAILED AT 50mm CENTRES, TO TOP AND BOTTOM PLATES AND ANY HORIZONTAL JOISTS.



NOTE: EACH 900mm PANEL = ONE TYPE B BRACING UNIT.

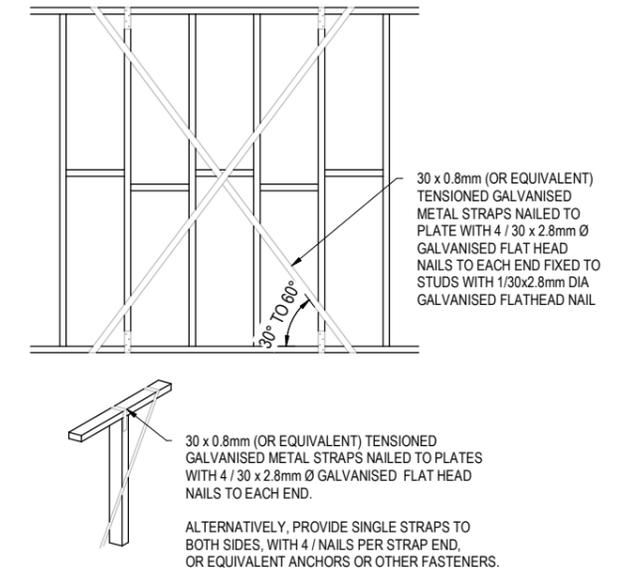
DETAIL 10 - AS1684.2 BRACING TYPE (C) TABLE 8.18

(C) TIMBER AND METAL ANGLE BRACES 1.5 kN/m



DETAIL 11 - AS1684.2 BRACING TYPE (D) TABLE 8.18

(D) DOUBLE DIAGONAL TENSION OR METAL STRAP BRACES 3.0 kN/m



STRESS GRADE	MINIMUM PLYWOOD THICKNESS, mm	
	450	600
F8	7	9
F11	6	7
F14	4	6
F27	4	4.5

FIXING OF BOTTOM PLATE TO FLOOR FRAME OR SLAB

METHOD A: M12 RODS AS SHOWN PLUS A 13kN CAPACITY CONNECTION AT MAX. 1200mm CENTRES

METHOD B: A 13kN CAPACITY CONNECTION AT EACH END AND INTERMEDIATELY AT MAX. 1200mm CENTRES

DISCLAIMER ENGINEERING NOTES ARE INTENDED FOR USE AS A GUIDE TO RELEVANT CODES, REGULATIONS AND STANDARDS FOR THE BUILDER OR CONTRACTOR DURING THE CONSTRUCTION PROCESS, THEY SHALL NOT REPLACE THEM IN ANY WAY. TYPICAL NOTES ABOVE SHALL NOT BE USED TO CONTRAVENE APPROVED WORKING DRAWINGS OR TO SPECIFY UNAPPROVED WORKS.

		DRAWN: --							
		CHECKED: --							
		DESIGN: DG							
		CHECKED: SP							
0	BUILDING APPROVAL	12/12/2023	VERIFIED: MG						
PROJECT DESCRIPTION		DATE	APPROVAL	PROJECT: PROPOSED GARAGE		ADDRESS: 20 TRADEWIND TERRACE SANDFORD TAS 7020		SHEET: ENGINEERING NOTES	
Version: 1, Version Date: 16/01/2026				Lower Ground 199 Macquarie Street Hobart TAS 7000 03 6234 8666 mail@aldanmark.com.au www.aldanmark.com.au		CLIENT: ANDREW BOICO & BELINDA COOK		SCALE:	TOTAL SHEETS: A3
						PROJECT No. 22E103-26		SHEET No. EN03	REV. 0

WORKPLACE HEALTH AND SAFETY NOTES

GENERAL

- THE FOLLOWING RISK MITIGATION NOTES HAVE BEEN PREPARED TO ADVISE THE PERSON CONDUCTING A BUSINESS OR UNDERTAKING (PCBU) ON THE HEALTH AND SAFETY ASPECTS OF THE DESIGN IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY ACT 2011 AND ARE PERTINENT TO ANY TIME WHEN THE BUILDING OPERATES AS A WORKPLACE.
- THESE NOTES MAY NOT NECESSARILY ACCOUNT FOR ALL CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION PRACTICES AND SAFETY RISKS. INCLUSION OR EXCLUSION OF ANY ITEM DOES NOT ABSOLVE THE OWNER, CONTRACTOR, USER, MAINTAINER OR DEMOLISHER OF THEIR OBLIGATIONS TO UNDERTAKE APPROPRIATE RISK MANAGEMENT ACTIVITIES AND IT IS NOT AN ADMISSION THAT ANY ITEM BELOW IS THE RESPONSIBILITY OF ALDANMARK.
- ADDITIONAL GUIDANCE ON WORKPLACE HEALTH AND SAFETY IS PROVIDED IN THE FOLLOWING CODES OF PRACTICE, WHICH THE CONTRACTOR IS TO COMPLY WITH AS APPLICABLE:
 - "CONSTRUCTION WORK" (CP104);
 - "HOW TO MANAGE WORK HEALTH AND SAFETY RISKS" (CP112);
 - "MANAGING THE WORK ENVIRONMENT AND FACILITIES" (CP124);
 - "SAFE DESIGN OF STRUCTURES" (CP127).
- FURTHER ADDITIONAL AND UPDATED CODES OF PRACTICE AND OTHER GUIDANCE MATERIALS FOR THE MINIMISATION OF RISKS TO WORKPLACE HEALTH AND SAFETY ARE MADE AVAILABLE PERIODICALLY FROM WORKSAFE TASMANIA AT WWW.WORKSAFE.TAS.GOV.AU AND SAFE WORK AUSTRALIA AT WWW.SAFEWORKAUSTRALIA.GOV.AU AND SHOULD BE CONSULTED PRIOR TO WORKS COMMENCING ONSITE.
- WHERE APPLICABLE, THE SPECIFIC RISKS ASSOCIATED WITH THIS PROJECT HAVE BEEN ASSESSED AND ARE SUMMARISED IN THE ATTACHED RISK ASSESSMENT / HAZARD IDENTIFICATION REPORT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL ASSOCIATED RISKS OF THE CONSTRUCTION PROCESS AND TO PREPARE ADEQUATE SAFE WORK METHOD STATEMENTS AND JOB SAFETY ANALYSIS.
- TEMPORARY STRUCTURES AND CONTRACTOR ERECTION PROCEDURES ARE ONLY INDICATED WHERE ESSENTIAL TO THE EXECUTION OF THE DESIGN AS INTENDED IN THE DOCUMENTS PROVIDED. DETAILED PROCEDURES MUST BE SOUGHT PRIOR TO WORKS COMMENCING. FOR ALL ASSOCIATED TEMPORARY STRUCTURE OR ERECTION DESIGN AND CERTIFICATION THE CONTRACTOR IS TO ENGAGE A THIRD PARTY TO ASSIST, CERTIFY AND OVERSEE THE ERECTION OF THE WORKS.

SITE

RUPTURE OF SERVICES DURING EXCAVATION FOR OTHER ACTIVITY CREATES A VARIETY OF RISKS INCLUDING RELEASE OF HAZARDOUS MATERIAL. EXISTING SERVICES MAY BE LOCATED ON OR AROUND THE BUILDING SITE. WHERE KNOWN, THESE ARE IDENTIFIED ON THE DRAWINGS; HOWEVER THE EXACT LOCATION AND EXTENT OF SERVICES MAY VARY FROM THAT INDICATED. SERVICES SHOULD BE LOCATED USING AN APPROPRIATE SERVICE, APPROPRIATE EXCAVATION PRACTICE SHOULD BE USED AND, WHERE NECESSARY, SPECIALIST CONTRACTORS SHOULD BE ENGAGED.

SITE ACCESS / TRAFFIC MANAGEMENT:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "TRAFFIC MANAGEMENT IN WORKPLACES" STANDARD CONTROL.
- ESPECIALLY FOR BUILDINGS ON A MAJOR, NARROW, OR STEEPLY INCLINED ROAD, PARKING OF VEHICLES OR LOADING / UNLOADING OF VEHICLES ON THE ROADWAY MAY CAUSE A TRAFFIC HAZARD. DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION OF THE BUILDING, DESIGNATED PARKING FOR WORKERS AND LOADING AREAS SHOULD BE PROVIDED. FOR ALL BUILDINGS: A TRAFFIC MANAGEMENT PLAN SUPERVISED BY TRAINED TRAFFIC MANAGEMENT PERSONNEL SHOULD BE IMPLEMENTED FOR THE WORK SITE.
- PUBLIC ACCESS TO CONSTRUCTION AND DEMOLITION SITES AND TO AREAS UNDER MAINTENANCE CAUSES RISK TO WORKERS AND THE PUBLIC. WARNING SIGNS AND SECURE BARRIERS TO UNAUTHORISED ACCESS SHOULD BE PROVIDED. WHERE ELECTRICAL INSTALLATIONS, EXCAVATIONS, PLANT OR LOOSE MATERIALS ARE PRESENT, THEY SHOULD BE SECURED WHEN NOT FULLY SUPERVISED.
- BUILDING OWNERS AND OCCUPIERS SHOULD MONITOR THE PEDESTRIAN ACCESS WAYS AND, IN PARTICULAR, ACCESS TO AREAS WHERE MAINTENANCE IS ROUTINELY CARRIED OUT, TO ENSURE THAT SURFACES HAVE NOT MOVED OR CRACKED SUCH THAT THEY BECOME UNEVEN AND PRESENT A TRIP HAZARD. SPILLS, LOOSE MATERIAL, STRAY OBJECTS OR ANY OTHER MATTER THAT MAY CAUSE A SLIP OR TRIP HAZARD SHOULD BE CLEANED OR REMOVED FROM ACCESS WAYS.
- CONTRACTORS SHOULD BE REQUIRED TO MAINTAIN A TIDY WORK SITE DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION TO REDUCE RISK OF TRIPS AND FALLS IN THE WORKPLACE. MATERIALS FOR CONSTRUCTION OR MAINTENANCE SHOULD BE STORED IN DESIGNATED AREAS AWAY FROM ACCESS WAYS AND WORK AREAS.
- CONSTRUCTION OF BUILDING ELEMENTS THAT ARE NECESSARY TO CONTRIBUTE TO SAFE ACCESS TO THE BUILDING, SUCH AS HANDRAILS, SCAFFOLDING, ACCESS STAIRS, FALL ARREST SYSTEMS ETC., MUST TAKE PLACE PRIOR TO PROGRESSING WITH ANY OTHER WORKS FOR WHICH THOSE ELEMENTS WILL BE REQUIRED.

WATER:

- IF THE BUILDING SITE IS ADJACENT TO ANY BODY OF WATER ADEQUATE PROTECTION AND ACCESS PREVENTION SHALL BE PROVIDED. THE CONTRACTOR IS TO PREPARE A SAFE WORK METHOD STATEMENT FOR ANY WORKS REQUIRED TO BE UNDERTAKEN OVER WATER.

LIGHTING AND VENTILATION:

- THE CONTRACTOR IS TO PROVIDE ADEQUATE LIGHTING AND VENTILATION TO ALL AREAS REQUIRED TO BE OCCUPIED BY WORKERS DURING CONSTRUCTION. PRIOR TO THE COMMISSIONING OF THE BUILDING, FINAL LIGHTING AND VENTILATION MUST BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NCC.

FIRE AND EMERGENCY:

- ADEQUATE SITE SPECIFIC FIRE EQUIPMENT AND EMERGENCY EVACUATION PROCEDURES ARE TO BE PROVIDED AND MAINTAINED BY THE CONTRACTOR DURING WORKS ONSITE ACCORDING TO A SAFE WORK METHOD STATEMENT TO BE PREPARED BY THE CONTRACTOR PRIOR TO WORKS COMMENCING ONSITE. PRIOR TO THE COMMISSIONING OF THE BUILDING, FINAL FIRE PROTECTION EQUIPMENT SHALL BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NCC.

ELECTRICAL:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODES OF PRACTICE: "WORKING IN THE VICINITY OF OVERHEAD AND UNDERGROUND ELECTRIC LINES" AND "MANAGING ELECTRICAL RISKS IN THE WORKPLACE" (CP117) AND AS 3012 STANDARD CONTROLS.
- UNDERGROUND POWER LINES MAY BE LOCATED IN OR AROUND THE SITE. ALL UNDERGROUND POWER LINES MUST BE ACCURATELY LOCATED AND EITHER DISCONNECTED OR ADEQUATE EXCLUSION ZONES DELINEATED PRIOR TO ANY CONSTRUCTION, MAINTENANCE OR DEMOLITION WORK COMMENCING.
- OVERHEAD POWER LINES MAY BE LOCATED ON OR NEAR THE SITE. THESE POSE A SIGNIFICANT RISK IF STRUCK OR APPROACHED BY LIFTING DEVICES OR OTHER PLANT AND PERSONS WORKING ABOVE GROUND LEVEL. WHERE THERE IS A DANGER OF THIS OCCURRING, POWER LINES SHOULD BE, WHERE PRACTICAL, DISCONNECTED OR RELOCATED. WHERE THIS IS NOT PRACTICAL, CLEARLY IDENTIFIED EXCLUSION ZONES AND APPROACH DISTANCES SHALL BE ESTABLISHED AND MAINTAINED.

EXCAVATION

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "EXCAVATION WORK" (CP107) STANDARD CONTROL.
- CONSTRUCTION OF THE BUILDING AND SOME MAINTENANCE ON THE BUILDING MAY REQUIRE EXCAVATION AND INSTALLATION OF ITEMS WITHIN THE EXCAVATION. WHERE PRACTICAL, INSTALLATION SHOULD BE CARRIED OUT USING METHODS THAT DO NOT REQUIRE WORKERS TO ENTER THE EXCAVATION. WHERE THIS IS NOT PRACTICAL, ADEQUATE SUPPORT FOR THE EXCAVATED AREA SHALL BE PROVIDED TO PREVENT COLLAPSE. WARNING SIGNS AND BARRIERS TO PREVENT ACCIDENTAL OR UNAUTHORISED ACCESS TO ALL EXCAVATIONS SHALL BE PROVIDED.
- ANY AUGURING PROCEDURES MAY CAUSE A RISK OF FALLING INTO OPEN BORES. ALL BORES THEREFORE ARE TO BE CONCRETE FILLED AS SOON AS POSSIBLE. IN THE MEANTIME, ADEQUATE PROTECTION AND ACCESS PREVENTION SHALL BE PROVIDED.
- THE CONTRACTOR IS TO CONSULT ANY SITE INVESTIGATION REPORTS ETC. BEFORE CONDUCTING ANY EXCAVATION WORKS. IN THE CASE OF ANY AREAS BEING IDENTIFIED AS HAVING GROUND CONTAMINATION PRESENT, A QUALIFIED SPECIALIST CONSULTANT SHALL BE ENGAGED TO PROVIDE REMEDIAL WORKS DESIGN AND RISK MITIGATION STRATEGIES.

CONSTRUCTION

FORMWORK:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "FORMWORK AND FALSEWORK" STANDARD CONTROL.
- ALL FORMWORK AND SUPPORTING SCAFFOLD STRUCTURES MUST BE DESIGNED TO CARRY THE CONSTRUCTION LOADING SPECIFIED WITH THIS SET OF DOCUMENTATION.
- INSITU FORMWORK EG. BONDEK / CONDECK MUST BE INSTALLED TO MANUFACTURERS INSTRUCTIONS AND SUPPORTED DURING CONSTRUCTION AS RECOMMENDED. TEMPORARY SUPPORTS ARE NOT PROVIDED AS PART OF THIS DOCUMENTATION.
- SLABS THAT SUPPORT CONTINUED TEMPORARY STRUCTURE MUST BE BACK PROPPED. BACK PROPPING MUST BE CHECKED AND APPROVED PRIOR TO ANY ADDITIONAL CONSTRUCTION LOADING.
- WALLS, COLUMN AND OTHER VERTICAL FORMWORK MUST BE CHECKED AND DESIGNED FOR POTENTIAL HYDROSTATIC LOADING DURING CONCRETE PLACEMENT.

PRECAST PANEL ERECTION:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "PRECAST TILT-UP AND CONCRETE ELEMENTS IN BUILDING CONSTRUCTION" AND AS 3580 STANDARD CONTROLS.
- CONTRACTOR IS TO ENSURE THAT CRANE SIZE AND LOCATION IS ADEQUATELY ASSESSED FOR CAPACITY BEFORE PANELS ARE ERECTED. THIS IT TO INCLUDE BUT IS NOT LIMITED TO CRANE SUPPORT BEARING, LOCATION OF UNDERGROUND SERVICES, OVERTURNING, LIFTING CAPACITY, OVERHEARD OBSTRUCTIONS AND TRAFFIC HAZARDS.
- CHAIN AND SLING SETUP FOR PANELS IS TO BE CHECKED AGAINST APPROVED PANEL LIFTING POINTS. WHERE APPROPRIATE AN APPROVED SPREADER BEAM IS TO BE USED.
- PATHWAYS OF OVERHEAD TRAVEL OF PANELS ARE TO BE CLEARLY MARKED AND ACCESS TO THESE RESTRICTED DURING LIFTING.
- PANEL BEARING AND LOCATING PLATES AND DOWELS ARE TO BE CHECKED FOR FINAL LOCATION.
- PANEL PROPPING AND TEMPORARY SUPPORT MUST BE LOCATED WITH APPROVED ANCHORS AND APPROPRIATE CHECKS AND DESIGNS FOR CAPACITY, NUMBER AND CONFIGURATION OF PROPS IS TO BE CONDUCTED PRIOR TO ERECTION. TEMPORARY SUPPORTING STRUCTURE DURING CONSTRUCTION IS NOT PROVIDED AS PART OF THESE DESIGN DOCUMENTS AND MUST BE OBTAINED PRIOR TO ERECTION

STRUCTURAL STEEL ERECTION:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODES OF PRACTICE: "WELDING PROCESSES" (CP134), "ABRASIVE BLASTING" (CP101) AND "SPRAY PAINTING AND POWDER COATING" (CP131) STANDARD CONTROLS.
- CONTRACTOR IS TO ENSURE THAT CRANE SIZE AND LOCATION IS ADEQUATELY ASSESSED FOR CAPACITY BEFORE THE FRAME IS ERECTED. THIS IT TO INCLUDING BUT IS NOT LIMITED TO CRANE SUPPORT BEARING, LOCATION OF UNDERGROUND SERVICES, OVERTURNING, LIFTING CAPACITY, OVERHEARD OBSTRUCTIONS AND TRAFFIC HAZARDS.
- CHAIN AND SLING SETUP FOR FRAMING MEMBERS IS TO BE CHECKED AGAINST APPROVED LIFTING POINTS. WHERE APPROPRIATE AN APPROVED SPREADER BEAM IS TO BE USED.
- PATHWAYS OF OVERHEAD TRAVEL OF FRAMING MEMBERS ARE TO BE CLEARLY MARKED AND ACCESS TO THESE RESTRICTED DURING LIFTING.
- TEMPORARY PROPPING WORK IS TO BE PROVIDED TO ENSURE STABILITY OF THE FRAMES DURING ERECTION. ALL STEEL FRAMES ARE TO BE TEMPORARY BRACED, UNTIL STRUCTURE IS FULLY ERECTED AND ALL CONNECTIONS BOLTED OR WELDED TOGETHER AS REQUIRED. TEMPORARY SUPPORTING STRUCTURE DURING CONSTRUCTION IS NOT PROVIDED AS PART OF THESE DESIGN DOCUMENTS AND MUST OBTAINED PRIOR TO ERECTION.
- SITE BASED TREATMENTS OF STEEL FRAMING MEMBERS (EG. CUTTING, WELDING, GRIT BLASTING, SPRAY PAINTING, ETC.) IS TO BE MINIMISED WHEREVER POSSIBLE. IF SITE BASED TREATMENT IS UNAVOIDABLE, ADEQUATE PROTECTION, SCREENING AND VENTILATION TO MINIMISE HAZARDS TO PERSONNEL IS TO BE PROVIDED.
- AVOID SITE BASE HOT WORKS WHERE POSSIBLE. IF UNAVOIDABLE, SITE SPECIFIC PROCEDURES FOR HOT WORKS PERMITS ETC. ARE TO BE FOLLOWED.

WORKING AT HEIGHTS:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODES OF PRACTICE: "MANAGING THE RISK OF FALLS AT WORKPLACES" (CP122), "PREVENTING FALLS IN HOUSING CONSTRUCTION" (CP127), "SCAFFOLDS AND SCAFFOLDING WORK" AND AS 1657 STANDARD CONTROLS.
- SCAFFOLDING MUST BE SECURED AND BRACED TO RESIST OVERTURNING. SINGLE PROPS MUST NOT BE USED UNLESS A DESIGN CHECK ON STABILITY IS MADE AND THEY ARE FIXED TO A STABLE BASE AT MIDPOINTS.
- CONTRACTOR IS TO USE PASSIVE FALL PREVENTION DEVICE IF POSSIBLE (IE. FIXED PLATFORM, CHERRY PICKERS ETC.)

CONCRETE STRESSING:

- CONTRACTOR IS TO ENSURE THAT CONCRETE STRENGTH MEETS REQUIRED CAPACITY AT TIME OF STRESSING.
- RESTRICTED STRESSING AREAS ARE TO BE PROVIDED TO ALL AREAS WHERE STRESSING IS TAKING PLACED BOTH AT LIVE AND DEAD ENDS OF STRESSING DUCTS.
- CONTRACTOR MUST ENSURE THAT AT ALL TIMES DURING STRESSING ONLY QUALIFIED AND APPROVED PERSONNEL HAVE ACCESS TO DESIGNATED STRESSING AREAS.
- SLABS THAT SUPPORT CONTINUED TEMPORARY STRUCTURE MUST BE BACK PROPPED. BACK PROPPING MUST BE CHECKED AND APPROVED PRIOR TO ANY ADDITIONAL CONSTRUCTION LOADING.

CRANES AND OTHER MECHANICAL PLANT:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODES OF PRACTICE: "CRANES", "MANAGING THE RISKS OF PLANT IN THE WORKPLACE" (CP123), "INDUSTRIAL LIFT TRUCKS" AND AS 2550 STANDARD CONTROLS.
- MECHANICAL LIFTING OF MATERIALS AND COMPONENTS DURING CONSTRUCTION, MAINTENANCE OR DEMOLITION PRESENTS A RISK OF FALLING OBJECTS. CONTRACTORS SHOULD ENSURE THAT APPROPRIATE LIFTING DEVICES ARE USED, THAT LOADS ARE PROPERLY SECURED, AND THAT ACCESS TO AREAS BELOW THE LOAD IS PREVENTED OR RESTRICTED.
- CONTRACTOR IS TO ENSURE THAT CRANE SIZE AND LOCATION IS ADEQUATELY ASSESSED FOR CAPACITY BEFORE ANY LIFT. THIS IT TO INCLUDE BUT IS NOT LIMITED TO CRANE SUPPORT BEARING, LOCATION OF UNDERGROUND SERVICES, OVERTURNING, LIFTING CAPACITY, OVERHEARD OBSTRUCTIONS AND TRAFFIC HAZARDS.

EXISTING BUILDINGS

DEMOLITION:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "DEMOLITION WORK" (CP106) STANDARD CONTROL.
- LOCATIONS OF EXISTING EMBEDDED LIVE SERVICES ARE TO BE ACCURATELY ESTABLISHED PRIOR TO ANY PENETRATION OF EXISTING STRUCTURE.
- DO NOT CUT OR REMOVE ANY STRUCTURAL MEMBER PRIOR TO INSPECTION BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER.
- SEEK ADVICE FROM A SUITABLY QUALIFIED STRUCTURAL ENGINEER PRIOR TO CORING, CHASING, CUTTING OR REMOVAL OF EXISTING CONCRETE AND REINFORCEMENT.

EXISTING STRUCTURAL ADEQUACY:

- WHERE EXISTING STRUCTURAL ELEMENTS ARE DAMAGED OR EXHIBIT SIGNIFICANT SECTION LOSS, A SUITABLY QUALIFIED STRUCTURAL ENGINEER SHALL BE ENGAGED TO DESIGN A SYSTEM FOR STABILISING / SUPPORTING THE EXISTING STRUCTURE, SUCH THAT ALL WORK AREAS WILL BE ADEQUATELY SAFE FOR BUILDING WORKS TO COMMENCE. ANY SIGNIFICANT SECTION LOSS OR CORROSION OF EXISTING STRUCTURAL ELEMENTS SHALL BE REPORTED TO THE ENGINEER PRIOR TO PROCEEDING WITH WORKS.
- ANY EXISTING RETAINING STRUCTURES PRESENT ON THE SITE SHALL BE INSPECTED BY A SUITABLY QUALIFIED STRUCTURAL ENGINEER TO ASCERTAIN THE EXTENT OF ANY EXCLUSION ZONES REQUIRED, ESPECIALLY WITH REGARD TO ANY EXCAVATION. THE OPERATION OF HEAVY SURFACE PLANT AND EQUIPMENT, OR STOCKPILING MATERIAL ADJACENT TO EXISTING RETAINING STRUCTURES.
- NO EXCAVATION SHALL BE PERFORMED ADJACENT TO ANY EXISTING STRUCTURE, ESPECIALLY BELOW THE 45° LINE FROM THE UNDERSIDE OF AN EXISTING FOOTING WITHOUT THE EXPRESS PERMISSION OF THE STRUCTURAL ENGINEER.

ASBESTOS:

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODES OF PRACTICE: "HOW TO MANAGE AND CONTROL ASBESTOS IN THE WORKPLACE" (CP111) AND "HOW TO SAFELY REMOVE ASBESTOS" (CP115) STANDARD CONTROLS.
- FOR ALTERATIONS TO OR DEMOLITION OF A BUILDING CONSTRUCTED PRIOR TO 1990, IF THE BUILDING WAS CONSTRUCTED PRIOR TO:
 - 1990 - IT MAY CONTAIN ASBESTOS;
 - 1986 - IT IS LIKELY TO CONTAIN ASBESTOS;
 EITHER IN CLADDING MATERIAL OR IN FIRE-RETARDANT INSULATION MATERIAL. IN EITHER CASE, THE BUILDER SHOULD INSPECT AND, IF NECESSARY, HAVE ANY ASBESTOS REMOVED BY A SUITABLE QUALIFIED PERSON BEFORE DEMOLISHING, CUTTING, SANDING, DRILLING OR OTHERWISE DISTURBING THE EXISTING STRUCTURE.

EXISTING COATINGS:

- PRIOR TO ANY WORKS COMMENCING AN APPROPRIATE METHOD OF PAINT REMOVAL AND DISPOSAL IS TO BE DETERMINED, PARTICULARLY ON HISTORIC STRUCTURES. COATINGS CONTAINING COAL TAR EPOXIES, BITUMEN AND ASPHALTS, ZINC CHROMATE AND LEAD AMONG OTHERS PRESENT A HEALTH RISK. ADEQUATE SCREENING IS TO BE PROVIDED TO THE PUBLIC AND THE SURROUNDING ENVIRONMENT DURING PAINT REMOVAL AND CLEANING OPERATIONS. ENVIRONMENTALLY APPROPRIATE METHODS ARE TO BE EMPLOYED DURING MAINTENANCE AND REPAIR WORK.

HAZARDOUS SUBSTANCES

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "MANAGING RISKS OF HAZARDOUS CHEMICALS IN THE WORKPLACE" (CP120) STANDARD CONTROL.

POWDERED MATERIALS:

- MANY MATERIALS USED IN CONSTRUCTION CAN CAUSE HARM IF INHALED IN POWDERED FORM. PERSONS WORKING ON OR IN THE BUILDING DURING CONSTRUCTION, OPERATIONAL MAINTENANCE OR DEMOLITION SHOULD ENSURE GOOD VENTILATION AND WEAR PERSONAL PROTECTIVE EQUIPMENT, INCLUDING PROTECTION AGAINST INHALATION WHILE USING POWDERED MATERIAL OR WHEN SANDING, DRILLING, CUTTING OR OTHERWISE DISTURBING OR CREATING POWDERED MATERIAL.

TREATED TIMBER:

- THE DESIGN OF THE BUILDING MAY INCLUDE PROVISION FOR INCLUSION OF TREATED TIMBER WITHIN THE STRUCTURE. DUST OR FUMES FROM THIS MATERIAL CAN BE HARMFUL. PERSONS WORKING ON OR IN THE BUILDING DURING CONSTRUCTION, OPERATIONAL MAINTENANCE OR DEMOLITION SHOULD ENSURE GOOD VENTILATION AND WEAR PERSONAL PROTECTIVE EQUIPMENT INCLUDING PROTECTION AGAINST INHALATION OF HARMFUL MATERIAL WHEN SANDING, DRILLING, CUTTING OR USING TREATED TIMBER IN ANY WAY THAT MAY CAUSE HARMFUL MATERIAL TO BE RELEASED. DO NOT BURN TREATED TIMBER.

VOLATILE ORGANIC COMPOUNDS:

- MANY TYPES OF GLUES, SOLVENTS, SPRAY PACKS, PAINTS, VARNISHES AND SOME CLEANING MATERIALS AND DISINFECTANTS HAVE DANGEROUS EMISSIONS. AREAS WHERE THESE ARE USED SHOULD BE KEPT WELL VENTILATED WHILE THE MATERIAL IS BEING USED AND FOR A PERIOD AFTER INSTALLATION. PERSONAL PROTECTIVE EQUIPMENT MAY ALSO BE REQUIRED. THE MANUFACTURERS' RECOMMENDATIONS FOR USE MUST BE CAREFULLY FOLLOWED AT ALL TIMES.

SYNTHETIC MINERAL FIBRE:

- GLASS FIBRE, ROCK WOOL, CERAMIC AND OTHER MATERIAL USED FOR THERMAL OR ACOUSTIC INSULATION MAY CONTAIN SYNTHETIC MINERAL FIBRE WHICH MAY BE HARMFUL IF INHALED, OR IF IT COMES INTO CONTACT WITH THE SKIN, EYES OR OTHER SENSITIVE PARTS OF THE BODY. PERSONAL PROTECTIVE EQUIPMENT, INCLUDING PROTECTION AGAINST INHALATION OF HARMFUL MATERIAL, SHOULD BE USED WHEN INSTALLING, REMOVING OR WORKING NEAR BULK INSULATION MATERIAL.

HAZARDOUS MANUAL TASKS

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "HAZARDOUS MANUAL TASKS" (CP110) STANDARD CONTROL.
- COMPONENTS WITHIN THIS DESIGN WITH A MASS IN EXCESS OF 25 KG SHOULD BE LIFTED BY TWO OR MORE WORKERS OR BY A MECHANICAL LIFTING DEVICE. ALL MATERIAL PACKAGING, BUILDING AND MAINTENANCE COMPONENTS SHOULD CLEARLY SHOW THE TOTAL MASS OF PACKAGES AND WHERE PRACTICAL ALL ITEMS SHOULD BE STORED ON SITE IN A WAY THAT MINIMISES BENDING BEFORE LIFTING. ADVICE SHOULD BE PROVIDED ON SAFE LIFTING METHODS IN ALL AREAS WHERE LIFTING MAY OCCUR.

CONFINED SPACES

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "CONFINED SPACES" (CP103) AND AS 2865 STANDARD CONTROLS.
- ENCLOSED SPACES WITHIN THE BUILDING MAY PRESENT A RISK TO PERSONS ENTERING FOR CONSTRUCTION, MAINTENANCE OR ANY OTHER PURPOSE. WHERE WORKERS ARE REQUIRED TO ENTER ENCLOSED SPACES, AIR TESTING EQUIPMENT AND PERSONAL PROTECTIVE EQUIPMENT SHALL BE PROVIDED. ONLY TRAINED PERSONNEL ARE TO ENTER A CONFINED SPACE AND THE CONTRACTOR IS TO PREPARE A WORK METHOD STATEMENT ADDRESSING MITIGATION OF RISKS FOR ANY SUCH WORKS. ADEQUATE SIGNAGE IS TO BE PROVIDED TO ALL TEMPORARY AND PERMANENT CONFINED SPACES IN ACCORDANCE WITH AS 2865.

NOISE

- THE CONTRACTOR IS TO CONDUCT WORKS IN ACCORDANCE WITH THE CODE OF PRACTICE: "MANAGING NOISE AND PREVENTING HEARING LOSS AT WORK" (CP118) STANDARD CONTROL.

OPERATIONAL USE OF BUILDING

RESIDENTIAL BUILDINGS:

- THIS BUILDING HAS BEEN DESIGNATED AS A RESIDENTIAL BUILDING. IF THE BUILDING, AT A LATER DATE, IS USED OR INTENDED FOR USE AS A WORKPLACE, THE PROVISIONS OF THE WORK HEALTH AND SAFETY ACT 2011 OR SUBSEQUENT REPLACEMENT LEGISLATION SHOULD BE APPLIED TO THE NEW USE.

NON-RESIDENTIAL BUILDINGS:

- NON-RESIDENTIAL BUILDINGS WHERE THE END-USE HAS NOT BEEN IDENTIFIED:
 - THE BUILDING HAS BEEN DESIGNED TO REQUIREMENTS OF THE CLASSIFICATION IDENTIFIED ON THE DRAWINGS. THE SPECIFIC USE OF THE BUILDING IS NOT KNOWN AT THE TIME OF THE DESIGN AND A FURTHER ASSESSMENT OF THE WORKPLACE HEALTH AND SAFETY ISSUES SHOULD BE UNDERTAKEN AT THE TIME OF FIT-OUT FOR THE END USER.
- NON-RESIDENTIAL BUILDINGS WHERE THE END-USE IS KNOWN:
 - THE BUILDING HAS BEEN DESIGNED FOR THE SPECIFIC USE AS IDENTIFIED ON THE DRAWINGS. WHERE A CHANGE OF USE OCCURS AT A LATER DATE, A FURTHER ASSESSMENT OF THE WORKPLACE HEALTH AND SAFETY ISSUES SHOULD BE UNDERTAKEN.



Mark Schmidt
Building Surveyor Limited
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23/01/2024 9:30:02 AM

			DRAWN: --
			CHECKED: --
			DESIGN: DG
			CHECKED: SP
0	BUILDING APPROVAL	12/12/2023	VERIFIED: MG
Document Set ID: 579390	DESCRIPTION	DATE	APPROVAL



Lower Ground
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PROJECT:
PROPOSED GARAGE

ADDRESS:
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SANDFORD TAS 7020

CLIENT:
ANDREW BOICO & BELINDA COOK

SHEET:
ENGINEERING NOTES

SCALE:
PROJECT No. 22E103-26

TOTAL SHEETS:
SHEET No. EN04

SIZE: A3
REV. 0

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Subject: CAS Comments - Clarence City Council - Additions and alterations to dwelling - 20 Tradewind Terrace, Sandford



Thank you for your email and the opportunity to comment on the proposed residential development at 20 Tradewind Terrace, Sandford. Conservation Assessments (CAS) has reviewed the information and can make the following comments:

Please note that CAS comments are restricted to the provisions of the *Threatened Species Protection Act 1995* (TSPA) and the *Nature Conservation Act 2002*. If there are any matters listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA), including habitat for threatened species, that may be impacted by the proposed development, the proponent should make themselves aware of their obligations under that Act.

Please also note that this advice is provided in response to a request from Clarence City Council (CCC) and is designed to be used by CCC to inform an assessment of the proposed development. If this advice will be provided to another party, it would be appreciated if the contact details of the Conservation Assessment Officer are removed.

Threatened Native Vegetation

It is unclear from the information provided in the Public Notice if native vegetation clearance will be required for the proposed development. TASVEG 4.0 indicates that *Eucalyptus tenuiramis* forest and woodland on sediments (DTO) listed as threatened under the *Nature Conservation Act 2002* may occur on the impact site. If vegetation clearance is required it is recommended that the impact site is surveyed by a suitably qualified person in accordance with the *Guidelines for Natural Values Assessments – Terrestrial Development Proposals: [Survey Guidelines for Development Assessments](#) | Department of Natural Resources and Environment Tasmania (nre.tas.gov.au)*

Some of the potential threatened flora on site includes orchids or ephemeral species. Surveys should be undertaken at a suitable time to capture most of these species during their flowering season to aid identification. Information on optimal survey times is available for many species on the Threatened Species Link website: <http://www.threatenedspecieslink.tas.gov.au/>.

If any listed threatened flora species are identified and will be impacted by the proposed development, a permit to take under the TSPA will be required. The processing of permit applications may take up to four weeks. Information on applying for a permit, including application forms, can be found on the NRE Tas website: [Permit to Take Threatened Species \(for Consultants & Development-related Activities\) | Department of Natural Resources and Environment Tasmania \(nre.tas.gov.au\)](https://www.nre.tas.gov.au/permits-and-licences/permits-to-take-threatened-species)

Threatened Fauna

The following are some of the threatened fauna species recorded or have potential range within 5 km (see table below), listed under the TSPA and/or EPBCA that may have potential habitat on the impact site.

Species name	Common name	TSPA	EPBCA
<i>Aquila audax subsp. fleayi</i>	Wedge-tailed Eagle	endangered	Endangered
<i>Lathamus discolor</i>	Swift Parrot	endangered	Endangered
<i>Sarcophilus harrisii</i>	Tasmanian devil	endangered	Endangered
<i>Perameles gunnii</i>	Eastern Barred Bandicoot	-	Vulnerable
<i>Tyto novaehollandiae subsp. castanops</i>	Masked Owl (Tasmanian)	endangered	Vulnerable

The survey should also determine if any habitat is present on the impact site and should include a check of mature trees for hollows that may potentially provide nests for Masked Owls and Swift Parrot. If surveys identify any threatened fauna, nests, dens or hollows, further information should be sought from CAS before any development works commence.

Lathamus discolor (Swift Parrot)

Sandford is located within core habitat range of the Swift Parrot with numerous records within 5 km. Swift Parrots are listed as endangered under the TSPA and Critically Endangered under the EPBCA. The building plans for 20 Tradewind Terrace, Sandford do not state if non-reflective glass will be used, however there appears to be corner windows and sight lines between windows. In addition, there appear to be glass balustrades with no height identified.

A threat to Swift Parrots is colliding with man-made objects such as windows and chain-link fences. It is recommended that infrastructure is designed to minimise collision risks to Swift Parrots. For general information and advice on building structures which minimise risk of collisions (e.g. wire-mesh fences or windows) - see [Guidelines and recommendations for parrot-safe building design](#). For comprehensive advice on avoiding collisions with glass - see [An end to birds dying at windows](#).

Swift Parrot sightings and collisions can be reported to the Threatened Species Section; contact details for which are at <http://www.threatenedspecieslink.tas.gov.au/Pages/Swift-Parrot.aspx>

Weeds

There are numerous declared weeds within 5 km of the proposed development including *Chrysanthemoides monilifera subsp. Monilifera* (boneseed), *Erica lusitanica* (Spanish heath), *Nassella trichotoma* (serrated tussock), *Rubus fruticosus* (blackberry), *Urospermum dalechampii* (false dandelion). If there are vehicles and machinery moving on and off site or if materials such as soil, sand or gravel are imported onto or exported from the site then there is a risk of spreading weeds or diseases. It is important that good hygiene practices are put in place to minimise the risk of weeds and/or diseases being introduced to the impact site. Information about practical hygiene measures to implement can be found in Appendix 1 of the [NRE \(2015\) Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania](#)

Regards,



[Redacted] | Section Head, Conservation Assessment & Wildlife Services
Policy, Projects & Regulatory Services | Environment
Environment, Heritage & Land Division
Department of Natural Resources and Environment Tasmania
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[Redacted]
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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past and present custodians of the land.