NOTICE OF PROPOSED DEVELOPMENT

Notice is hereby given that an application has been made for planning approval for the following development:

SITE: 8 Fulham Road, Dunalley

PROPOSED DEVELOPMENT:
DWELLING

The relevant plans and documents can be inspected at the Council Offices at 47 Cole Street, Sorell during normal office hours, or the plans may be viewed on Council's website at www.sorell.tas.gov.au until **Monday 23rd December 2024.**

Any person may make representation in relation to the proposal by letter or electronic mail (sorell.council@sorell.tas.gov.au) addressed to the General Manager. Representations must be received no later than **Monday 23rd December 2024.**

APPLICANT: **Systembuilt Homes**

APPLICATION NO: **DA 2024 / 00235 - 1**
DATE: **05 December 2024**

Part B: Please note that Part B of this form is publicly exhibited.

Full description of Proposal:	*Use:* Singe Dwelling *Development:* 1 x New Building *Large or complex proposals should be described in a letter or planning report.*
Design and construction cost of proposal:	$ 270,000

Is all, or some the work already constructed:	No: ☑ Yes: ☐

Location of proposed works:	Street address: 8 Fulham Road Suburb: Dunalley Postcode: 7177 Certificate of Title(s) Volume: 72329 Folio: 4

Current Use of Site	Vacant Land

Current Owner/s:	Name(s) Joe and Elizabeth Mammoliti

Is the Property on the Tasmanian Heritage Register?	No: ☑ Yes: ☐	*If yes, please provide written advice from Heritage Tasmania*
Is the proposal to be carried out in more than one stage?	No: ☑ Yes: ☐	*If yes, please clearly describe in plans*
Have any potentially contaminating uses been undertaken on the site?	No: ☑ Yes: ☐	*If yes, please complete the Additional Information for Non-Residential Use*
Is any vegetation proposed to be removed?	No: ☑ Yes: ☐	*If yes, please ensure plans clearly show area to be impacted*
Does the proposal involve land administered or owned by either the Crown or Council?	No: ☑ Yes: ☐	*If yes, please complete the Council or Crown land section on page 3*
If a new or upgraded vehicular crossing is required from Council to the front boundary please complete the Vehicular Crossing (and Associated Works) application form https://www.sorell.tas.gov.au/services/engineering/		

Part B continued: Please note that Part B of this form is publicly exhibited

Declarations and acknowledgements
• I/we confirm that the application does not contradict any easement, covenant or restriction specified in the Certificate of Title, Schedule of Easements or Part 5 Agreement for the land. • I/we consent to Council employees or consultants entering the site and have arranged permission and/or access for Council's representatives to enter the land at any time during normal business hours. • I/we authorise the provision of a copy of any documents relating to this application to any person for the purposes of assessment or public consultation and have permission of the copyright owner for such copies. • I/we declare that, in accordance with s52(1) of the *Land Use Planning and Approvals Act 1993*, that I have notified the owner(s) of the intention to make this application. • I/we declare that the information in this application is true and correct. *Details of how the Council manages personal information and how you can request access or corrections to it is outlined in Council's Privacy Policy available on the Council website.*
• I/we 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 exhibition, and to fulfil its statutory obligations. I further acknowledge that following determination of my application, Council will store documentation relating to my application in electronic format only.
• Where the General Manager's consent is also required under s.14 of the *Urban Drainage Act 2013*, by making this application I/we also apply for that consent.

Applicant Signature:	Signature: ..... Date: 26/09/2024

Crown or General Manager Land Owner Consent
If the land that is the subject of this application is owned or administered by either the Crown or Sorell Council, the consent of the relevant Minister or the Council General Manager whichever is applicable, must be included here. This consent should be completed and signed by either the General Manager, the Minister, or a delegate (as specified in s52 (1D-1G) of the *Land Use Planning and Approvals Act 1993*). Please note: • If General Manager consent if required, please first complete the General Manager consent application form available on our website www.sorell.tas.gov.au • If the application involves Crown land you will also need a letter of consent. • Any consent is for the purposes of making this application only and is not consent to undertaken work or take any other action with respect to the proposed use or development.
I _____ being responsible for the administration of land at _____ declare that I have given permission for the making of this application for _____ Sorell Council Development Application: Development Application - 8 Fulham Road, Dunalley - P1.pdf Plans Reference:P1 Date Received:27/09/2024

Signature of General Manager, Minister or Delegate:	Signature: ..... Date: .....

enviro•tech
CONSULTANTS
Geotechnical & Environmental Services

COASTAL INUNDATION HAZARD ASSESSMENT

8 FULHAM ROAD - DUNALLEY

PROPOSED DWELLING

Client:	**Systembuilt Homes**
Certificate of Title:	**72329/4**
Investigation Date:	**Wednesday, 20 November 2024**

Enviro-Tech Consultants Pty. Ltd. 2024. Coastal Inundation Hazard Assessment Report for a Proposed Dwelling, 8 Fulham Road - Dunalley. Unpublished report for Systembuilt Homes by Enviro-Tech Consultants Pty. Ltd., 20/11/2024.

Report Distribution

This report has been prepared by Enviro-Tech Consultants Pty. Ltd. for the use by parties involved in the proposed residential development of the property named above. It is to be used only to assist in managing any existing or potential inundation hazards relating to the Site and its development.

Permission is hereby given by Enviro-Tech Consultants Pty. Ltd., and the client, for this report to be copied and distributed to interested parties, but only if it is reproduced in colour, and only distributed in full. No responsibility is otherwise taken for the contents.

Reporting Declaration – Coastal Inundation

This Hazard Assessment Report includes an inundation assessment which has been prepared in accordance with the Tasmanian Planning Scheme and the Director's Determination – Coastal Inundation Hazard Areas and supervised by an environmental and engineering geologist with more than 10 years of experience and competence in coastal inundation modelling (see Attachment 7 for signed declaration & verification).

Limitations of this report - Inundation

No responsibility is accepted for subsequent activities onsite by owners including but not limited to placement of fill, uncontrolled earthworks or altered drainage conditions.

This report has been prepared based on provided plans detailed herein. Should there be any significant changes to these plans, then this report should not be used without further consultation. This report should not be applied to any project other than indicated herein.

Executive Summary

Enviro-Tech Consultants Pty. Ltd. (Envirotech) were contracted by Systembuilt Homes to prepare a Coastal Inundation Assessment for a proposed dwelling at 8 Fulham Road Dunalley, which is herein defined as the Site.

The proposed development comprises of a dwelling, driveway and water tanks with proposed finished floor level at 3.6 m AHD for the dwelling.

The proposed development is exempt from planning but requires both a coastal inundation and flood prone areas inundation assessment to address the respective director's determination.

Envirotech have prepared inundation modelling to assess 1% AEP inundation levels throughout the building design life (based on 2075 sea levels). The resulting wave setup is modelled at 2.25 m AHD.

Given the site has an elevation of 2.25 to 3.0 m AHD, considering sea level rise, wind and wave actions, there is a low risk that the Site will be impacted by 1% AEP storm tide inundation by 1% AEP storm surge inundation by from the modelled 1% AEP wind wave from the south (the largest of the modelled waves).

The defined riverine flood level is determined at 2.65 m AHD at the Site which is based on Sorell Council 1% AEP flood prone areas mapping, with a requirement that the FFL is constructed at 2.95m AHD

Local provisions for Dunalley, Sorell have a defined flood level at 2.5 m AHD. The defined riverine flood level is the limiting flood level with a requirement that finished floor levels are constructed at 2.8 m AHD.

It is concluded that:

- The Site is exempt from planning code C11 and C12. Therefore, the Directors Determination must be addressed.
- The finished floor level is limited by the riverine inundation level at 2.65m AHD. The proposed finished floor level is at 3.6 m AHD which is well above the 2.95 m AHD recommended FFL.
- There is a BARELY CREDIBLE likelihood that the proposed building and works will contribute to coastal inundation on the site or adjacent land.
- The proposed work can achieve and maintain a tolerable risk for the intended life of the building
- Coastal protection works are not required at the Site.
- An H1 hazard class is applicable for the Site, indicating it is generally defined as being safe for people, vehicles, and buildings.

It is concluded from this risk assessment that risks from inundation are LOW and tolerable in accordance with the director's determination based on a 1% AEP storm surge event in 2075 and no management measures are required.

1 Introduction

1.1 *Background*

Enviro-Tech Consultants Pty. Ltd. (Envirotech) were contracted by Systembuilt Homes to prepare a Coastal Inundation Assessment for a proposed dwelling at 8 Fulham Road Dunalley, which is herein defined as the Site (Map 1).

Envirotech have assessed risks based on the supplied Site plans for the proposed development, modelling constraints stipulated within the Directors Determination, the Tasmanian Planning Scheme, and the 2016 Tasmanian Building Regulations (TPS)

1.2 *Scope*

The scope of the Site investigation is to:

- Identify which overlay codes apply to the Site to determine development constraints including planning scheme exemptions, acceptable solutions, performance criteria as well as directors' determinations and building regulations specific to the identified hazards.
- Conduct inundation modelling and hazard analysis within the Site to assess directors' determination tolerable risks throughout the building design life and where applicable modelling to 2100 to address planning code performance criteria.
- Prepare a desktop review of relevant geomorphologic and hydrological information relevant to the Site and proposed development
- Using available geographic information system (GIS) data, construct a hydrodynamic and coastal process model for the Site to interpret present and future Site conditions and how the proposed development may influence and be influenced by future Site processes.
- Prepare a risk assessment for the proposed development in terms of coastal inundation hazards ensuring relevant building regulations, Directors Determination, and where applicable performance criteria are addressed; and
- Where applicable, provide recommendations on methods and design approach to adapt to Site hazards.

1.3 *Cadastral Title*

The land studied in this report is defined by the title 72329/4

1.4 *Site Setting*

The Site location plans are presented in Map 2, Attachment 1. The Site is located on Tertiary sandstone, claystone, conglomerate, or pyroclastic rock deposits and Quaternary river alluvium, swamp, marsh, beach or spit deposits. The Site is set back approximately 25 m from Denison Canal and approximately 125 m from Dunalley Bay and in the future may be subject to coastal processes acting within Dunalley Bay and Norfolk Bay.

2 Assessment

2.1 *Proposed Development*

Table 1 summarises the provided design documents from which this assessment is based with the most relevant plans pages presented in Attachment 2 with the Site outlay presented in Map 3.

Table 1 Project Design Drawings

Drafted By	Project ID	Date Generated	Pages
Rogerson & Birch	5286	09/10/2024	12

The proposal involves the development of a dwelling towards the front of the block with the finished floor level proposed at 3.6 m AHD

2.2 *Planning*

Planning code overlay mapping is presented in Attachment 1.

Planning code overlay descriptions, objectives, acceptable solutions and performance criteria are addressed in Attachment 3 (TPS)

2.2.1 Coastal Inundation Hazard Code

Coastal inundation hazard overlay mapping are presented in Map 5 and coastal inundation reporting requirements are summarised Table 3.

Although the proposed building and works fall within a coastal inundation overlay, given the proposed development requires authorisation under the Building Act 2016 (TPS C11.4.1) and does not trigger high risk planning criteria, the proposed development is exempt from planning Code C11.0 (Coastal Inundation Hazard Code).

2.2.2 Flood Prone Areas Hazard Code

Coastal inundation hazard overlay mapping is presented in Map 6.

The Flood Prone Areas Hazard Code does not need to be addressed on the basis that the building and works is within the coastal inundation hazard overlay.

2.3 *Building*

2.3.1 Coastal Inundation Hazard Overlay

The director's determination specifies (Division 2.2.1) that the defined flood level is above the 0 metres Australian Height Datum (AHD) level the with a one per cent probability of being exceeded in a storm surge flooding event in the year 2100, as specified in the Coastal Inundation Hazard Band Levels List (which includes the Site) at:

2.5 m AHD for Dunalley - Sorell

2.3.2 Proposed Dwelling

According to the director's determination and the Tasmanian Building Regulations 2016, buildings with *habitable rooms*[1] including residential structures (Class 1) within a coastal inundation hazard area must

[1]habitable rooms "means any room of a dwelling other than a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room and other space of a specialised nature occupied neither frequently nor for extended periods."

have finished floor level of at least 300 millimetres above the *defined flood level* for the land (which includes the Site) at or above:

2.8 m AHD for Dunalley - Sorell

2.3.3 Flood Prone Areas (Riverine) Hazard Overlay

It must be ensured that the proposed development does not adversely affect flood flow over other property through displacement of overland flows or modifying the rate or quality of overland flow.

Given the pluvial nature of the flooding, a single inundation level applied to the Site. The defined riverine inundation level for the Site (based on 1% annual exceedance probability of inundation) is 2.65 m AHD with the following finished floor level requirement:

2.95 m AHD

Given the proposed finished floor levels are designed at 3.6 m AHD, the proposed finished floor levels are more than 300 mm above the defined riverine inundation level and therefore comply with section 4(1) of the Tasmanian Building Act 2016, the 2016 Tasmanian Building Regulations and the Director's Determination for Riverine Inundation Hazard Areas.

In the Directors Determination, there are no risk assessment requirements for assessing tolerable risks to users of the Site.

3 Desktop Summary

3.1 *Topography*

The Site ranges in elevation from approximately 2.4 m AHD through to 3.0 m AHD and is near level (Map 7).

3.2 *Published Geology*

According to the 1:25,000 geological mapping by Mineral Resources Tasmania (MRT), as presented in Map 8, the geology of the Project Area comprises:

- Quaternary river alluvium, swamp, marsh, beach or spit deposits
- Tertiary sandstone, claystone, conglomerate, or pyroclastic rock deposits

4 Coastal Inundation Assessment

4.1 *Assessment Methods*

Inundation levels are modelled by Envirotech based on Site-specific hydrodynamic and topographic/bathymetric conditions within the Site. The Site specified inundation levels and wave dynamics tolerable risks for Site building works and in determining the need for coastal protection works. To comply with the director's determination, an assessment has been made based on storm tide event by 2075. The coastal hydrodynamic assessment is presented in Attachment 4 with an assessment based on:

- Projected 2075 sea levels
- 1% AEP barometric low conditions combined with astronomical tides.
- 1% AEP wind setup scenario
- Radials used in the assessment (Map 9) to determine local wind wave propagation
- Wave setup and wave runup probabilities

4.2 *Findings*

As presented in Table 2, making allowance for 2075 sea levels, wind setup, wave setup, wave runup as well as barometric low pressures:

The 2075 inundation level for the Site is calculated at 2.4 m AHD based on a wave setup scenario.

Table 2 Site specific inundation level modelling

1% AEP Parameter	Units	2075
Storm Tide Levels	m AHD	2.00
Wave setup (southerly wind fetch)	m AHD	2.25
Wave runup (southwesterly wind)	m AHD	2.25

5 Fluvial Inundation Assessment

5.1 *Site Riverine Inundation*

Details of the Site inundation assessment are presented in Attachment 5.

The proposed building finished floor levels are to be elevated at least 300 mm above the 1% AEP inundation levels.

5.2 *Site Floodwater Hazards*

Details of the Site inundation hazard assessment are presented in Attachment 5.

A flood hazard curve (Ball, et al., 2019) has been adopted for the Site which is based on a floodwater depth vs floodwater velocity relationship (Figure 2).

An H1 hazard class has been identified for the Site based on less than 0.1m floodwater depths and floodwater flow of less than 0.5 m/s.

5.3 *Influence of the Proposed Development on Floodwater Movement*

With floodwater velocities at an estimated 0.2 m/s, the proposed development is estimated to have negligible influence of flood water movement in terms of water displacement, changes in water quality, water flow velocities, and inundation levels.

6 Risk Assessment

Qualitative risk evaluation criteria have been created to determine fundamental risks that may occur due to development in areas that are vulnerable inundation hazards.

This qualitative risk assessment technique is based on AS/NZS ISO 31000:2009 and relies on descriptive or comparative characterisation of consequence, likelihood, and the level of risk comparative (rather than using absolute numerical measures).

A risk consequence/likelihood matrix has been selected which is consistent with AS/NZS ISO 31000:2009 guidelines.

Consequence/likelihood criteria have assisted in determining if any risk management measures are required at the Site to mitigate any potential hazards. Adopted consequence/likelihood criteria are presented in Attachment 6.

6.1 *Planning*

6.1.1 Flood Prone Areas Inundation Assessment

As per Section 2.2.2 of this report, the proposed development is exempt from Flood Prone Areas Code C12 in the basis that the building and works is within the coastal inundation hazard overlay.

6.1.2 Coastal Inundation Assessment

As per Section 2.2.1, the proposed development is exempt from coastal inundation code C11.

6.2 *Building*

6.2.1 Riverine Inundation Assessment

The Directors Determination Riverine Inundation Hazard Areas has been assessed for the Site. The resulting 1% AEP floodwater scenario is identified as an H1 hazard class which is generally defined as being safe for people, vehicles, and buildings.

6.2.2 Coastal Inundation

Modelling has been conducted for Directors Determination purposes to assess whether the proposed building and work can achieve and maintain a tolerable risk for the intended life of the building without requiring any specific coastal inundation protection measures. The risk assessment modelling herein is based on a 1% AEP storm tide scenario within the building design life (2075).

Based on inundation modelling prepared for the Site the following is concluded:

- Within the building design life (by 2075) wind waves originating from the south within Norfolk Bay are projected to have inundation level of 2.25m AHD based on a 1% AEP inundation event which combines the effects of sea level rise, tide, barometric low, wind setup and wave setup.
- Wave runup is projected to be largely attenuated and wave setup has the potential to reach the margin of the building envelope within the building design life.
- This coastal inundation risk to the building, works and users of the site is considered tolerable, and the hazard class does not apply in this instance.
- no specific hazard reduction or protection measures are recommended.

7 Conclusions

7.1 *Finished Floor Levels*

Ultimately, the finished floors for the Site are defined by the Tasmanian Building Regulations 2016 and both the Coastal Inundating Directors Determination and Riverine Inundation Hazard Areas Directors Determination.
In cases where non habitable buildings (buildings other than Class 1) are proposed, Envirotech may provide recommendations for finished floor levels where modelled inundation levels exceed Directors Determination or in cases where modelled wave runup, wave setup or Stillwater risks are not considered acceptable.

With the proposed finished floor levels at 3.6 m AHD, the floor levels are suitably elevated more than 300 mm above the:

- Modelled 1% AEP storm tide scenario inundation level of 2.25 m based on wave setup within the building design life
- A 1% AEP riverine inundation level estimated at 2.65 m AHD
- Stipulated local planning provision schedule defined coastal inundation level of 2.5 m AHD for Dunalley

7.2 *Inundation*

The following are concluded:

- It is concluded that risk is tolerable given the H1 hazard class identified at the Site.

7.3 *Inundation Protection Works*

Inundation protection works ware not required at the Site.

8 Concluding Statement

The Site is exempt from planning code C11 and C12. Therefore, the Directors Determination must be addressed.

It is projected that the Site could be inundated within the building design life (2075) with flood levels of 2.65 m AHD by flood prone areas code.

The defined riverine flood level of 2.65m AHD is the limiting floodwater level for the Site and therefore finished floor levels are to be constructed at 2.95m AHD or higher.

With proposed Finished Floor Levels at 3.6m AHD it is BARELY CREDIBLE the proposed dwelling will be inundated within the Building design life.

There is a BARELY CREDIBLE likelihood that the proposed building and works will contribute to coastal inundation on the site or adjacent land.

The proposed work can achieve and maintain a tolerable risk for the intended life of the building

Coastal protection works are not required at the Site.

Niels Kijm BSc Msc | Environmental Engineer & Geomorphologist

Analyst

Enviro-Tech Consultants Pty. Ltd.

9 References

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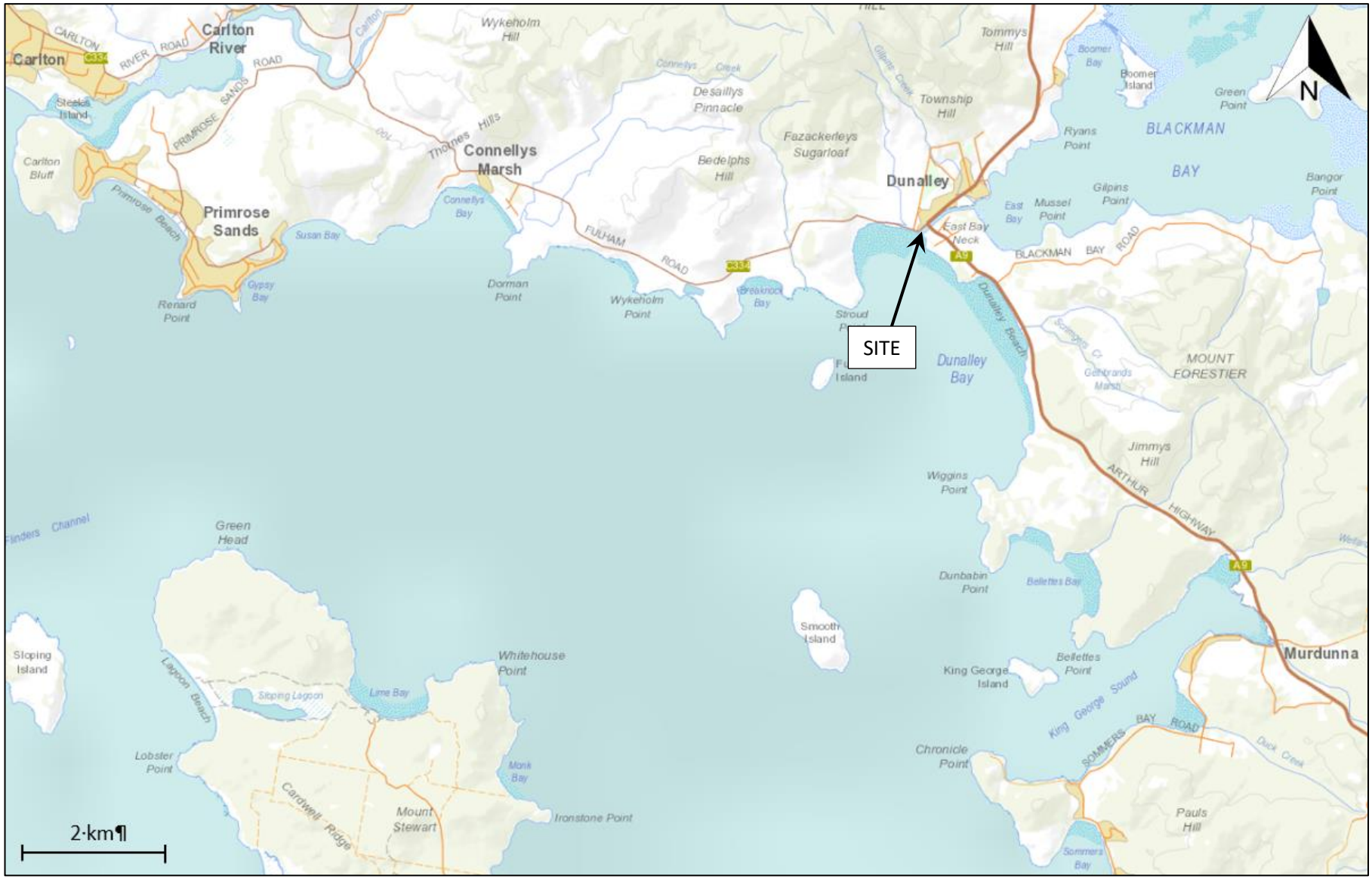
Water and Rivers Commission 2000, Stream Channel Analysis Water and Rivers Commission River Restoration Report No. RR 9.

Attachment 1 Maps

Map 1



Map 1 Site regional setting (The LIST)

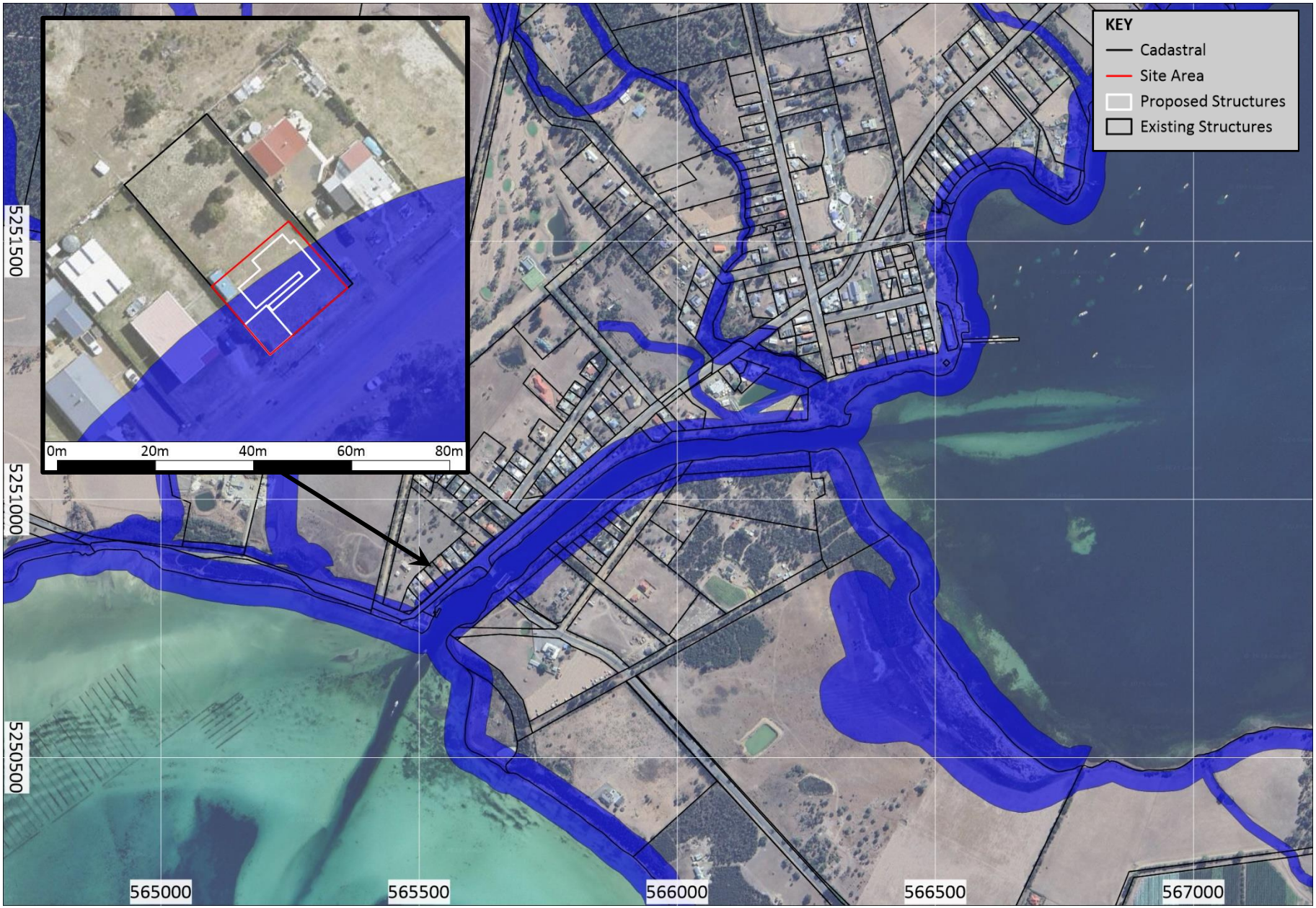
Map 2

Map 2 Site and Project Area local setting

Map 3

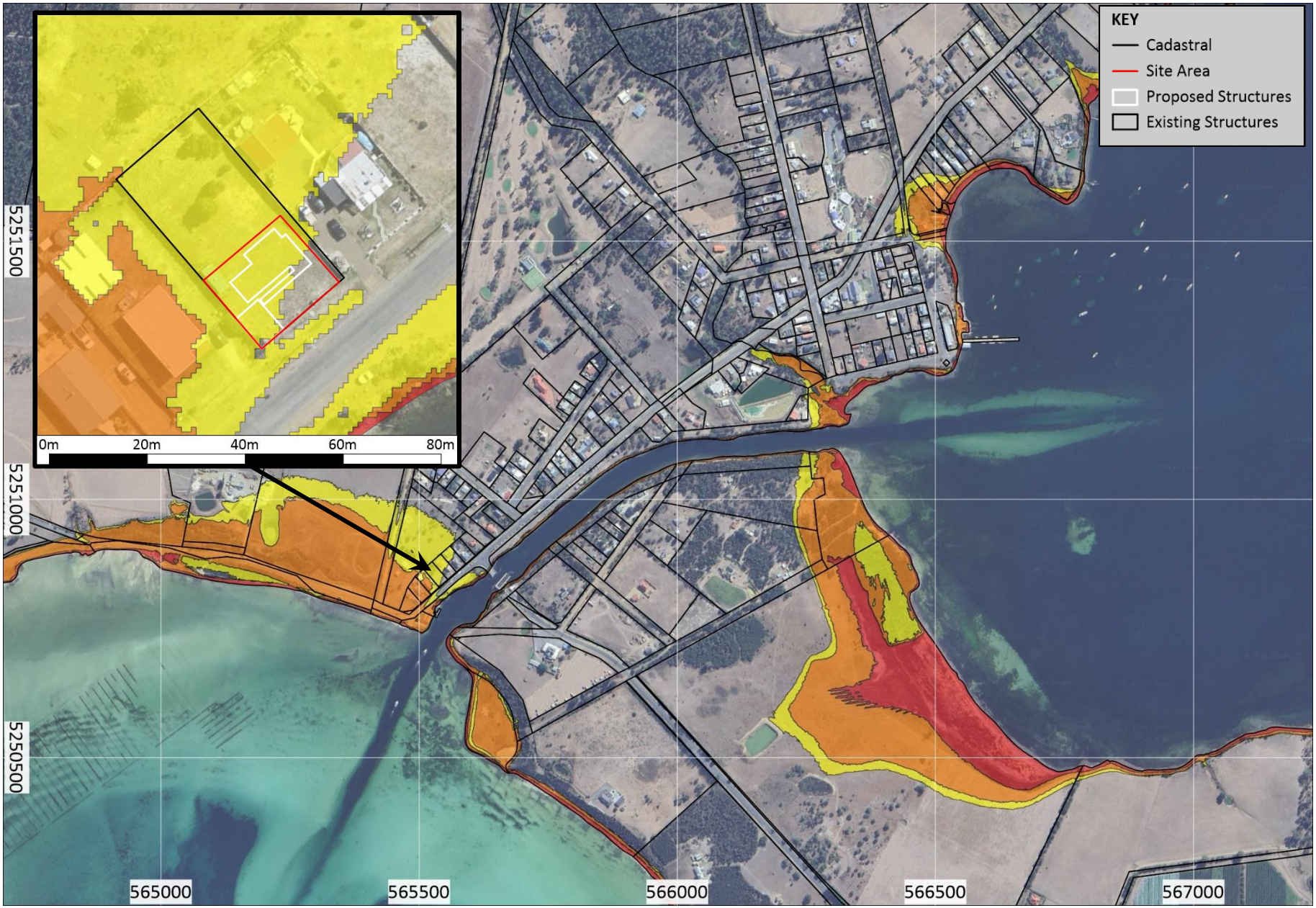
Map 3 Proposed Site Development Plan

Map 4



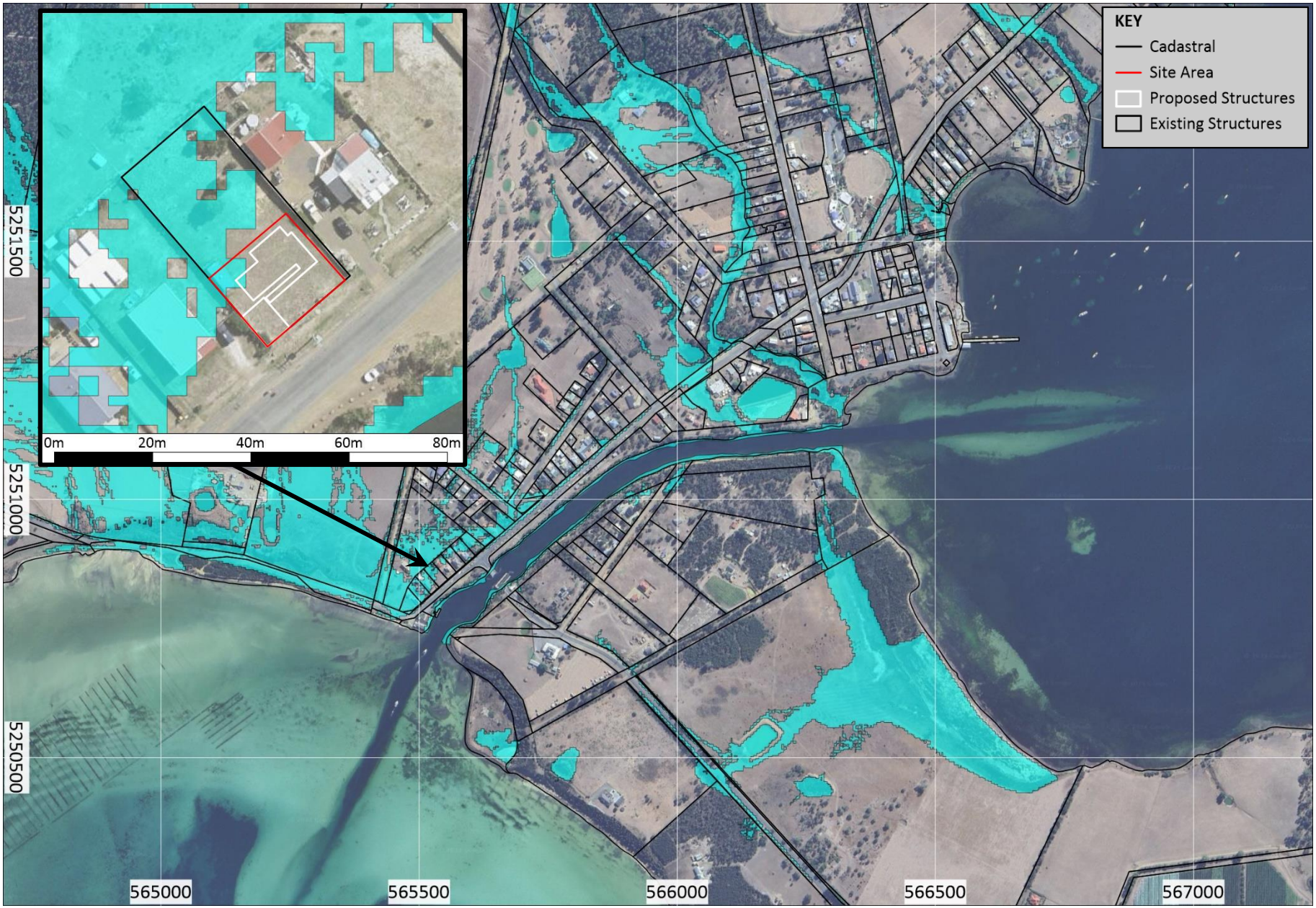
Map 4 Waterways and Coastal Protection Overlay

Map 5



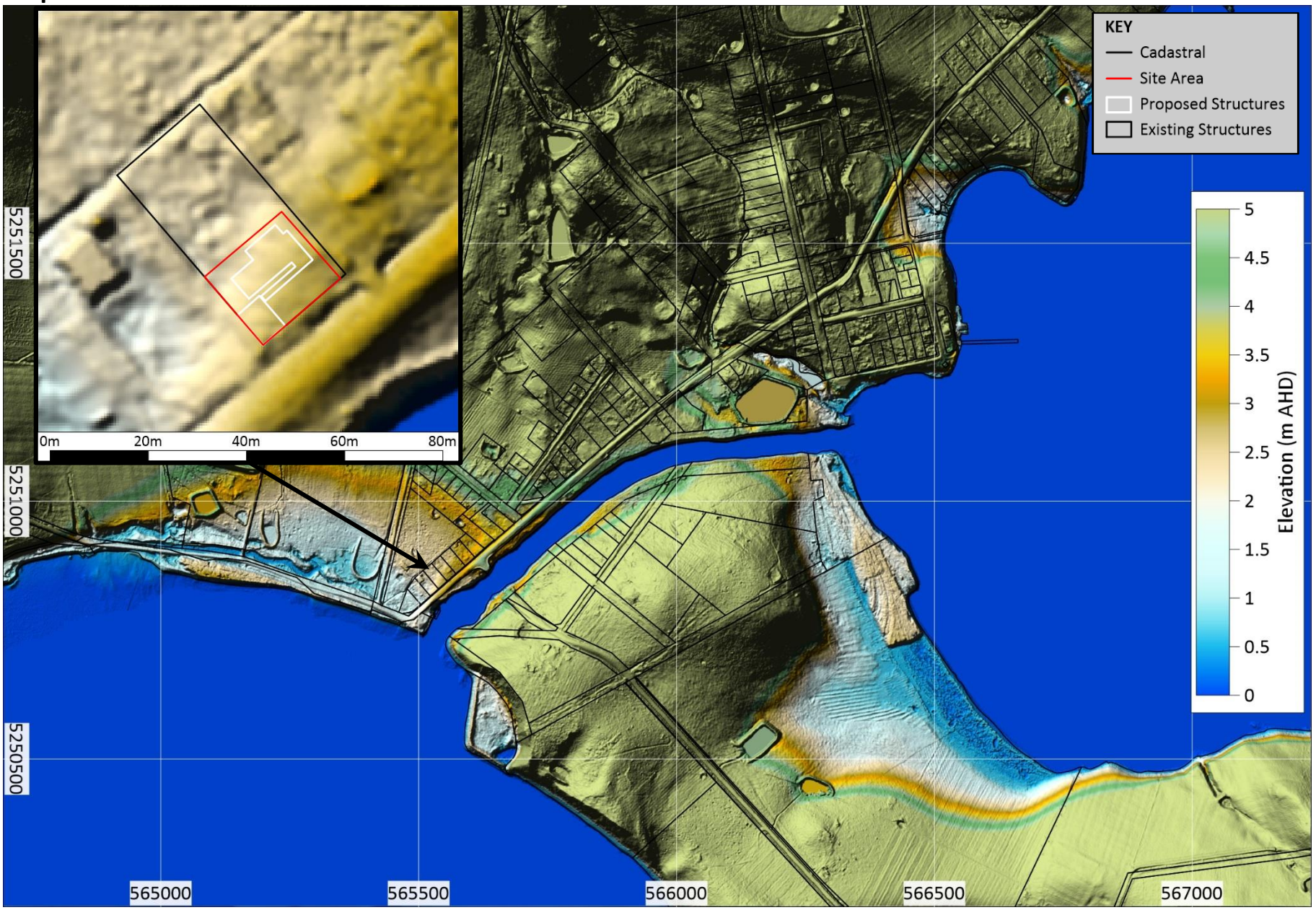
Map 5 Coastal inundation overlay

Map 6



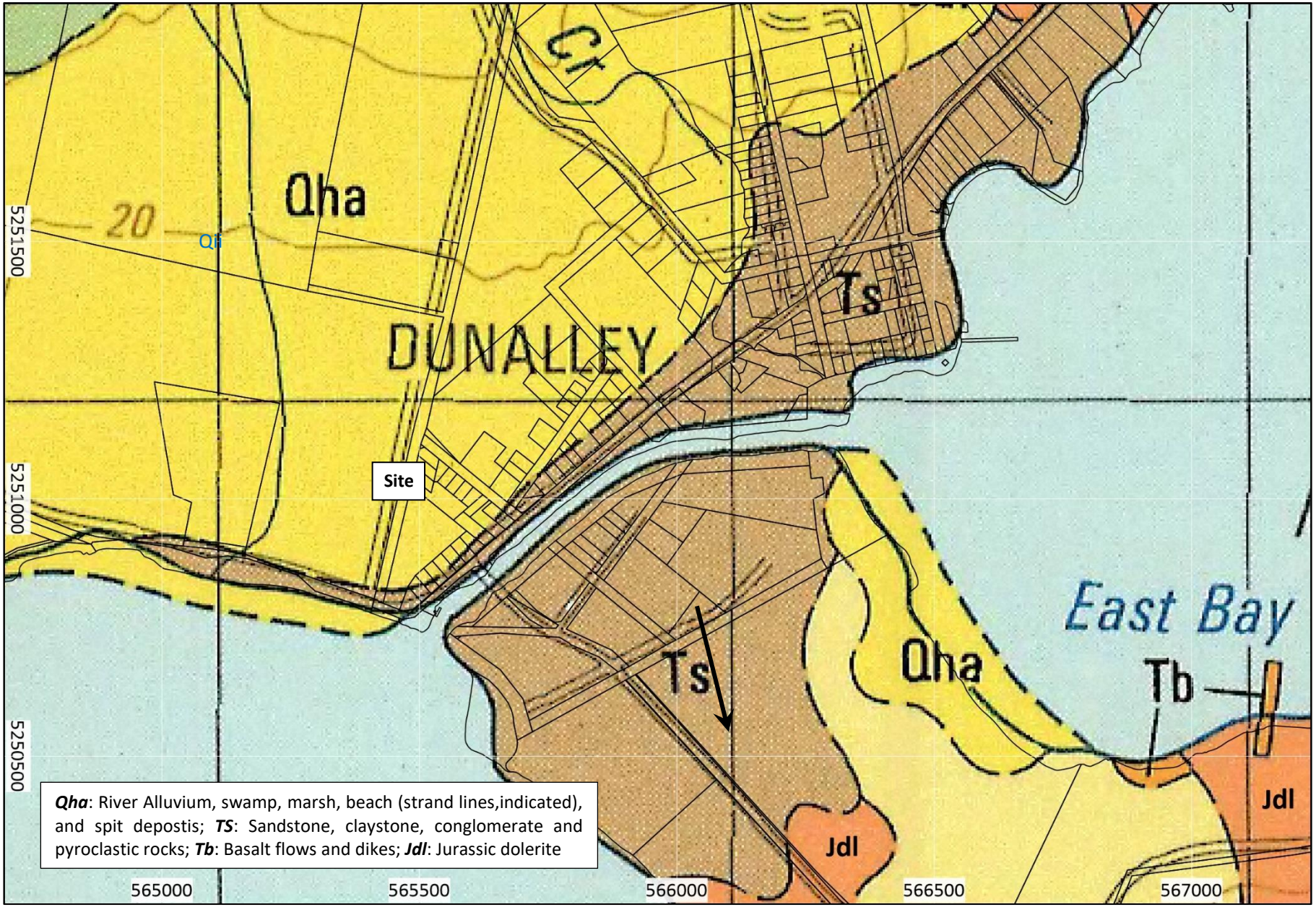
Map 6 Flood prone areas overlay – 1% AEP inundation mapping

Map 7



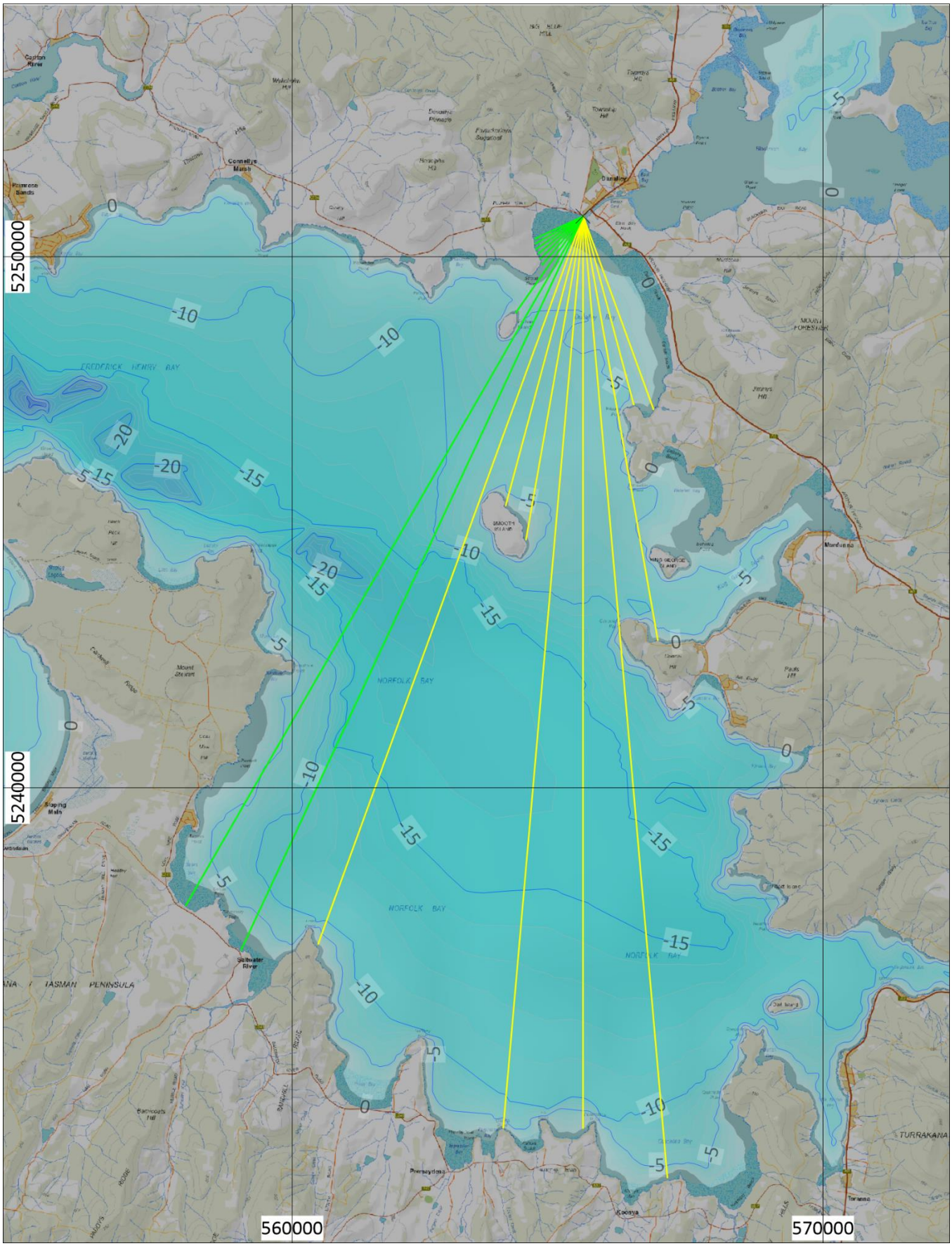
Map 7 Regional digital elevation model based on 2013 LIDAR

Map 8



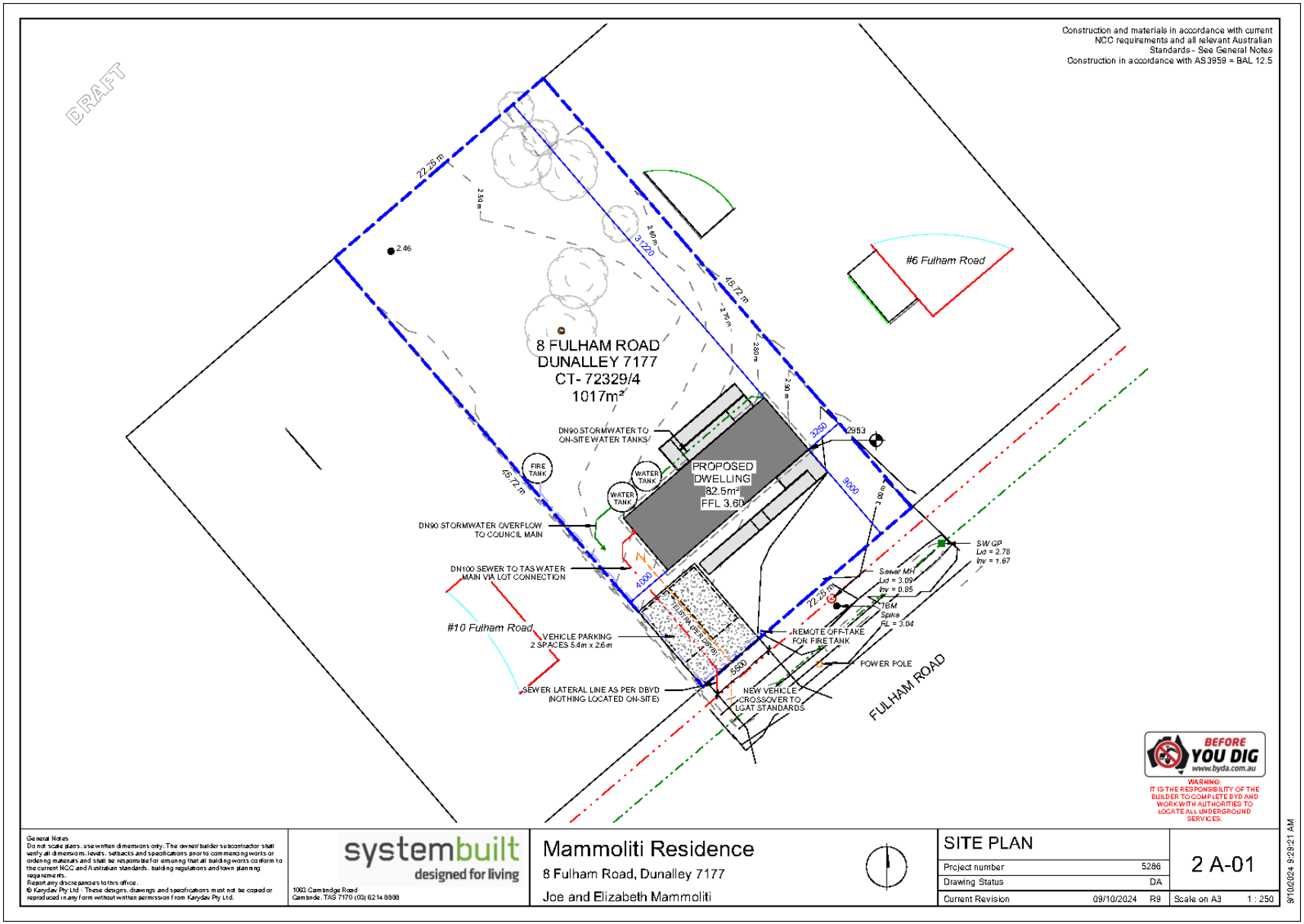
Map 8 1:50,000 Scale Mineral Resources Tasmania geology mapping

Map 9



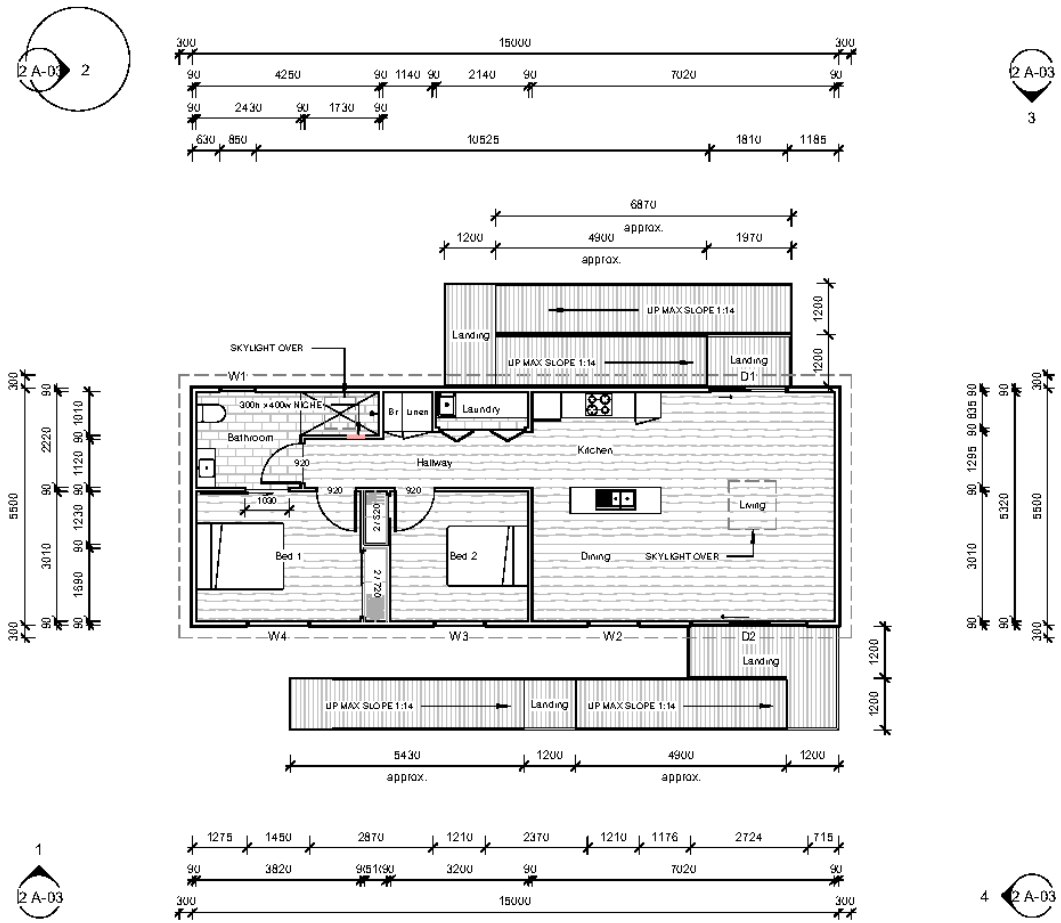
Map 9 Radials used to generate the wind wave model for the Site.

Attachment 2 Preliminary Design Concept Plans



Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5

DRAFT



NOTE:

D1 AND D2 DOOR TRACKS TO BE RECESSED INTO FLOOR FOR FLUSH ENTRY

REDUCED HEAD HEIGHT ON WINDOWS TO SUIT SLIDING DOORS

Glazing Schedule - Single Glazed - Monument - BAL TBA

Mark	Height	Width	Head Height	Description	Comments	Count
D1	2100	1810	2070	Sliding Door	Clear	1
D2	2100	2724	2070	Sliding Door	Clear	1
W1	857	850	2070	Awning Window	White Trans	1
W2	1800	1210	2070	Awning Window	Clear	1
W3	1800	1210	2070	Awning Window	Clear	1
W4	1800	1450	2070	Awning Window	Clear	1
W5	1180	1140		Velux Fixed Skylight	Clear	1
W6	780	780		Velux Fixed Skylight	Clear	1

Area Schedule	
House	82.50 m²
Ramps/Landings	38.84 m²

General Notes
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.
Report any discrepancies to this office.

systembuilt designed for living
1063 Cambridge Road
Cambridge, TAS 7170 (03) 6214 8888

Mammoliti Residence
8 Fulham Road, Dunalley 7177
Joe and Elizabeth Mammoliti

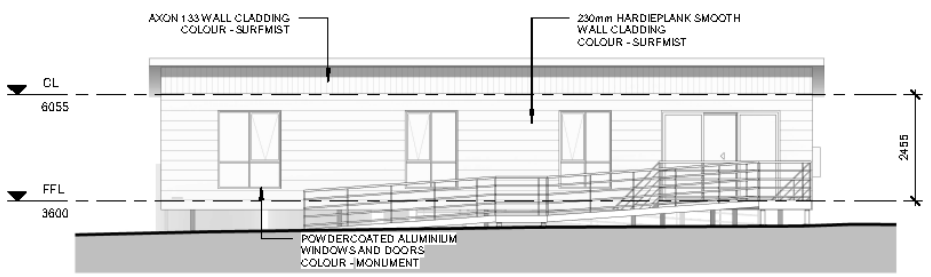
FLOOR PLAN

Project number	5286	2 A-02
Drawing Status	DA	
Current Revision	09/10/2024 R9	Scale on A3 1 : 100

9/10/2024 9:29:22 AM

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5

DRAFT



1 SOUTH EAST ELEVATION
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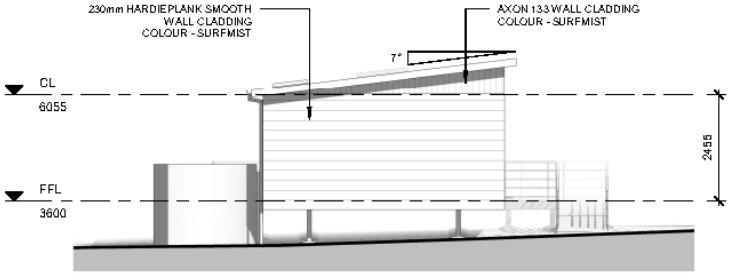

2 SOUTH WEST ELEVATION
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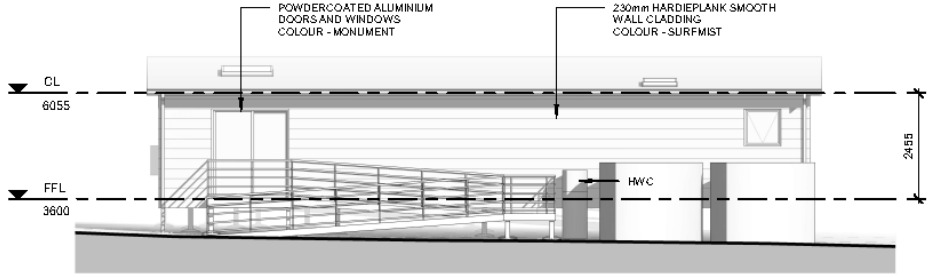

3 NORTH WEST ELEVATION
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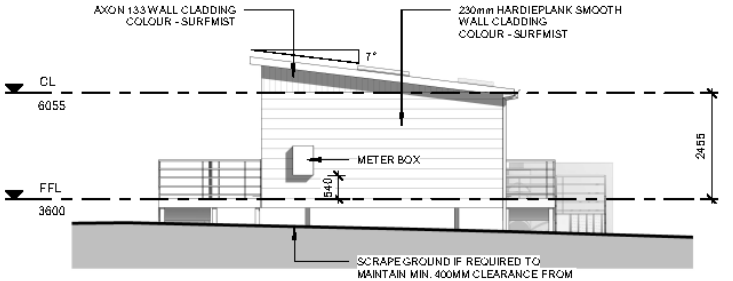

4 NORTH EAST ELEVATION
1 : 100

NOTE:
ALL STEEL ROOF AND WALL CLADDING MATERIALS TO HAVE A MINIMUM AM150 COATING.
USE ONLY COMPATIBLE FIXINGS AND INSTALL AS PER MANUFACTURERS SPECIFICATIONS.

General Notes
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.
Report any discrepancies to this office.

systembuilt
designed for living
1063 Cambridge Road
Cambridge, TAS 7170 (03) 6214 8888

Mammoliti Residence
8 Fulham Road, Dunalley 7177
Joe and Elizabeth Mammoliti

ELEVATIONS

Project number	5286	2 A-03
Drawing Status	DA	
Current Revision	09/10/2024 R9	Scale on A3 1 : 100

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Attachment 3 Planning and Building Regulations (TPS)

Coastal Inundation Hazards

Code Overlay Reporting Requirements

The Site falls within The LIST Coastal Inundation Hazard Overlay (low hazard band) as presented in Map 5.

The proposed development reporting requirements are summarised in Table 3 with the following to be addressed:

- Part 5 (Work in Hazardous Areas) of the Building Regulations 2016; Division 5 – Coastal Inundation
- Directors Determination – Coastal Inundation Hazard Areas.

The proposed development is exempt from C11 Coastal Inundation Hazard Code planning on the basis that the use or development requires authorisation under the Building Act 2016 (TPS C10.4.1).

Table 3 Coastal Inundation Hazard Reporting Requirements Framework

Council	Sorell
Planning Scheme	Tasmanian Planning Scheme
Critical use, hazardous use, or vulnerable use	No
Low or medium coastal inundation hazard band	Low
Parts of the Site are located within a high coastal inundation hazard band	No
Located within a non-urban zone	No
Requires inundation protection works	No
Exemption from code	Yes, on the basis that the development requires authorisation under the Building Act 2016
Coastal inundation reporting requirements	Coastal Inundation Hazard Assessment in accordance with directors determination
Coastal inundation code to be addressed	NA (exempt from planning)
Defined inundation level	2.5m AHD. Based on 1% AEP for year 2100 - as per Tasmanian Planning Scheme Local Provisions Schedule Table C11.1 Dunalley (Sorell)
Minimum habitable room finished floor level based on the defined inundation level plus 0.3m freeboard (Tasmanian Building Regulations 2016)	2.8m AHD
Risk assessment modelling criteria	Be satisfied that the proposed work can achieve and maintain a tolerable risk for the intended life of the building (50 years) based on sea levels, astronomical tides, barometric low, wave setup, wave runup and wind setup
In a coastal inundation investigation area	No
Coastal inundation investigation area report required	No
Located within a flood-prone area hazard code overlay	Yes
Flood-prone area hazard code overlay to be addressed	Not in areas where the proposed building and works are located within the coastal inundation hazard overlay, but the Directors Determination still needs to be addressed

Directors Determination

Residential structures and outdoor structures

Although a coastal inundation hazard assessment report may not be required for planning purposes, according to the director's determination, a coastal inundation hazard report must be prepared for proposed residential structures (Class 1) and outdoor structures (Class 10).

Certificate of Likely Compliance

In determining an application for a Certificate of Likely Compliance (2 (6), the building surveyor must:

(a) take into account the coastal inundation hazard report and any relevant coastal inundation management plan; and

(b) be satisfied that the proposed work will not cause or contribute to coastal inundation on the Site, on adjacent land or of public infrastructure; and

(c) be satisfied that the proposed work can achieve and maintain a tolerable risk for the intended life of the building without requiring any specific coastal inundation protection measures.

Buildings with habitable rooms[2] including residential structures (Class 1) within a coastal inundation hazard area must have finished floor level of at least 300 millimetres above the *defined flood level* for the land. Given Class 10 structures do not have habitable rooms and are not classified as a dwelling, Class 10 structures are to be assessed in terms of *tolerable risks* only.

Defined Flood Level

For the purposes of the Directors Determination – Coastal Inundation Hazard Areas and regulation 56(3) of the Building Regulations 2016, the defined flood level is the level above the 0 metres Australian Height Datum with a *one per cent probability of being exceeded in a storm surge flooding event in the year 2100*, as specified in the Local Provisions Schedule of the Tasmanian Planning Scheme.

Site Defined Flood Level

The defined flood level for the Site is based on TPS Table C11.1 Coastal Inundation Hazard Bands AHD Levels for 2100 with the following 1% annual exceedance probability of inundation:

- **2.5 m AHD for Dunalley - Sorell**

Coastal Inundation Risk Modelling

The directors determination requires an assessment of tolerable risk which is defined in the directors determination as

> *'the lowest level of likely risk from coastal inundation from a defined flood event[3] to secure the benefits of a use or development in a coastal inundation hazard area, and which can be managed through routine regulatory measures or by specific hazard management measures for the intended life of each use or development.'*

Enviro-Tech have modelled 1% AEP storm tide processes for 2074 which includes 1% AEP astronomical tide, barometric low pressures, wind setup, wave runup and wave setup based on 2074 sea levels.

---

[2] habitable rooms "means any room of a dwelling other than a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room and other space of a specialised nature occupied neither frequently nor for extended periods."

3 Defined flood event means a flood event that causes flooding to the defined flood level;

Tasmanian Building Regulations 2016

Habitable Room Finished Floor Levels

Tasmanian Building Regulations 2016, residential structures (Class 1) within a coastal inundation hazard area must have finished floor level of *habitable rooms*[4] at least 300 millimetres above the *defined flood level* for the land (which includes the Site) at or above:

2.8 m AHD for Dunalley - Sorell

Tasmanian Planning Scheme Code C11

The building and works is exempt from the Tasmanian Planning Scheme Coastal Inundation Hazard Code.

Flood-Prone Area Hazard Code

Tasmanian planning scheme C12.0

Most of the building Site is located outside of the Sorell Council mapped 1% Annual Exceedance Probability (AEP) inland flooding hazard area (Map 6). A small corner of the building envelope falls within the overlay.

C12.2 Application of this Code

C12.2.5

The proposed development is exempt from C12.0 Flood-Prone Area Hazard Code planning on the basis that the code does not apply to land subject to the Coastal Inundation Hazard Code (C12.2.5).

[4] habitable rooms "means any room of a dwelling other than a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room and other space of a specialised nature occupied neither frequently nor for extended periods."

Building Regulations

Directors Determination - Riverine Inundation Hazard Areas

As the proposed building and works fall within the Flood Prone Areas Code, the Directors Determination is to be addressed regardless of whether the Project is exempt from planning code 12 or not. According to the director's determination, a flood prone areas inundation assessment must be prepared for buildings with habitable rooms.

Riverine inundation

For the purposes of the Tasmanian Building Act 2016, land that has previously been flooded, or land that has been assessed by the council of the relevant municipal area as having a reasonable probability of flooding, is land that is – (a) subject to riverine inundation (b) a hazardous area for the purposes of the definition of hazardous area in section 4(1) of the Act.

A person must not perform works on a building on land that is subject to riverine inundation unless the floor level of each habitable room of the building being erected, re-erected or added as part of the work, is at least 300 millimetres above the defined flood level for the land.

Defined Riverine Flood Level

For the Sorell Council, and for the purposes of regulation 54(2) of the Building Regulations 2016, the defined flood levels for floodplains of any other watercourses, have a 1% probability of being exceeded in any year according to a report adopted by the relevant council for the municipal area in which the land is located.

Site Defined Riverine Flood Level

The defined riverine flood level for the Site[5] is based on Sorell Council 1% AEP flood modelling (as written in the determination, the level which has a 1% probability of being exceeded in any year according to a report adopted by the relevant council for the municipal area in which the land is located).

The defined riverine inundation level for the Site is based on 1% annual exceedance probability inundation mapping by the Sorell City Council (Map 6) is:

- **2.65 m AHD based on typical inundation level on the corner of the building footprint**

Finished Floor Levels

The floor level of each habitable room[6] of the building, being erected, re-erected or added as part of the work, is at least 300 millimetres above the defined flood level for the land. The following finished floor level is required for all habitable rooms:

- **2.95 m AHD based on typical inundation levels across the building footprint**

[5] In coastal areas where the coastal and riverine overlay overlap, in terms of building regulations, the Site defined flood level is controlled by both the 1% AEP flood prone areas modelling and the local provisions schedule levels for the location (or whichever is limiting).

[6] habitable room - means any room of a habitable building other than a room used, or intended to be used, for a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room, service or utility room, or other space of a specialised nature occupied neither frequently nor for extended periods.

Attachment 4 Coastal Hydrodynamics

Stillwater Levels

Assessment Method

Stillwater levels influencing coastal processes within the Project Area are calculated from the combination of the following factors:

- **Storm Tide** - Present day astronomical tides combined with barometric low-pressure influence (coined storm tide). Storm tide inundation levels are adopted from 1% annual exceedance probability (AEP) modelling (McInnes O'Grady 2016).
- **Sea Levels** - are projected based on IPCC RCP8.5 scenarios which have been locally modelled for local government area (DPAC 2016) based on McInnes et. al. (2016). An allowance has been made for present sea level heights relative to Australian Height Datum (AHD). Projections are based on 2050 and 2100 scenarios which are all compiled from a 2010 baseline. The 50-year building design life (2074) scenario is extrapolated from the projection curve.
- **Wind Setup** – are calculated based on procedures outlined in Kamphuis (2000) with 100-year ARI wind data adapted from AS1170 based on a 0.2 s wind gust of 41 m/s with 0.85 to 1.00 directional multipliers.

Findings

Project Area stillwater levels are presented in Table 4. The following stillwater level is applicable:

- **1% AEP stillwater inundation level of 2.0 m AHD for 2075**

Table 4 Project Area 1% AEP Stillwater Levels (TPS Exempt)

Parameter	Units	Scenario		
		2024	2050	2074
Sea Levels	m AHD	0.14	0.23	0.57
Local 1% AEP Storm Tide	m	1.22	1.22	1.22
Wind Setup	m	0.21	0.20	0.20
Total	m AHD	1.57	1.65	2.0

Wave Forecast Modelling

Assessment Method

Wave processes near the Site are used to calculate both coastal inundation levels (in addition to stillwater levels) and coastline recession rates based on the following:

- **Localised 'Wind' Waves –** Are modelled for the Project Area based on methods outlined in the Coastal Engineering Manual (2002). TAFI (<40 m depth) and Geoscience Australia deep-water bathymetry contours (>40 m depth), and coastal LIDAR are used to develop an accurate 3D bathymetry model. 100-year ARI wind data adapted from AS1170 based on a 0.2 s wind gust of 41 m/s with 0.85 to 1.00 directional multipliers. Wind speeds were calculated using the methods of the Shore Protection Manual (CERC, 1984) are used in wave propagation model for primary wave direction as illustrated in the radial map (Attachment 1- Map 9).
- **Nearshore Waves** – A combination of SWAN and CEM (2002) attenuation models are adopted in determining nearshore wave heights.

Breaker Zone Modelling

Assessment Method

Wave processes within the breaker zone are used to calculate coastal inundation levels which are specific to the Project Area (Figure 1) based on the following:

- **Wave Setup** – Wave setup is the increase of water level within the surf zone during wave-breaking. It is calculated from significant wave height, period, water depth and bathymetry gradient at the breaking point.
- **Wave Runup -** is the maximum onshore elevation reached by waves, relative to the shoreline position in the absence of waves. In this case, the wave runup is calculated from:
    - Mase (1989) for smooth beach profiles (no wave runup attenuation applied)
    - Wave runup is calculated based on the 2075 coastal erosion profile where applicable

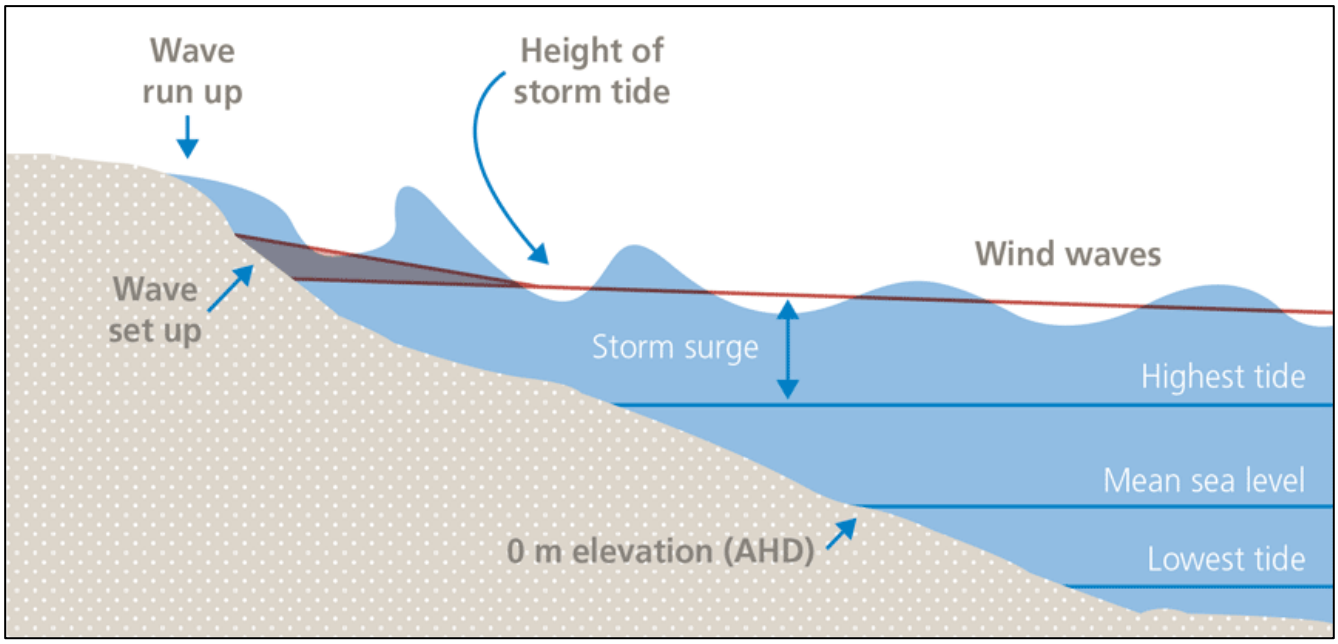

Figure 1 Schematic of coastal processes

Findings

Modelled wave runup and wave setup inundation levels are presented in Table 5. Wave runup levels are projected to reach higher elevations near the coast due to the steepened dune face. Given the Site is set back from the coast, wave runup is largely attenuated due to the stretch of low gradient grassy surfaces and therefore wave setup is more pronounced.

The following are concluded:

An intermittent 1% AEP inundation level of 2.25 m AHD is defined for 2075 based on wave setup

Wave runup or wave setup will reach the building envelope by 2075. The wave setup level is approximately 300 mm less than the defined flood level stipulated in the interim planning scheme.

Table 5 Summary of inundation levels within the Project Area based on modelled criteria [7]

1% AEP Parameter	Units	2075
Storm Tide Levels	m AHD	2.00
Wave setup (southerly wind fetch)	m AHD	2.25
Wave runup (southwesterly wind)	m AHD	2.25
Wave runup distance from Site boundary	m	0.00

[7] These levels modelled by Envirotech are for Site risk assessment purposes only and are not defined flood levels for determining habitable room finished floor levels.

Attachment 5 Inundation Risk Assessment

Tasmanian Planning Scheme Flood Prone Areas Modelling

Given the Site is within a mapped coastal inundation overlay area, there is no requirements to address Planning Code C12 for flood prone areas. However, the flood prone areas code is addressed as part of the directors determination.

Directors Determination Flood Prone Areas Inundation Modelling

Given the previous inundation modelling, with the existing finished ground levels as low as 2.4m AHD and Site inundation levels at 2.65m AHD (on the eastern corner of the building envelope), the probability of the Site being inundated within the building design life is POSSIBLE.

Directors Determination Coastal Inundation Modelling

The directors determination requires an assessment of tolerable risk which is defined in the directors determination as:

> *'the lowest level of likely risk from coastal inundation from a defined flood event to secure the benefits of a use or development in a coastal inundation hazard area, and which can be managed through routine regulatory measures or by specific hazard management measures for the intended life of each use or development.'*

This risk assessment is therefore two tiered and includes an assessment of:

- Tolerable risks associated with the lowest level of likely risk from coastal inundation from a defined flood event
- Management for the intended life of each use or development, and therefore modelling based on a 1% AEP flooding event within the building design life (2075)

Inundation Levels

Inundation hazards at the Site are determined by inundation levels presented in Table 6. Wave runup levels are technically not inundation levels given they result in temporary submersion only.

Table 6 Summary if Site Inundation levels

Definition	Timeframe	Scenario	Inundation (m AHD)
Stillwater	Design Life 2075	1% AEP Stillwater	2.00
Wave Setup	Design Life 2075	1% AEP Wave Setup	2.25
Wave Runup	Design Life 2075	1% AEP Wave Runup	2.25
Defined Coastal	2100	1% AEP Storm Surge	2.50
Defined Riverine	2100	1% AEP	2.65

Site Elevations

Site elevations have been determined based on survey presented in the supplied plans as presented in Table 7.

Table 7 Summary of Site Elevations based on supplied plans

Location	Min (m AHD)	Max (m AHD)
Driveway FGL	2.80	3.00
Dwelling FFL	3.60	3.60
Site	2.40	3.00

Inundation Depths

Given the 1% AEP inundation modelling, the Site including the proposed dwelling is not projected to be inundated by stillwater, wave setup nor wave runup (Table 8).

Table 8 Summary of Floodwater Depths

Definition	Stillwater (m)	Wave Setup (m)	Wave Runup (m)	Defined Coastal (m)	Defined Riverine (m)
Driveway FGL	0	0	0	0	0
Dwelling FFL	0	0	0	0	0
Site	0	0	0	0 to 0.1	0 to 0.25

Inundation Probability

The probability that the proposed building and works area is inundated is based on probability class descriptors presented in Attachment 6 and is summarised:

- It is BARELY CREDIBLE that the proposed dwelling with finished floor levels at 3.6 m AHD will be inundated by 1% AEP stillwater, wave setup nor wave runup within the building design life
- It is BARELY CREDIBLE that the proposed dwelling with finished floor levels at 3.6 m AHD will be inundated within the building design life based on the defined floodwater levels.
- It is BARELY CREDIBLE that the proposed dwelling with finished floor levels at 3.6 m AHD will be inundated within the building design life based on the defined flood levels.
- It is POSSIBLE the Site will be inundated withing the building design life based on, the Defined Flood Level and the Defined Riverine Flood Level.

Floodwater/Wave Runup Velocities

Given floodwater inundation is projected at the Site, water flow velocities do need to be considered (Table 9).

Table 9 Summary of Floodwater Velocities

Definition	Stillwater (m/s)	Wave Setup (m/s)	Wave Runup (m/s)	Defined Coastal (m/s)	Defined Riverine (m/s)
Driveway FGL	0	0	NA	0	0.2
Dwelling FFL	0	0	NA	0	0.2
Site	0	0	NA	0	0.2

Floodwater Hazard Classification

Based on Smith, Davey & Cox (2014) hazard class descriptors illustrated in Figure 2, the floodwater classification for the main building and inundation scenarios are presented in Table 10.

Table 10 Floodwater Hazard Classification

Definition	Stillwater	Wave Setup	Wave Runup	Defined Coastal	Defined Riverine
Driveway FGL	H0	H0	H0	H0	H0
Dwelling FFL	H0	H0	H0	H0	H0
Site	H0	H0	H0	H1	H1

Risk Assessment

Within the building design life, the following can be concluded:

- H1 hazard class is applicable for the Site based on the Defined Floodwater Levels and Defined Riverine Flood Levels

Risk Assessment Concluding Statements

- The proposed work and use can achieve and maintain a tolerable risk for the intended life of the building without requiring any inundation protection measures.
- The proposed development is unlikely to cause or contribute to coastal inundation on the Site or on adjacent land

Directors Determination Flood Prone Areas Modelling

There is no director's determination requirement for a risk assessment. Tolerable risks instead are addressed in:

- The Directors Determination for coastal inundation.

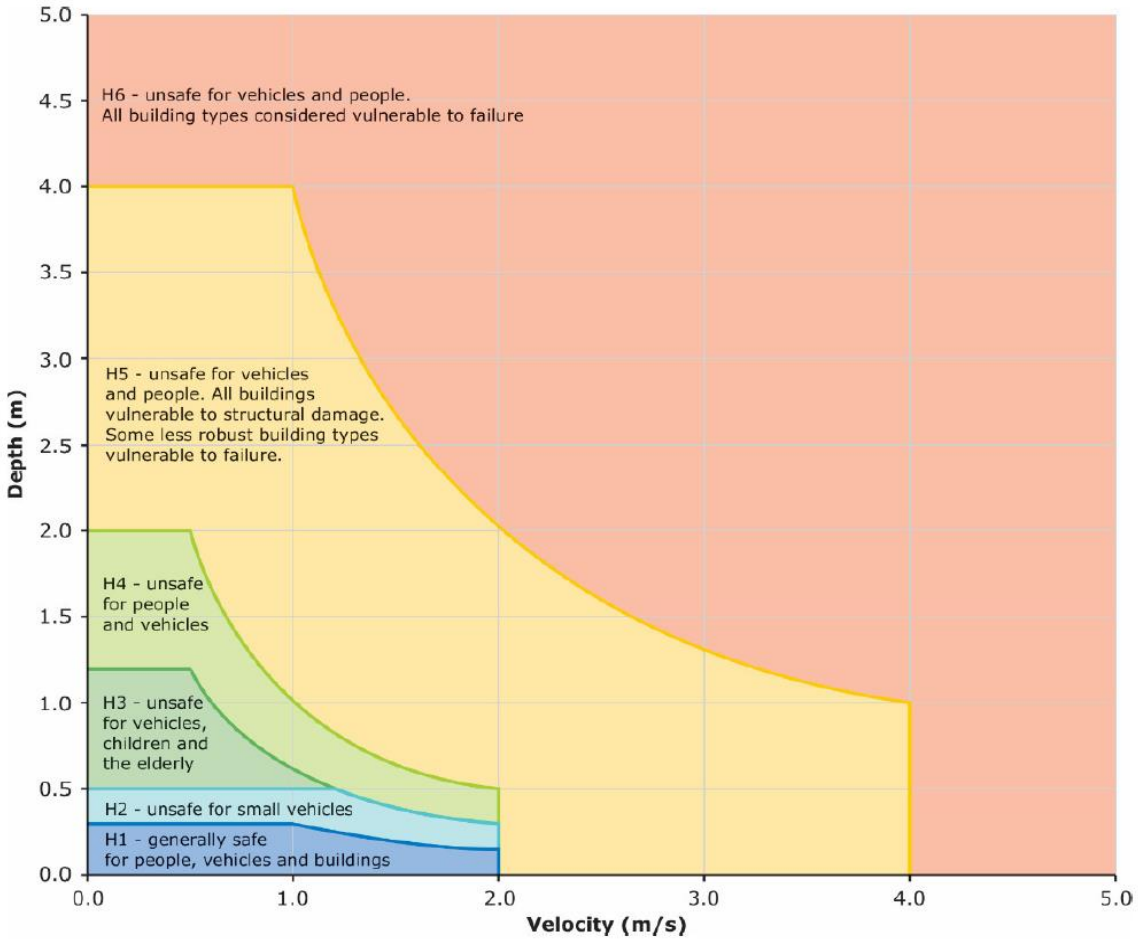

Figure 2 Flood Hazard Curve (Ball, et al., 2019)

Attachment 6 Risk Assessment Qualitative Terminology

DESCRIPTOR	QUALITATIVE MEASURES OF LIKELIHOOD
ALMOST CERTAIN	The event is expected to occur over the design life
LIKELY	The event will probably occur under adverse conditions over the design life
POSSIBLE	The event could occur under adverse conditions over the design life
UNLIKELY	The event might occur under very adverse circumstances over the design life.
RARE	The event is conceivable but only under exceptional circumstances over the design life.
BARELY CREDIBLE	The event is inconceivable or fanciful over the design life.

DESCRIPTOR	QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY
CATASTROPHIC	Structure(s) completely destroyed and/or large-scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.
MAJOR	Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage.
MEDIUM	Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.
MINOR	Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works.
INSIGNIFICANT	Little damage. (Note for high probability event (Almost Certain), this category may be subdivided at a notional boundary of 0.1%. See Risk Matrix.)

LIKELIHOOD	CONSEQUENCES TO PROPERTY				
	CATASTROPHIC	MAJOR	MEDIUM	MINOR	INSIGNIFICANT
ALMOST CERTAIN	VH	VH	VH	H	**L**
LIKELY	VH	VH	H	M	**L**
POSSIBLE	VH	H	M	M	**VL**
UNLIKELY	H	M	**L**	**L**	**VL**
RARE	M	**L**	**L**	**VL**	**VL**
BARELY CREDIBLE	**L**	**VL**	**VL**	**VL**	**VL**

RISK LEVEL		EXAMPLE IMPLICATIONS
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing management is required.
VL	VERY LOW RISK	Acceptable. Manage by management procedures.

Attachment 7 Director's Determination Declaration

Coastal Inundation Hazard Reporting	Application
whether the development is likely to cause or contribute to coastal inundation on the Site or on adjacent land.	There is a low likelihood that the proposed building and works will contribute to coastal inundation on the site or adjacent land.
whether the proposed work can achieve and maintain a *tolerable risk*[8] for the intended life of the building having regard to:	**Application/Management**
nature, intensity and duration of the use	Risk modelling is based on fully occupied dwelling use. Risks are considered tolerable considering the nature, intensity and duration of the use based on 2075 storm tide inundation levels within a 50-year building design life (1% AEP modelling).
type, form and duration of the development	Based on the recommendations presented herein, risks are considered tolerable considering the type, form, and duration of the development
change in risk across the intended life of the building	This risk assessment is based on storm tide modelling given 2075 sea level for the Site. Based on the recommendations presented herein, tolerable risk can be maintained throughout the duration of the building design life until 2075
adaptation to any potential changes in risk	Given forecasting and graduated sea level rise processes, there is ample opportunity to adapt to changing risk
ability to maintain access to utilities and services	It is probable that services can be maintained throughout the life of the proposed development with occasional disruption caused by floodwater events.
the need for specific coastal inundation hazard reduction or protection measures on the Site;	With the proposed building design there is no need for specific coastal inundation hazard reduction or protection measures are recommended for the Site
the need for coastal inundation hazard reduction or protection measures beyond the boundary of the Site; and	With the proposed building design there is no need for coastal inundation hazard reduction or protection measures beyond the boundary of the Site
any coastal inundation management plan in place for the Site and/or adjacent land.	No coastal inundation management plan is in place for the Site or the adjacent land.
hazardous chemical used, handled, generated, or stored on the Site,	General household chemicals being stored are typically in low volumes and in sealed containers.
Details of the person who prepared or verified this report:	This coastal inundation hazard report has been prepared in accordance with a methodology specified in the Director's Determination - Coastal Inundation Hazard Area by a suitably qualified practitioner with relevant qualifications, experience and competence in the preparation of coastal inundation hazard reports.
Qualifications	Bachelor of Science with first class honours in geology
Expertise	Kris Taylor has over 10 years of experience in coastal inundation modelling with several reports externally reviewed by parties including the University of New South Wales Water Research Lab. Reports written include Crown Land pilot studies several reports for councils, and over 200 costal inundation assessments for planning and building
Level of current indemnity insurance	Current indemnity insurance of $2,000,000 ($4,000,000) Underwriters at Lloyd's covers **coastal geomorphology, natural hazard, hydrology and environmental coastal inundation hazard assessments.**

Kris Taylor Signed 

[8] Tolerable risk means the lowest level of likely risk from coastal inundation to secure the benefits of a use or development in a coastal inundation hazard area, and which can be managed through routine regulatory measures or by specific hazard management measures for the intended life of each use or development.

Attachment 8 A builder's guide to preventing damage to dwellings

BUILDING TECHNOLOGY file

CSIRO

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Number Twenty-Two
August 2003

A builder's guide to preventing damage to dwellings

Part 2 – Sound construction methods

THE PROBLEMS

Site water problem identification
It is essential to investigate the site and prepare it in such a way that ground and surface water are prevented from entering the building footprint, whether the building has suspended floors or is footed on a ground slab. Site investigation methods are dealt with in BTF 19, which should be read prior to reading this BTF. It is also recommended that BTF 18 be read as additional information on this subject.

Legal considerations
Good site drainage always addresses both surface and ground water flows. Lack of attention to potential building movement caused by moisture migration can be a costly oversight for the builder, who may be found liable for damage long after any statutory warranty has expired. The Building Code of Australia (BCA) has not made site drainage mandatory, although it does set out acceptable construction practice in Volume 2, Clause 3.1.2, to be used where a local drainage authority deems it necessary. This makes for uncertainty in the minds of builders as to their responsibilities, but the courts tend to view the builder as the expert and, where some foreseeable damage occurs, it is usually found that the builder should have used methods that would have prevented the damage.

Where site investigation has revealed that there is existing or potential erosion problem, or where reactive clay subsoil is present, the builder is wise to give written advice to the owner and strongly recommend that ground drainage be installed. Where the owner declines in writing, some jurisdictions are known to have accepted that it is within the contractor's rights to continue the project. However, ground drainage is an area where contractors ignore or try to side-step at their own peril.

As to water entering a building, the BCA is quite clear. It is the task of the builder to prevent rainwater from entering a building, even when the rainwater is propelled by a storm of a magnitude that would only be expected to occur, on average, once in a hundred years. What is not so obvious to many is that water should not be allowed to enter the cavity, which is there not as a drain or repository for water that enters through openings, but as a break between the outer and inner leaves of exterior walls to prevent water from permeating through as it used to do when buildings were constructed of 230 mm solid brickwork. When water enters the cavity in volume, a wet, dark and enclosed environment is set up that can result in serious consequences for the health and amenity of the occupants.

Water problems in buildings are usually cumulative, resulting from several oversights rather than from a single source. This BTF is designed as a general checklist of commonly occurring flaws in construction methods, to help the builder deliver a product that will be durable, weatherproof and provide a healthy environment.

SURFACE AND GROUND WATER PREVENTION

It is no longer acceptable for a builder to claim that building movement is outside his or her power to prevent. The subsoil of land that is available for building development normally has an allowable bearing capacity well in excess of the loads imposed by class 1a buildings. The movement problems that are experienced by buildings are very often brought about by the failure of the builder and designers to deal with site water.

Surface and ground water that is allowed within the footprint of the building causes erosion and foundation soil movement, which in turn causes an exacerbation of cracking in slabs; cracking and failure in masonry and finishes; doming and dishing of floors; cupping and lifting of timber flooring; decay to timber members; degradation of metals and mortar; doming and dishing of roofs, leading to breakage of tiles and degradation of mortar beds.

Surface drainage methods
The basis of good surface water drainage is to:

- Have the finished exterior ground level at the building perimeter a minimum of 150 mm below finished floor level, ground floor cavity flashing weepholes or subfloor vents, whichever are the lowest. However, where a slab is used as part of a termite management system, 75 mm at the top of the slab edge must be visible or able to be made visible.
- In the finished ground, provide a 1:20 fall away from the building for at least the first metre. Nothing that needs to be watered, including lawn, should be within this graded area and it should preferably be a hard surface.

The above requirements mean that thought may need to be given to finished floor level etc. before the plans go to council.

Where there is natural topography that leads to surface water being encouraged toward the building, a dish or other surface drain should be installed and connected to the stormwater system through a pit.

Ground water drainage methods
If it is desired to keep the soil dry in areas other than the building footprint, it should be realised that this other drainage may not be sufficient to prevent water entering the footprint, and additional drainage for the building may be necessary. It should be understood that ground drainage is a complex subject, often requiring the expertise of an engineer who is suitably competent in hydrology and geotechnics. For anything other than straightforward problems, even drainers or builders experienced in installing ground drainage should engage a consultant to assist in the design. This section is therefore intended to give reminders to already competent people, and to assist others toward a rudimentary understanding to help them discuss the issues with a consultant. In addition, it is essential for a builder or drainer to comply with the minimum requirements of BCA Volume 2, Clause 3.1.2, and AS 3500.3.2, Sections 6–8, unless installing a system certified by an engineer.

The first step is to investigate the depth and volume of the subsoil flow of water. Test pits, particularly on the uphill perimeter of the footprint should be dug as outlined in BTF 19. It is, however, important to remember that ground drainage problems are not restricted to sloping sites. Some of the most susceptible sites are on flat land, particularly where the area is ringed by

higher ground. In addition, as explained in BTF 18, where warm, wet summers and colder, dry winters are experienced, the building itself will tend to cause inward water migration.

In any case, the minimum depth of drainage should comply with BCA Volume 2, Clause 3.1.2.4, that the top of the drain be a minimum of 400 mm below ground and 100 mm below the adjacent footing. This means that the trench should be dug at a safe distance from the footing to ensure that the foundation is not affected. If this is not practicable, temporary measures to support the trench walls may be needed and/or the strength of the pipe material may need to be increased. It is important to remember that in clay the allowable angle between the external bottom corner of the footing and the nearest part of the bottom of the trench is usually 45°, whereas the normally applicable angle for compact granular soil is 30°. These may be exceeded where the trench fill is well compacted and the piping is non-compressible, but supervision by a competent engineer is normally necessary for soil classification and strength issues. A good working arrangement is to locate the trench toward the edge of the area that is graded away from the building to allow run-off of surface water.

Having discovered the required depth, the next step is to establish whether it is above the depth of the local authority's stormwater system, to determine the method of dispersal of the captured water. It must be borne in mind that the BCA's minimum fall for ground drainage is 1:300, and a silt arrestor requires a minimum drop of 50 mm from the invert of the inlet to the inner roof of the outlet. If the depth of the ground drainage is too low for the council system, councils may allow a soakage pit for any naturally occurring ground water, so that the drainage can divert the water from the uphill side of the building to the downhill side. The builder should confirm this with the council.

Next, the type of drainage should be determined. For general purposes, a geocomposite system using 90 mm slotted stormwater pipe with fabric sock and geofabric perimeter material is adequate, however suppliers can advise on other systems. It is desirable in any ground drainage system and essential where the fall is shallower than 1:100 to install inspection openings to enable the system to be flushed out. These should be at changes of direction greater than 45° and at the connection to the stormwater system. Where practicable, pits make the ideal inspection opening, particularly when configured as silt arrestors.

Drainage to rock substrates
BTF 19 discusses the special drainage problems with rock foundations. While a solid rock foundation remains stable regardless of water flows, water damage to building elements and high subfloor relative humidity can have potentially serious consequences. When the ground floor is to be suspended, and particularly when using timber framing and/or flooring, drains should be cut around the perimeter where water can otherwise enter the subfloor. Totally preventing water entering the subfloor area can be impracticable because of faults and interstrata gaps. Where water flows on rock foundations cannot be prevented, the design should allow for an open subfloor and an increased minimum clearance between the floor and the ground, commensurate with the volume of water experienced. If a completely open subfloor is impracticable, openings should be as large as possible, particularly where subfloor walls would otherwise dam water. Watercourses should be cut out to divert water if this is beneficial to the aim of removing water as soon as possible. A mechanical ventilation system may need to be installed as an augmentation to the measures discussed above, but when relied upon without sufficient other precautions, such a system may be inadequate.

Subfloor ponding
When constructing dwellings with suspended floors, it is essential to grade the subfloor area so that no depressions remain that can allow water to pond. With rock foundations it may be necessary to use concrete to fill depressions.

Dampproof courses
Ground moisture usually carries salts and other chemicals. When moisture migrates through masonry by capillary action, some chemicals may be transported. It is often these chemicals that attack the building elements. Different dampproof course (DPC) materials are susceptible to different chemicals.

It is not always possible to predict the nature of pollutants to which the underside of a DPC will be exposed. This is one of the reasons that moisture should be kept away from the building. DPCs that have poor plasticity or develop poor plasticity through exposure to water and chemicals, are unsuited for use where building movement cannot be totally prevented, because they tend to break. When a DPC is discontinuous it allows water to penetrate the gap. This is one common way that rising damp occurs in buildings constructed in the modern era.

The safest suggestion for overcoming the problem of lack of durability in DPCs for applications where high moisture content is expected, is to double up, perhaps using two different types, one on top of the other.

Antcapping
Antcapping should never be used as a DPC unless is has been tested and designed for this purpose. Galvanising will break down over time when in constant contact with moisture, particularly when salts are present. It is essential to isolate the antcapping from any water in the masonry by using a DPC between. The galvanising should also be checked for quality and any cuts or damage should be coated with cold galvanising, because even when the antcapping is isolated from direct contact with water, constant high humidity in the air will tend to attack the steel. Once corrosion has eaten through the metal, termites are given a path of entry to the building. This is not a rare condition.

RAINWATER PREVENTION

In addition to surface and ground water considerations, there are several issues of construction that builders must address in order to prevent rainwater from entering the building.

Rainwater is not only a problem when it enters the living area as water, but also when it is allowed into the cavities and voids and onto building members that can degrade or decay. In addition, rainwater has a more insidious danger in that it gives life to fungus and promotes pests like dust mites – these conditions are conducive to illness in people who are abnormally susceptible to breathing disorders.

Builders and tradespeople often attempt to make a building weatherproof by the use of sealants. It should be realised that sealants cannot be regarded as a durable solution to most weatherproofing problems. Durability can only be attained by sound construction method.

Ridge capping
Mortar bedding to ridge capping is permeable, even with flexible pointing applied over it. Water can migrate through the bedding and pond on the tile above the bedding. Any condensation tends to perpetuate the moisture and, in addition, where summers are warm and wet and winters are cold and dry the tendency is for moisture to be drawn in. The above factors tend to create an overflow of water that may drip into the roof space or run down the soffit of the tiling, decaying battening or framing and/or eventually damaging fastenings. This flow adds to flows caused by the natural absorption of water through tiles and any wind-driven rain that penetrates the gaps between tiles. These are the flows that lead to inundation of the roof. Weepholes should be created in the beds at the depressions in tiles to allow water to flow to the top surface of the tiles.

Where footing movement occurs, usually due to the action of water on the foundation soil, the roof moves. Cut and pitched roofs will dome and dish in the same way that floors do, because of the uneven rise and fall of reactive clay soils. This movement causes a stress on rigid members of the roof structure such as mortar beds to hips, ridges and verges, which hog and sag, tending to crack the mortar and/or the tiles. When 1:2 cement: sand mortar pointing is used, this will retard the cracking, but it will eventually crack and when it does, the water entry will increase accordingly. On truss roofs the effect is less but still sufficient to cause cracking. If there is no footing movement, the pointing tends to last many years. Where some movement is expected, it is recommended that flexible pointing be used.

Sarking
In general, roof tiles are of marginal suitability for installing on a roof slope of less than 18° and should never be used where the pitch is lower than 15° For other roof slopes below 25°, the manufacturer's recommendations should be checked before

installing a particular profile. Where flat profile tiles are to be used on a roof that has a pitch below 25° or where any tiles are to be used on a roof below 20°, sarking should be installed to prevent water entering the roof void. Where the common rafter length is greater than 4500 mm and sarking is not fitted to the whole slope, the table shown below (source: AS 2050, Table 5) should be consulted and sarking may have to be fitted to the lower end of the slope.

SARKING REQUIREMENTS IN RELATION TO PITCH/RAFTER LENGTH

Roof (degrees of pitch)	Maximum rafter length without sarking (mm)
≥18<20	4500
≥20<22	5500
≥22	6000

In addition, on any slope with a pitch of 20° or less, an anti-ponding board should be installed between the bottom batten and the oversail to ensure that the sarking does not sag sufficiently to create ponding, or allow rainwater into the eaves or structural elements.

Guttering too high

The front bead of eaves guttering is usually higher than the highest point of the rear vertical face that sits against the fascia board. A common mistake where there is a long run to the downpipe, is to install the guttering with the front bead level with or above the top of the fascia so as to allow for fall to the downpipe. The reasons why this is an error are:

- Where there is a roof overhang, this allows water to overflow onto the eaves lining. In the case of framed external leaf walls, the rainwater is fed into the frame.
- Where there is no overhang and extruded bricks are used for the external leaf, the overflowing water spills into the core holes and saturates the brickwork from within.
- Where water cannot feed entirely into the extruded brickwork or where pressed clay bricks are used, rainwater falls directly into the cavity if one is present.

This is one of the reasons that the BCA calls for downpipes at a maximum of 12 m intervals. Such intervals mean that 6 m should be the maximum distance away from a downpipe for any part of the guttering. The minimum fall for eaves gutters is 1:500, so gutters can be installed with a 12 mm fall from the highest point to the downpipe.

Section 3 of AS 3500.3.2 requires that the front bead of the guttering is lower than the top of the fascia, so as to allow overflow and prevent rainwater entering the building. A process contained in AS 3500.3.2, Appendices G and H, is used to determine how much lower the front bead of the guttering must be than the top of the fascia board. Appendix G also contains some examples of acceptable alternatives.

Roof flashings

All metal materials on a roof should be compatible. Lead flashings should not be used with Colorbond/Zincalume roofing. Galvanic action will degrade the zinc and cause corrosion that will lead to roof leakage. In the event that re-roofing introduces Colorbond/Zincalume to a roof that has existing lead flashings, the lead should be coated on both sides using a suitable paint. Other incompatibilities are listed in AS 3500.3.2, Tables 4.2 and 4.3.

Rainwater spreaders

Where water is collected by guttering to an upper roof and deposited onto a lower roof via a spreader, the lower slope is called upon to carry an additional volume of water – sometimes too great a volume. It must be realised that tile systems are designed to prevent water entry in accordance with the performance requirements of the BCA Volume 2, Clause 2.2.1 (b), which states: '*(b) Surface water, resulting from a storm having an average recurrence interval of 100 years must not enter the building.*'

When rainwater is gathered from a large catchment and concentrated by a spreader on another catchment, the volume of water on that catchment may well be above the capacity of the tiling to cope, particularly in a case where wind is tending to drive the rain up the slope. This type of overloading cannot be taken into account by tile designers or building designers. If it is intended to use a rainwater spreader on a tiled roof, the tile manufacturer should be consulted. Spreaders may also create a local guttering overflow.

Another even more serious problem is caused by the practice of locating a spreader on a flashing. This allows the combination of wind and the proximity of the flashing and the tile to push water up and over the top of the tile, then into the roof space. This practice should never occur. If a spreader is allowable on a roof slope, it should always be well below any flashing, but the best practice is to run the water from the upper roof to the ground by a downpipe.

Roof/wall interfaces

Where a roof meets a cavity wall and the wall then becomes internal, such as a garage abutting a two-storey dwelling, a tray flashing is necessary to carry water to an external wall cavity flashing. Where the roof slopes away from the wall this can be a horizontal combination of overflashing and cavity flashing. The most important consideration is the provision of a positive method of transferral from the tray flashing to the standard floor-level cavity flashing so that no water can escape.

Where the roof slopes along the wall the combination overflashing/cavity flashing is stepped. A requirement of this is that the 'uphill' end of the cavity flashing be turned up to ensure that water follows the steps down to the standard floor-level cavity flashing. Other information is available in BCA Volume 2, Clause 2.2.4.10.

Cavity flashings

Brickwork is permeable. A single leaf of brickwork will allow water to migrate from the exterior to the cavity. This is the main reason that a cavity is necessary. In fact, when significant wind-driven rain falls against single-leaf brickwork, water can be plainly seen running down the internal face.

More and more is being learned about the problems associated with water that is trapped in the cavity. This water can quickly accumulate, but because it is not exposed to sunlight, it can take a significant time to dissipate. Water in a cavity is not just harmful to building elements, but it also promotes fungal growth and creates an ideal environment for termites, other insects, spiders and mites, including dust mites, which are known to be harmful to people who are susceptible to respiratory ailments. In addition, the humidity that is created can transfer moisture into the inner leaf of walling that is measurable on the internal face. This is particularly true in southern exposure rooms and is undesirable, particularly in living or bedroom areas.

Because cavity flashings are bedded into the masonry during the building of the wall, mortar is dropped into the flashing as the wall rises. These droppings accumulate and harden. Because of their height inconsistency, water will inevitably be dammed in the cavity. Also, weepholes become partially or fully blocked by these mortar droppings, further reducing the possibility that water will escape.

Mortar droppings should be cleaned out of the flashing before they become difficult to remove, at least once a day during the bricklaying process. As the wall rises and cleaning by hand becomes impracticable, a hose can be used, provided that the mortar beds at the flashing level are sufficiently cured to resist deterioration by the water. Anything that bridges the cavity between the inner and outer leaves of walling and allows the transfer of water to the inner leaf must be removed.

Another common defect is that the flashing does not extend to the outer edge of the external leaf. The function of a cavity flashing is to gather water and direct it to the external face of the brickwork. It usually also acts as a DPC whose function is to prevent vertical moisture migration (either up or down). A DPC or flashing that does not extend to the outer edge of the brickwork will allow migration down by gravity or up by capillary action.

If the brickwork is to be cement rendered, the flashing should be continuous to the face of the render. A neat way to overcome this is to create a v-joint at the flashing, then cut the flashing off at the inner extremity of the v-joint. This method creates a control joint that will prevent unsightly cracking of the render.

Weepholes
AS 3700, Clause 12.7.2.3, requires that weepholes are formed immediately above the cavity flashing and that mortar is removed from the joint so that the opening is clean and the flashing is exposed. This is to ensure the free flow of water from the cavity. It is not uncommon to find blocked weepholes, recessed DPCs and fouled cavity flashings all on the same job.

Window and door openings
The popularity of unevenly faced bricks has led to a problem at openings. The problem arises where brickwork reveals do not present a straight line against windows, and is exacerbated by the fact that these bricks are generally not suited to flush mortar bedding. Consequently, it is common to see gaps at window/reveal interfaces caused by brick unevenness and raked joints. Such gaps mean that the building envelope is not weatherproof within the requirements of the BCA.

It should be realised that the cavity is not envisaged as a part of a water removal system, but is there to prevent moisture permeation from the outer skin to the inner skin. It may also act as a last line of defence in the event of an extraordinary event, however the idea that a builder should leave gaps in the building envelope through which water can penetrate into the cavity is in direct conflict with the objectives and requirements of the BCA. An external wall that routinely allows water to enter the cavity, turns that cavity into a hazard to the building elements, and to the health and amenity of the occupants. It is the job of the builder to make the envelope weatherproof. The construction system must prevent significant volumes of water entering the cavity.

In the case of window and door reveals, the bricklayer, while being mindful of the danger of ceramic growth, should not rake or iron the joint past the leading edge of the frame. In some cases where gaps must be left because long walls make ceramic growth a hazard, or where the brick profile is badly uneven, storm moulds should be installed, and bedding should be left flush with the leading edge of the storm mould.

It is also common to see cases where an overwide cavity creates insufficient overlap between the window and the brickwork reveal. Where this occurs, storm moulds are also called for.

Window gaskets
When fitted to brick veneer construction, windows need to be clear of the brickwork sill so as to allow for timber shrinkage in the frame. The usual allowance is 5–10 mm clearance to ground floor windows and a minimum of 15 mm on the second storey. For this purpose, aluminium window assemblies are fitted with neoprene gaskets to bridge the gap between the window frame and the brickwork sill. As with reveals, the brickwork sill should have joints left flush from the leading edge of the gasket to the rear edge of the sill. Commonly, little attention is paid to seating the gasket to provide a waterproof surface. Mortar is left on top of sill bricks which, when timber shrinkage reduces or closes the gap, pushes the gasket up and away from the brick and allows water to enter the cavity. Mortar should be cleaned off the top of bricks while laying. In addition, bricklayers commonly turn the ends of gaskets down into the perpends at the sill/ reveal joints. This is poor practice, as it leaves a gap above the gasket where water can gain entry to the cavity and which also encourages water into the mortar where the gasket turns down. These gaskets should be cleanly cut off flush with the reveal and the mortar should be flush with the sill brickwork. If the reveal bed aligns with the gasket there is no reason that the gasket cannot be bedded into it.

Sills and thresholds
Where brickwork sills are significantly sloped, it is common to find that the bricks are cut to have a minimal overlap with the gasket. These gaskets need a minimum 15 mm overlap with the sill bricks where the sill is at 30° to the horizontal. For lesser angles the necessary overlap increases.

Brickwork patio and other door thresholds are often laid without any fall away from the building. This will always result in water entering the cavity. Some bricklayers fill the cavity in at the doorway to prevent water incursion, but this does not work and only inhibits the operation of the flashing. The builder must provide the bricklayer with sufficient height to allow for weepholes to be continued across the doorway as necessary, and for either a soldier course sill with sufficient fall or room to lay a sloped tiling threshold.

Subfloor vents
In dwellings having suspended ground floors, particularly where timber floor framing is used, adequate cross-flow ventilation must be installed to counteract condensation. BCA Volume 2, Section 3.4.1, gives minimum ventilation standards that are deemed to satisfy the performance requirements. The required ventilation area is based on the perimeter length of the building and differs depending on:
- The zone in which the dwelling is located.
- The moisture content of the foundation soil.

It is also important to realise that where the floor is lower to the ground, there is less volume of air to dissipate the moisture that is transferred to it from the ground.

Landscaping
Two important aspects of landscaping that relate to water entry were introduced in the surface drainage section above, viz.:
- The finished exterior ground level at the building perimeter should be a minimum of 150 mm below finished floor level, ground floor cavity flashing weepholes or subfloor vents, whichever are the lowest. However, if paving is to be used around the building perimeter, the clearance may be 50 mm. Where a slab is used as part of a termite management system, 75 mm at the top of the slab edge must be visible or able to be made visible.
- The finished ground should have a 1:20 fall away from the building for at least the first metre. Nothing that needs to be watered, including lawn, should be within this graded area and it should preferably be a hard surface.

In addition, the landscaper should only install automatic watering systems where the beds that they service are lower than the base of the footings or where they are separated from the building by a properly engineered surface and ground water drainage system.

FURTHER READING/REFERENCED DOCUMENTS

AS 2050, *Installation of Roof Tiles*, Standards Australia, Sydney, 2002.
AS 3500.3.2, *Stormwater Drainage – Acceptable Solutions*, Standards Australia, Sydney, 1998.
AS 3700, *Masonry Structures*, Standards Australia, Sydney, 2001.
BTF 18, *Foundation Maintenance and Footing Performance – A Homeowner's Guide*, CSIRO, Highett, Victoria, 2001.
BTF 19, *A Builder's Guide to Preventing Damage to Dwellings: Part 1 – Site Investigation and Preparation*, CSIRO, Highett, Victoria, 2003.
Building Code of Australia (BCA) Volume 2, Australian Building Codes Board, Canberra, 1996.

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CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Systembuilt Homes *Owner /Agent*

1063 Cambridge Road *Address*

Cambridge 7170 *Suburb/postcode*

Qualified person details:

Qualified person: Kris Taylor

Address: 162 Macquarie Street Phone No: 036224 9197

Hobart 7000 Fax No:

Licence No: NA Email address: office@envirotechtas.com.au

Qualifications and Insurance details: Bachelor of Science with Honours in Geology with PI Insurance to $2,000,000 including hydrology and environmental coastal inundation hazard assessments

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

Speciality area of expertise: Engineering Geology

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

Details of work: Coastal Inundation Assessment

Address: 8 Fulham Road Lot No: 4

Dunalley 7177 Certificate of title No: 72329/4

The assessable item related to this certificate: Coastal inundation hazard assessment prepared by a practitioner with experience and competence in the preparation of coastal inundation hazard reports

(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: Geological

(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:

Enviro-Tech Consultants Pty. Ltd. 2024. Coastal Inundation Hazard Assessment Report, 8 Fulham Road - Dunalley. Unpublished report for Systembuilt Homes by Enviro-Tech Consultants Pty. Ltd., 20/11/2024

Relevant calculations:

References:

- Director's Determination - Coastal Inundation Hazard Areas
- Tasmanian Planning Scheme - State Planning Provisions 2023
- Part 5 (Work in Hazardous Areas) of the Building Regulations 2016; Division 5 – Coastal Inundation

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

- An assessment of building or demolition work in coastal inundation hazard areas in accordance with the Directors Determination
- To ensure that use or development subject to risk from coastal inundation is appropriately located and managed (TPS)

Scope and/or Limitations

Where exempt from planning, includes an assessment of tolerable risks based on a defined flood event based on the level above 0 meters Australian Height Datum with a one per cent probability of being exceeded in a storm surge flooding event in the year 2100 without requiring any specific coastal inundation protection measures.
Where not exempt from planning, includes an assessment of tolerable risk from a 1% annual exceedance probability coastal inundation event in 2100 for the intended life of the building without requiring any specific coastal inundation protection measures.

I certify the matters described in this certificate.

Qualified person:

Signed:	*Certificate No:*	*Date:*
		20/11/2024

ISSUE

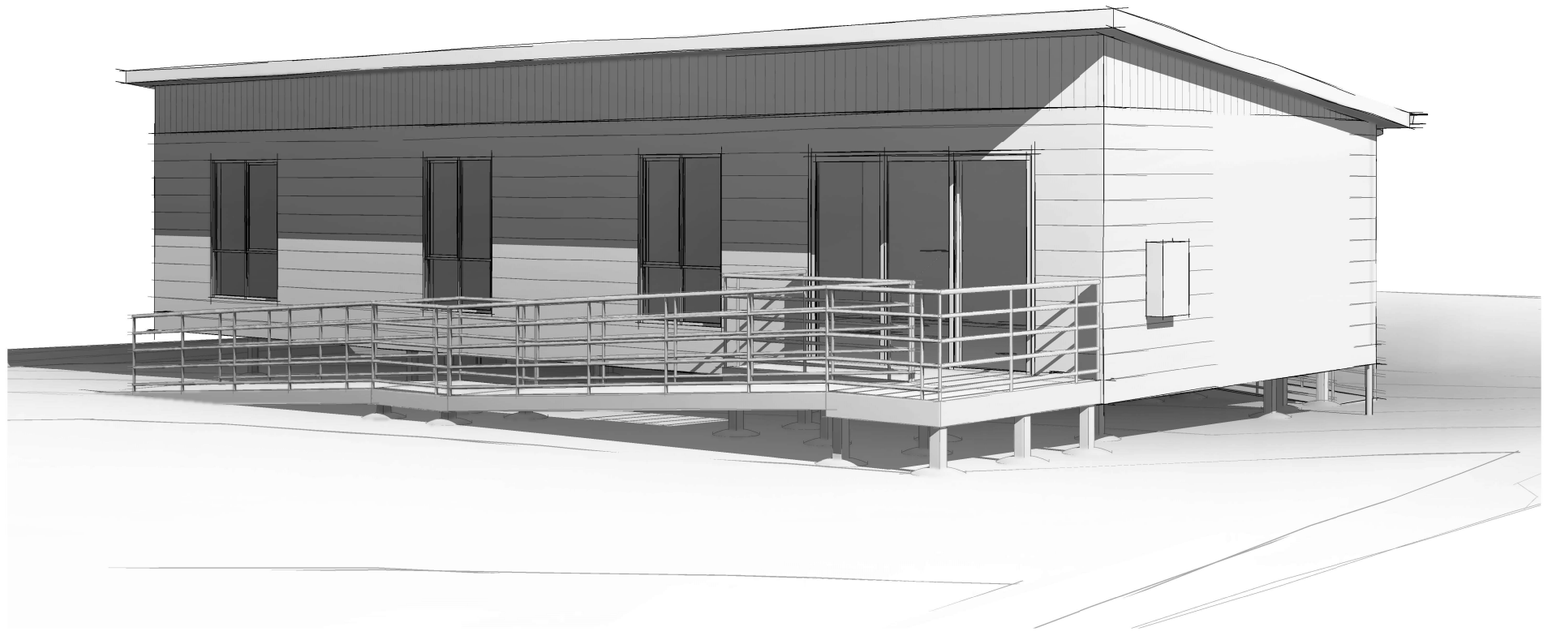
Sheet List				
Sheet Number	Sheet Name	Project Status	Current Revision	Revision Date
1 G-01	COVER	DA	R10	30/10/2024
1 G-02	GENERAL NOTES	DA	R10	30/10/2024
1 G-03	BAL 12.5	DA	R10	30/10/2024
1 G-04	BAL 12.5	DA	R10	30/10/2024
2 A-00	SITE SURVEY	DA	R10	30/10/2024
2 A-01	SITE PLAN	DA	R10	30/10/2024
2 A-02	FLOOR PLAN	DA	R10	30/10/2024
2 A-03	ELEVATIONS	DA	R10	30/10/2024
2 A-04	ROOF PLAN	DA	R10	30/10/2024
2 A-05	FLOOR FINISHES	DA	R10	30/10/2024
2 A-06	ELECTRICAL PLAN	DA	R10	30/10/2024
3 C-01	HYDRAULIC PLAN	DA	R10	30/10/2024
4 D-00	BATHROOM DETAILS	DA	R10	30/10/2024

BEFORE YOU DIG www.byda.com.au

WARNING:
IT IS THE RESPONSIBILITY OF THE BUILDER TO COMPLETE BYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

General Information

Designer: Daniel Bastin CC6836
Classification: 1a
Title Reference: 72329/4
Design Wind Speed: TBA
Soil Classification: TBA
Climate Zone: 7
BAL: 12.5
Corrosion Environment: High
Known Hazards: Flood Prones Areas, Bushfire Prone Areas
Floor Area: 82.5m²
Decks/Ramps/Landings: 38.84m²



General Notes
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.
Report any discrepancies to this office.

systembuilt designed for living
1063 Cambridge Road
Cambride, TAS 7170 (03) 6214 8888

Mammoliti Residence

8 Fulham Road, Dunalley 7177

Joe and Elizabeth Mammoliti

COVER		
Project number	5286	1 G-01
Drawing Status	DA	
Current Revision	30/10/2024 R10	Scale on A3

30/10/2024 10:51:03 AM

ISSUE

GENERAL NOTES:

Check all dimensions, boundaries, easements and service locations on site.
All work shall comply with the Tasmanian Building Regulations 2016, National Construction Codes and relevant current Australian Standards.

Check carefully all aspects of these documents before commencing work.
Any errors or anomalies to be reported to the drawer before work is continued.
Confirm all sizes and heights on site. Do not scale off plan.

All framing to comply with AS 1684 Residential Timber-Framed Construction.
Note: All timber sizes specified are minimum requirement only.
Substitutes may be used as long as verification of equal performance is obtained.

All construction is to comply with the National Construction Codes and all relevant Australian Standards.

These documents to be used with specifications, soil tests and all documentation prepared by an engineer.

These documents are intended for council applications and normal construction.

SITE NOTES:
All site works shall be in accordance with NCC CSIRO BTF 18, 19, 22 and AS 2870

Minimal site disturbance is to be carried out.
Sediment control; 'geolab' silt fence 1000 or similar.
Topsoil stockpiles remaining on the site to be covered with plastic, adequately retained along all edges. Unused stockpiles to be removed from site or used for future landscaping.

SITE PREPARATION AND EXCAVATION:
In accordance with ABCB Housing Provisions Standard Part 3 and to local council requirements.

FOOTINGS:
Concrete footings and slabs in accordance with ABCB Housing Provisions Standard Part 4, AS 2870.1 and engineer's specifications.

BRICK AND BLOCK:
In accordance with ABCB Housing Provisions Standard Part 5, AS 4773 and AS 3700

SUB-FLOOR VENTILATION:
In accordance with ABCB Housing Provisions Standard part 6

DAMP PROOFING:
In accordance with ABCB Housing Provisions Standard part 5 and AS/NZS 2904.

TIMBER FRAMING:
Timber framing, tie down and wind bracing details to ABCB Housing Provisions Standard Part 6 and AS 1684.2.and AS4055.

WALL CLADDING:
In accordance with ABCB Housing Provisions Standard Part 7 and manufacturer's specifications.

ROOF CLADDING, GUTTERING AND DOWNPIPES:
In accordance with ABCB Housing Provisions Standard Part 7 and AS/NZS 3500.5.
Installation to be in accordance with manufacturer's specifications and recommendations.

WINDOWS & GLAZING:
All windows and glazing to AS 2047 and AS 1288 and ABCB Housing Provisions Standard Part 8.
Manufacturer to provide certification of compliance.
All window measurement shown are nominal only and are to be verified on site, prior to ordering.

CONDENSATION MANAGEMENT NOTES:

All condensation management in accordance with ABCB Housing Provisions Standard Part 10.8

VENTILATION OF ROOF SPACES:
In accordance with ABCB Housing Provisions Standard Part 10.

HYDRAULIC:
Stormwater to be in accordance with AS/NSZ 3500
Wastewater to be in accordance with AS/NSZ 3500 and/or AS 1547
Water supply to be in accordance with AS/NSZ 3500

ELECTRICAL:
All wiring and electrical installation to be in accordance with AS 3000
Smoke alarm/s - a 240 volt hard wired smoke alarm complying with AS 3768 should be located near sleeping areas on every story and as per ABCB Housing Provisions Standard Part 9.

INTERIOR NOTES:

Plasterboard;
All internal plasterboard finishes to be in accordance with AS/NZS 2588

Joinery;
- Hardwood in accordance with AS 2796
- Softwood in accordance with AS 4785
- Plywood in accordance with AS/NZS 2270 and AS/NZS 2271

Domestic Kitchen Assemblies;
In accordance with AS/NZS 4386

Ceramic Tiling;
In accordance with AS 4662, AS 2358 and AS 4992

WATERPROOFING / WET AREAS:
In accordance with ABCB Housing Provisions Standard Part 10.2 and AS 3740
Waterproofing membrane and substrates to be installed to floors, walls and wall/floor junctions in accordance with AS 3740 Waterproofing of Domestic wet areas.

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WARNING:
IT IS THE RESPONSIBILITY OF THE BUILDER TO COMPLETE BYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

PROTECTIVE COATINGS FOR STEELWORK - HIGH

STRUCTURAL STEEL TO BE COATED IN ACCORDANCE WITH ABCB HOUSING PROVISIONS TABLES 6.3.9a, 6.3.9b AND 6.3.9c FOR CORROSION ENVIRONMENT: HIGH

General Notes
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.
Report any discrepancies to this office.

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Mammoliti Residence

8 Fulham Road, Dunalley 7177

Joe and Elizabeth Mammoliti

GENERAL NOTES

Project number	5286	1 G-02
Drawing Status	DA	
Current Revision	30/10/2024 R10	Scale on A3 1 : 1

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TO BE READ IN CONJUNCTION WITH AS3959 2018

GENERAL

A building assessed in Section 2 as being BAL—12.5 shall conform with Section 3 and Clauses 5.2 to 5.8. Any element of construction or system that satisfies the test criteria of AS 1530.8.1 may be used in lieu of the applicable requirements contained in Clauses 5.2 to 5.8 (see Clause 3.8).
NOTE: BAL—12.5 is primarily concerned with protection from ember attack and radiant heat up to and including 12.5 kW/m^2 where the site is less than 100 m from the source of bushfire attack.

SUB-FLOOR SUPPORTS

This Standard does not provide construction requirements for subfloor support where the subfloor space is enclosed with—
a wall that conforms with Clause 5.4; or
a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion- resistant steel, bronze or aluminium; or
a combination of Items (a) and (b).
NOTE: This requirement applies to the subject building only and not to verandas, decks, steps, ramps and landings (see Clause 5.7).
C5.2 Combustible materials stored in the subfloor space may be ignited by embers and cause an impact to the building.

FLOORS

General

This Standard does not provide construction requirements for concrete slabs on the ground.

Elevated floors

Enclosed subfloor space
This Standard does not provide construction requirements for elevated floors, including bearers, joists and flooring, where the subfloor space is enclosed with—
a wall that conforms with Clause 5.4; or
a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion- resistant steel, bronze or aluminium; or
a combination of Items (a) and (b) above.
Unenclosed subfloor space
Where the subfloor space is unenclosed, the bearers, joists and flooring, less than 400 mm above finished ground level, shall be one of the following:
Materials that conform with the following:
Bearers and joists shall be—
non-combustible; or
bushfire-resisting timber (see Appendix F);or
a combination of Items (A) and (B).
Flooring shall be—
non-combustible; or
bushfire-resisting timber (see Appendix F); or
timber (other than bushfire-resisting timber), particleboard or plywood flooring where the underside is lined with sarking-type material or mineral wool insulation; or
a combination of any of Items (A), (B) or (C);
or
A system conforming with AS 1530.8.1.
This Standard does not provide construction requirements for elements of elevated floors, including bearers, joists and flooring, if the underside of the element is 400 mm or more above finished ground level.

WALLS

General

The exposed components of an external wall that are less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle of less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D) shall be one of the following:
Non-combustible material including the following provided the minimum thickness is 90 mm:
Full masonry or masonry veneer walls with an outer leaf of clay, concrete, calcium silicate or natural stone.
Precast or in situ walls of concrete or aerated concrete.
Earth wall including mud brick; or
Timber logs of a species with a density of 680 kg/m^3 or greater at a 12% moisture content; of a minimum nominal overall thickness of 90 mm and a minimum thickness of 70 mm (see Clause 3.11); and gauge planed; or
Cladding that is fixed externally to a timber-framed or a steel-framed wall and is—
non-combustible material; or
fibre-cement a minimum of 6 mm in thickness; or
bushfire-resisting timber (see Appendix F); or
a timber species as specified in Paragraph E1, Appendix E; or
a combination of any of Items (i), (ii), (iii) or (iv); or
A combination of any of Items (a), (b) or (c).
This Standard does not provide construction requirements for the exposed components of an external wall that are 400 mm or more from the ground or 400 mm or more above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D).

Joints

All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed.

Vents and weepholes

Except for exclusions provided in Clause 3.6, vents and weepholes in external walls shall be screened with a mesh made of corrosion-resistant steel, bronze or aluminium.

EXTERNAL GLAZED ELEMENTS, ASSEMBLIES AND DOORS

Bushfire shutters

Where fitted, bushfire shutters shall conform with Clause 3.7 and be made from—
non-combustible material; or
a timber species as specified in Paragraph E1, Appendix E; or
bushfire-resisting timber (see Appendix F); or
a combination of any of Items (a), (b) or (c).

Screens for windows and doors

Where fitted, screens for windows and doors shall have a mesh or perforated sheet made of corrosion-resistant steel, bronze or aluminium.
The frame supporting the mesh or perforated sheet shall be made from—
metal; or
bushfire-resisting timber (see Appendix F); or
a timber species as specified in Paragraph E2, Appendix E.

Windows and sidelights

Window assemblies shall:
Be completely protected by a bushfire shutter that conforms with Clause 3.7 and Clause 5.5.1; or
Be completely protected externally by screens that conform with Clause 3.6 and Clause 5.5.2.
C5.5.3 For Clause 5.5.3(b), the screening needs to be applied to cover the entire assembly, that is including framing, glazing, sash, sill and hardware.

or
Conform with the following:
Frame material For window assemblies less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the window frame (see Figure D3, Appendix D),window frames and window joinery shall be made from one of the following:
Bushfire-resisting timber (see Appendix F); or
A timber species as specified in Paragraph E2, Appendix E; or
Metal; or
Metal-reinforced uPVC. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel.
There are no specific restrictions on frame material for all other windows.
Hardware There are no specific restrictions on hardware for windows.
Glazing Where glazing is less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the window frame (see Figure D3, Appendix D), this glazing shall be Grade A safety glass a minimum of 4 mm in thickness or glass blocks with no restriction on glazing methods.
NOTE: Where double-glazed assemblies are used above, the requirements apply to the external pane of the glazed assembly only. For all other glazing, annealed glass may be used in accordance with AS 1288.
Seals and weather strips There are no specific requirements for seals and weather strips at this BAL level.
Screens The openable portions of windows shall be screened internally or externally with screens that conform with Clause 3.6 and Clause 5.5.2.
C5.5.3 For Clause 5.5.3(c), screening to openable portions of all windows is required in all BALs to prevent the entry of embers to the building when the window is open.
For Clause 5.5.3(c)(v), screening of the openable and fixed portions of some windows is required to reduce the effects of radiant heat on annealed glass and has to be externally fixed.
For Clause 5.5.3(c)(v), if the screening is required only to prevent the entry of embers, the screening may be fitted externally or internally.

Doors—Side-hung external doors (including French doors, panel fold and bi- fold doors)

Side-hung external doors, including French doors, panel fold and bi-fold doors, shall—
be completely protected by bushfire shutters that conform with Clause 3.7 and Clause 5.5.1;
or
be completely protected externally by screens that conform with Clause 3.6 and Clause 5.5.2;
or
conform with the following:
Door panel material Materials shall be—
non-combustible; or
solid timber, laminated timber or reconstituted timber, having a minimum thickness of 35 mm for the first 400 mm above the threshold; or
hollow core, solid timber, laminated timber or reconstituted timber with a non-combustible kickplate on the outside for the first 400 mm above the threshold; or
hollow core, solid timber, laminated timber or reconstituted timber protected externally by a screen that conforms with Clause 5.5.2; or
for fully framed glazed door panels, the framing shall be made from metal or bushfire resisting timber (see Appendix F) or a timber species as specified in Paragraph E2, Appendix E or uPVC.
Door frame material Door frame materials shall be—
bushfire resisting timber (see Appendix F); or
a timber species as specified in Paragraph E2 of Appendix E; or
metal; or
metal-reinforced uPVC. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel.
Hardware There are no specific requirements for hardware at this BAL level.
Glazing the glazing shall be Grade A safety glass a minimum of 4 mm in thickness, or glass blocks with no restriction on glazing methods.
NOTE: Where double glazed units are used the above requirements apply to the external face of the window assembly only.
Seals and weather strips Weather strips, draft excluders or draft seals shall be installed.
Screens There are no requirements to screen the openable part of the door at this BAL level.
Doors shall be tight-fitting to the door frame and to an abutting door, if applicable.

Doors—Sliding doors

Sliding doors shall—
be completely protected by a bushfire shutter that conforms with Clause 3.7 and Clause 5.5.1;
or
be completely protected externally by screens that conform with Clause 3.6 and Clause 5.5.2; or
conform with the following:
Frame material The material for door frames, including fully framed glazed doors, shall be—
bushfire-resisting timber (see Appendix F); or
a timber species as specified in Paragraph E2, Appendix E; or
metal; or
metal-reinforced uPVC and the reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel.
Hardware There are no specific requirements for hardware at this BAL level.
Glazing Where doors incorporate glazing, the glazing shall be grade A safety glass a minimum of 4 mm in thickness.
Seals and weather strips There are no specific requirements for seals and weather strips at this BAL level.
Screens There is no requirement to screen the openable part of the sliding door at this BAL level.
Sliding panels Sliding panels shall be tight-fitting in the frames.

Doors—Vehicle access doors (garage doors)

The following applies to vehicle access doors:
The lower portion of a vehicle access door that is within 400 mm of the ground when the door is closed (see Figure D4, Appendix D) shall be made from—
non-combustible material; or
bushfire-resisting timber (see Appendix F); or
fibre-cement sheet a minimum of 6 mm in thickness; or
a timber species as specified in Paragraph E1, Appendix E; or
a combination of any of Items (i), (ii), (iii) or (iv).
All vehicle access doors shall be protected with suitable weather strips, draught excluders, draught seals or brushes. Door assemblies fitted with guide tracks do not need edge gap protection.
NOTES:
Refer to AS/NZS 4505 for door types.
Gaps of door edges or building elements should be protected as per Section 3.
C5.5.6(b) These guide tracks do not provide a direct passage for embers into the building.

Vehicle access doors with ventilation slots shall be protected in accordance with Clause 3.6.

ROOFS (INCLUDING PENETRATIONS, EAVES, FASCIAS AND GABLES, AND GUTTERS AND DOWNPIPES)

General

The following applies to all types of roofs and roofing systems:
Roof tiles, roof sheets and roof-covering accessories shall be non-combustible.
The roof/wall and roof/roof junction shall be sealed or otherwise protected in accordance with Clause 3.6.
Roof ventilation openings, such as gable and roof vents, shall be fitted with ember guards made of non-combustible material or a mesh or perforated sheet conforming with Clause 3.6 and, made of corrosion-resistant steel, bronze or aluminium.
Only evaporative coolers manufactured in accordance with AS/NZS 60335.2.98 shall be used.
Evaporative coolers with an internal damper to prevent the entry of embers into the roof space need not be screened externally.

Tiled roofs

Tiled roofs shall be fully sarked. The sarking shall—
be located on top of the roof framing, except that the roof battens may be fixed above the sarking;
cover the entire roof area including ridges and hips; and
extend into gutters and valleys.

Sheet roofs

Sheet roofs shall—
be fully sarked in accordance with Clause 5.6.2, except that foil-backed insulation blankets may be installed over the battens; or
have any gaps sealed at the fascia or wall line, hips and ridges by—
a mesh or perforated sheet that conforms with Clause 3.6 and that is made of corrosion-resistant steel, bronze or aluminium; or
mineral wool; or
other non-combustible material; or
a combination of any of Items (i), (ii) or (iii).

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Joe and Elizabeth Mammoliti

BAL 12.5	
Project number	5286
Drawing Status	DA
Current Revision	30/10/2024 R10

1 G-03

Scale on A3

30/10/2024 10:51:05 AM

C5.6.3 Sarking is used as a secondary form of ember protection for the roof space to account for minor gaps that may develop in sheet roofing.

Veranda, carport and awning roof

The following applies to veranda, carport and awning roofs:
A veranda, carport or awning roof forming part of the main roof space [see Figure D1(a), Appendix D] shall meet all the requirements for the main roof, as specified in Clauses 5.6.1 to 5.6.6.
A veranda, carport or awning roof separated from the main roof space by an external wall [see Figures D1(b) and D1(c), Appendix D] conforming with Clause 5.4 shall have a non-combustible roof covering, except where the roof covering is a translucent or transparent material.
NOTE: There is no requirement to line the underside of a veranda, carport or awning roof that is separated from the main roof space.

Roof penetrations

The following applies to roof penetrations:
Roof penetrations, including roof lights, roof ventilators, roof-mounted evaporative cooling units, aerials, vent pipes and supports for solar collectors or the like, shall be sealed. The material used to seal the penetration shall be non-combustible.
Openings in vented roof lights, roof ventilators or vent pipes shall conform with Clause 3.6 and be made of corrosion-resistant steel, bronze or aluminium.
This requirement does not apply to a room sealed gas appliance.
NOTE: A gas appliance designed such that air for combustion does not enter from, or combustion products enter into, the room in which the appliance is located.
In the case of gas appliance flues, ember guards shall not be fitted.
NOTE: AS/NZS 5601 contains requirements for gas appliance flue systems and cowls. Advice can be obtained from manufacturers and State and Territory gas technical regulators.
All overhead glazing shall be Grade A safety glass conforming with AS 1288.
Glazed elements in roof lights and skylights may be of polymer provided a Grade A safety glass diffuser, conforming with AS 1288, is installed under the glazing. Where glazing is an insulating glazing unit (IGU), Grade A toughened safety glass of minimum 4 mm in thickness shall be used in the outer pane of the IGU.
Flashing elements of tubular skylights may be of a fire-retardant material, provided the roof integrity is maintained by an under-flashing of a material having a flammability index not exceeding five.
Evaporative cooling units shall be fitted with non-combustible butterfly closers as close as practicable to the roof level or the unit shall be fitted with non-combustible covers with a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium.
Vent pipes made from PVC are permitted.
Eaves lighting shall be adequately sealed and not compromise the performance of the element.

Eaves linings, fascias and gables

The following applies to eaves linings, fascias and gables:
Gables shall conform with Clause 5.4.
Eaves penetrations shall be protected in the same way as roof penetrations, as specified in Clause 5.6.5.
Eaves ventilation openings shall be fitted with ember guards in accordance with Clause 3.6 and made of corrosion-resistant steel, bronze or aluminium.
Joints in eaves linings, fascias and gables may be sealed with plastic joining strips or timber storm moulds.
This Standard does not provide construction requirements for fascias, bargeboards and eaves linings.

Gutters and downpipes

This Standard does not provide material requirements for—
gutters, with the exception of box gutters; and
downpipes.
If installed, gutter and valley leaf guards shall be non-combustible.
Box gutters shall be non-combustible and flashed at the junction with the roof with non-combustible material.

VERANDAS, DECKS, STEPS AND LANDINGS

General

Decking may be spaced.
There is no requirement to enclose the subfloor spaces of verandas, decks, steps, ramps or landings.

C5.7.7 Spaced decking is nominally spaced at 3 mm (in accordance with standard industry practice); however, due to the nature of timber decking with seasonal changes in moisture content, that spacing may range from 0 mm–5 mm during service. It should be noted that recent research studies have shown that gaps at 5 mm spacing afford opportunity for embers to become lodged in between timbers, which may contribute to a fire. Larger gap spacing of 10 mm may preclude this from happening but such a spacing regime may not be practical for a timber deck.

Enclosed subfloor spaces of verandas, decks, steps, ramps and landings

Materials to enclose a subfloor space
This Standard does not provide construction requirements for the materials used to enclose a subfloor space except where those materials are less than 400 mm from the ground.
Where the materials used to enclose a subfloor space are less than 400 mm from the ground, they shall conform with Clause 5.4.
Supports
This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.
Framing
This Standard does not provide construction requirements for the framing of verandas, pergolas, decks, ramps or landings (i.e. bearers and joists).
Decking, stair treads and the trafficable surfaces of ramps and landings
This Standard does not provide construction requirements for decking, stair treads and the trafficable surfaces of ramps and landings that are more than 300 mm from a glazed element.
Decking, stair treads and the trafficable surfaces of ramps and landings less than 300 mm (measured horizontally at deck level) from glazed elements that are less than 400 mm (measured vertically) from the surface of the deck (see Figure D2, Appendix D) shall be made from—
non-combustible material; or
bushfire-resisting timber (see Appendix F); or
a timber species as specified in Paragraph E1, Appendix E; or
uPVC; or
a combination of any of Items (a), (b), (c) or (d).

Unenclosed subfloor spaces of verandas, decks, steps, ramps and landings

Supports
This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.
Framing
This Standard does not provide construction requirements for the framing of verandas, decks, ramps or landings (i.e. bearers and joists).
Decking, stair treads and the trafficable surfaces of ramps and landings
This Standard does not provide construction requirements for decking, stair treads and the trafficable surfaces of ramps and landings that are more than 300 mm from a glazed element.
Decking, stair treads and the trafficable surfaces of ramps and landings less than 300 mm (measured horizontally at deck level) from glazed elements that are less than 400 mm (measured vertically) from the surface of the deck (see Figure D2, Appendix D) shall be made from—
non-combustible material; or
bushfire-resisting timber (see Appendix F); or
a timber species as specified in Paragraph E1, Appendix E; or
a combination of any of Items (a), (b) or (c) above.

Balustrades, handrails or other barriers

This Standard does not provide construction requirements for balustrades, handrails and other barriers.

Veranda posts

Veranda posts—
shall be timber mounted on galvanized mounted shoes or stirrups with a clearance of not less than 75 mm above the adjacent finished ground level; or
less than 400 mm (measured vertically) from the surface of the deck or ground (see Figure D2, Appendix D) shall be made from—
non-combustible material; or
bushfire-resisting timber (see Appendix F); or
a timber species as specified in Paragraph E1, Appendix E; or
a combination of any of Items (a) or (b).

WATER AND GAS SUPPLY PIPES

Above-ground, exposed water supply pipes shall be metal.
External gas pipes and fittings above ground shall be of steel or copper construction having a minimum wall thickness in accordance with gas regulations or 0.9 mm whichever is the greater. The metal pipe shall extend a minimum of 400 mm within the building and 100 mm below ground.
NOTE: Refer to State and Territory gas regulations, AS/NZS 5601.1 and AS/NZS 4645.1.
C5.8 Concern is raised for the protection of bottled gas installations. Location, shielding and venting of the gas bottles needs to be considered.

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Mammoliti Residence

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Joe and Elizabeth Mammoliti

BAL 12.5

Project number	5286	
Drawing Status	DA	
Current Revision	30/10/2024 R10	Scale on A3

1 G-04

30/10/2024 10:51:06 AM

PHOTO 1 - Subject Site from Fulham Road

NOTES:

This plan and associated digital model is prepared for EMAC Systembuilt Group from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by plan dimensions only and not by field survey. No measurements or offsets are to be derived between the features on this plan and the boundary layer. The relationship between the features in this model and the boundary layers cannot be used for any set out purposes or to confirm the position of the title boundaries on site.

Services shown have been located where visible by field survey. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

This note forms an integral part of the Plan/Data. Any reproduction of this plan/model without this note attached will render the information shown invalid.

Client Reference Number:	HORIZONTAL DATUM is GDA2020, Coordinates are Plane
N/A	Coordinate Origin: SPM7885 E 565639.102 N 5250896.736 PER SURCOM

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

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Contour & Detail Plan

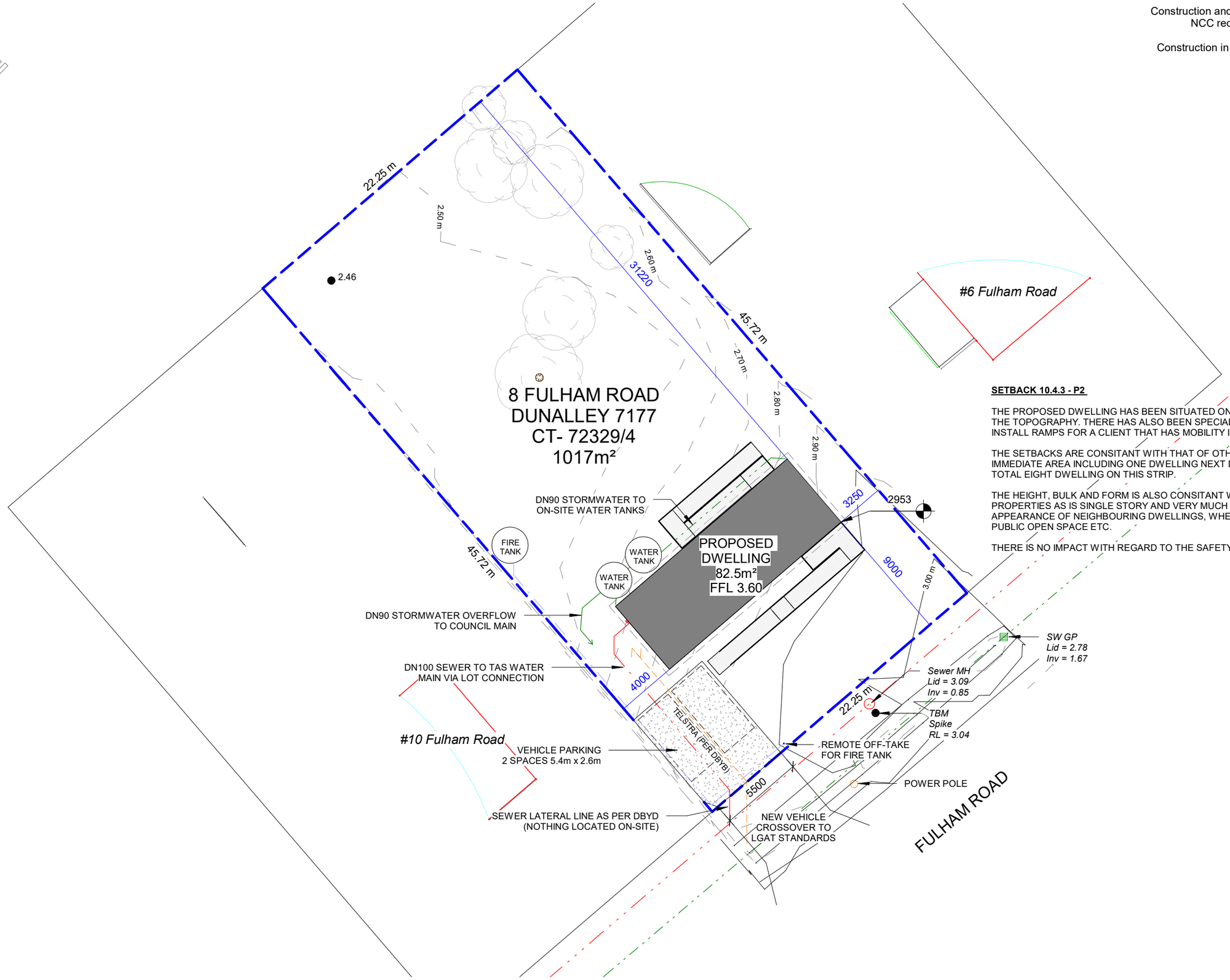
FOR: EMAC SYSTEMBUILT GROUP

LOCATION: 8 FULHAM ROAD
DUNALLEY

Date:	Contour interval:	Reference:
16-09-2024	0.200m	EMAC-169 15747-01
Drawn:	Scale:	Bearing Datum:
HYC	1:250 (A3)	MGA2020
Approved:	C.T. Reference:	Vertical Datum:
AB	72329/4	AHD83 per SPM7885

ISSUE

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5



SETBACK 10.4.3 - P2

THE PROPOSED DWELLING HAS BEEN SITUATED ON THE SITE TO WORK WITH THE TOPOGRAPHY. THERE HAS ALSO BEEN SPECIAL REGARD TO THE ABILITY TO INSTALL RAMPS FOR A CLIENT THAT HAS MOBILITY ISSUES.

THE SETBACKS ARE CONSITANT WITH THAT OF OTHER PROPERTIES IN THE IMMEDIATE AREA INCLUDING ONE DWELLING NEXT DOOR AND FOUR OF THE TOTAL EIGHT DWELLING ON THIS STRIP.

THE HEIGHT, BULK AND FORM IS ALSO CONSITANT WITH NEIGHBOURING PROPERTIES AS IS SINGLE STORY AND VERY MUCH IN KEEPING WITH THE APPEARANCE OF NEIGHBOURING DWELLINGS, WHEN VIEWED FROM ROADS AND PUBLIC OPEN SPACE ETC.

THERE IS NO IMPACT WITH REGARD TO THE SAFETY OF ROAD USERS.

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WARNING:
IT IS THE RESPONSIBILITY OF THE BUILDER TO COMPLETE BYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

General Notes
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.
Report any discrepancies to this office.

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SITE PLAN

Project number	5286
Drawing Status	DA
Current Revision	30/10/2024 R10

2 A-01

Scale on A3 1 : 250

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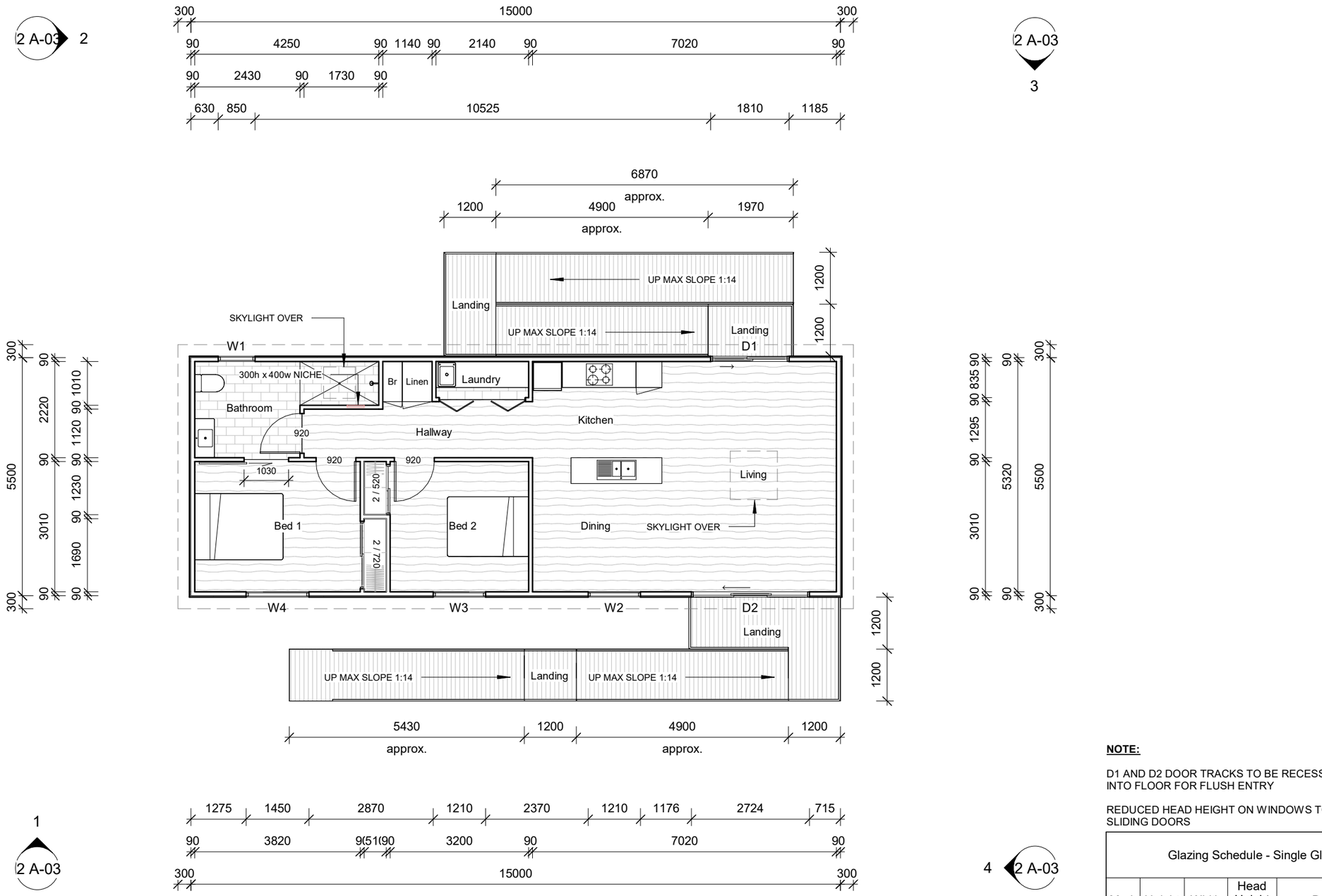
Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5

ISSUE



Area Schedule	
House	82.50 m²
Ramps/Landings	38.84 m²

NOTE:

D1 AND D2 DOOR TRACKS TO BE RECESSED INTO FLOOR FOR FLUSH ENTRY

REDUCED HEAD HEIGHT ON WINDOWS TO SUIT SLIDING DOORS

Glazing Schedule - Single Glazed - Monument - BAL TBA

Mark	Height	Width	Head Height	Description	Comments	Count
D1	2100	1810	2070	Sliding Door	Clear	1
D2	2100	2724	2070	Sliding Door	Clear	1
W1	857	850	2070	Awning Window	White Trans	1
W2	1800	1210	2070	Awning Window	Clear	1
W3	1800	1210	2070	Awning Window	Clear	1
W4	1800	1450	2070	Awning Window	Clear	1
W5	1180	1140		Velux Fixed Skylight	Clear	1
W6	780	780		Velux Fixed Skylight	Clear	1

General Notes
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Mammoliti Residence

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Joe and Elizabeth Mammoliti

FLOOR PLAN

Project number	5286
Drawing Status	DA
Current Revision	30/10/2024 R10

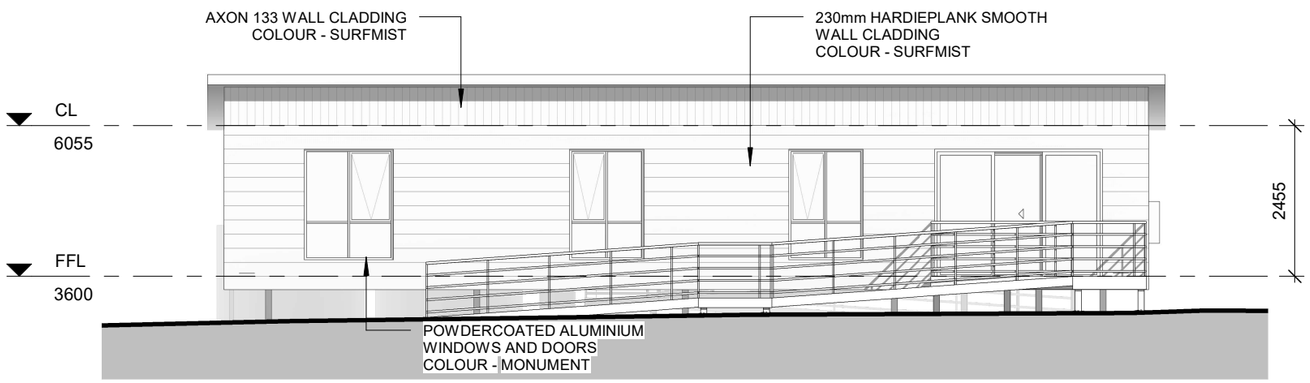
2 A-02

Scale on A3 1 : 100

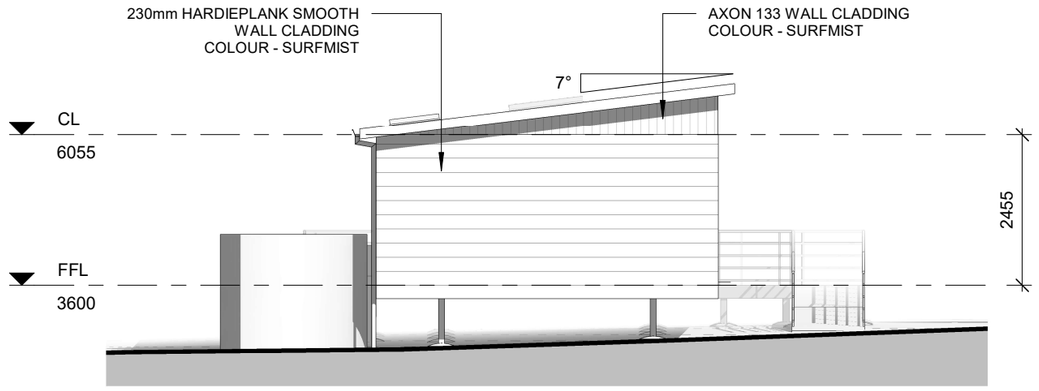
30/10/2024 10:51:09 AM

Construction and materials in accordance with current
NCC requirements and all relevant Australian
Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5

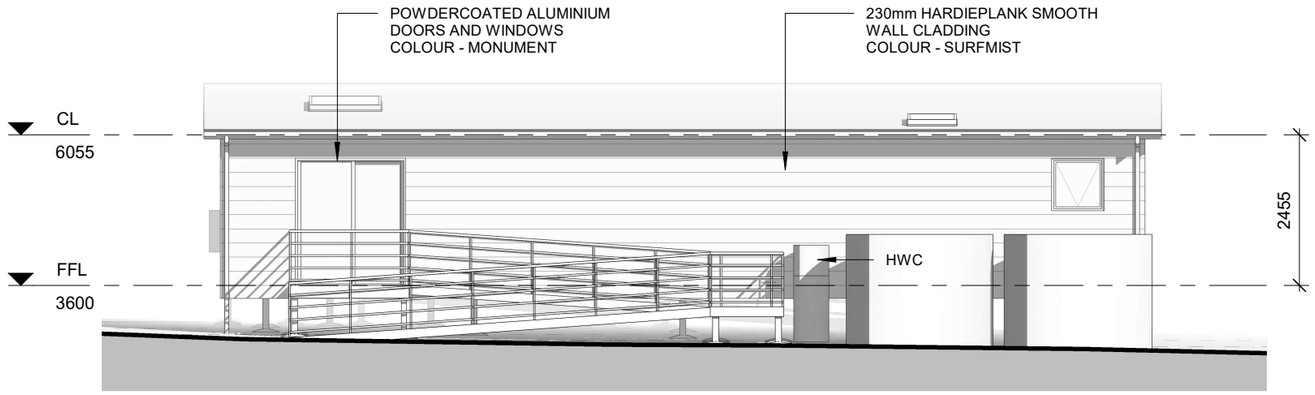
ISSUE



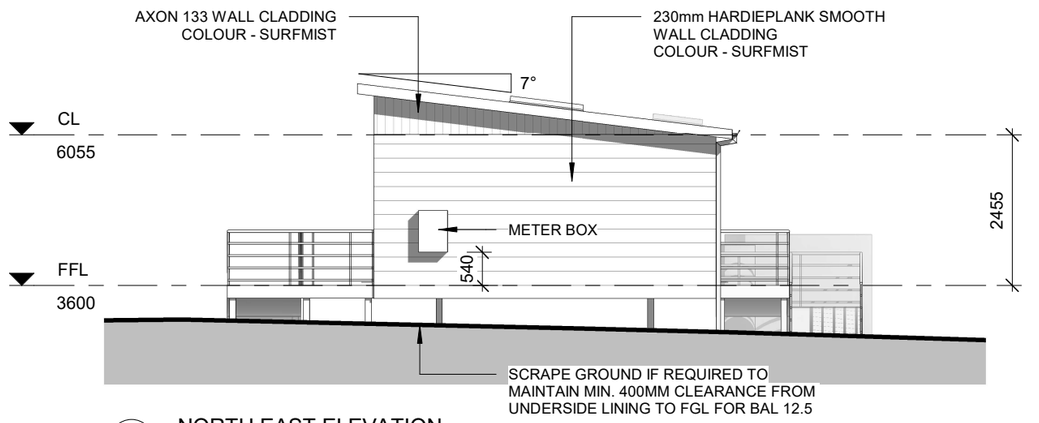
1 SOUTH EAST ELEVATION
1 : 100



2 SOUTH WEST ELEVATION
1 : 100



3 NORTH WEST ELEVATION
1 : 100



4 NORTH EAST ELEVATION
1 : 100

NOTE:
ALL STEEL ROOF AND WALL CLADDING MATERIALS
TO HAVE A MINIMUM AM150 COATING.
USE ONLY COMPATIBLE FIXINGS AND INSTALL AS PER
MANUFACTURERS SPECIFICATIONS.

General Notes
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ELEVATIONS

Project number	5286
Drawing Status	DA
Current Revision	30/10/2024 R10

2 A-03

Scale on A3 1 : 100

30/10/2024 10:51:14 AM

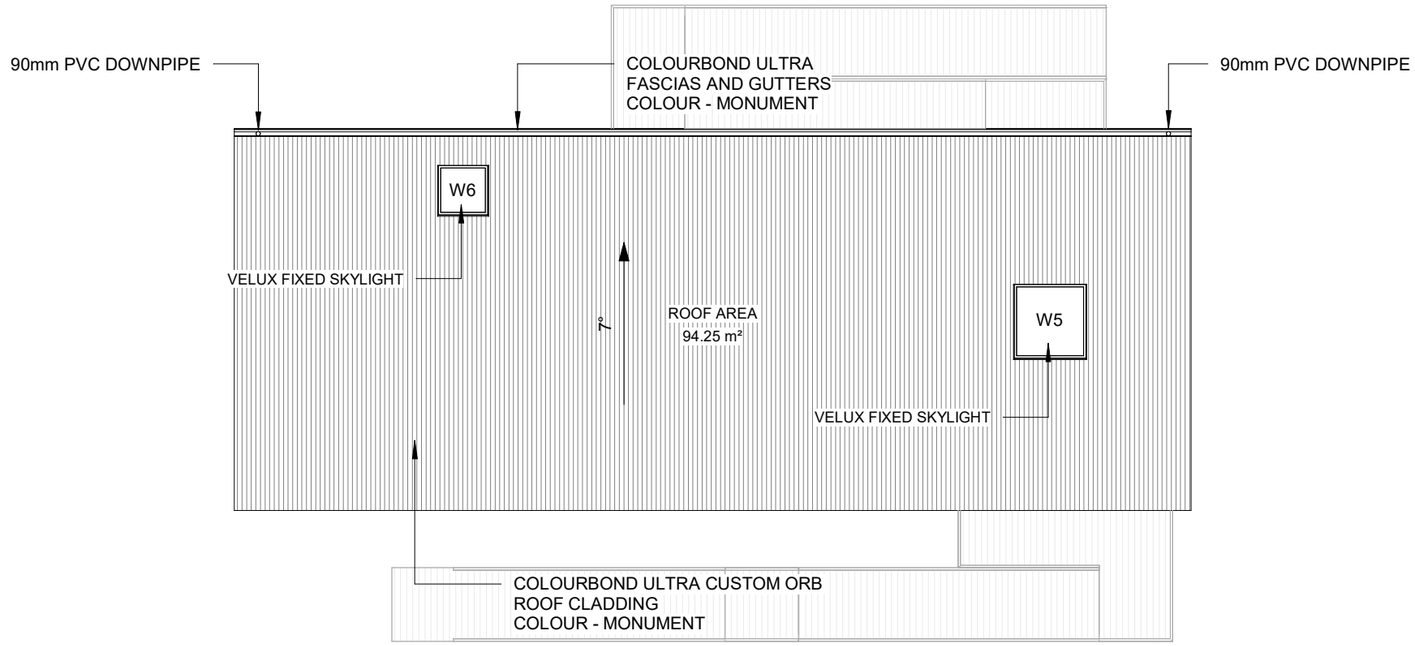
ISSUE

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5

ROOF CLADDING, GUTTERING AND DOWNPIPES:
In accordance with ABCB Housing Provisions Standard Part 7 and AS/NZS 3500.5.
Installation to be in accordance with manufacturer's specifications and recommendations.

VENTILATION OF ROOF SPACES:
In accordance with ABCB Housing Provisions Standard Part 10.

HYDRAULIC:
Stormwater to be in accordance with AS/NSZ 3500
Wastewater to be in accordance with AS/NSZ 3500 and/or AS 1547
Water supply to be in accordance with AS/NSZ 3500



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ROOF PLAN

Project number	5286	2 A-04
Drawing Status	DA	
Current Revision	30/10/2024 R10	Scale on A3 1 : 100

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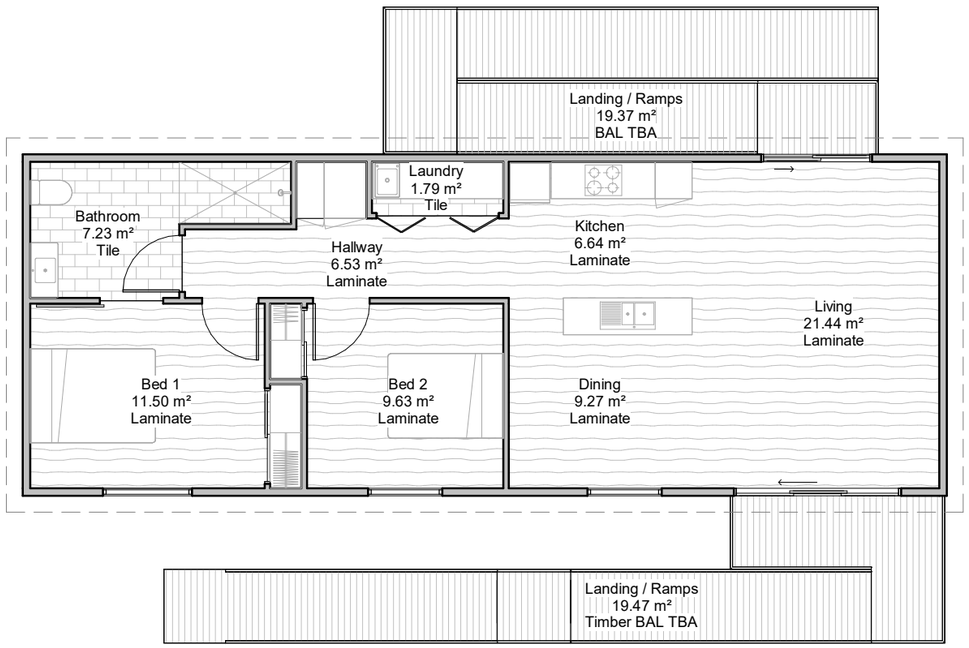
ISSUE

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL 12.5



INTERIOR NOTES:

Plasterboard;
All internal plasterboard finishes to be in accordance with AS/NZS 2588

Joinery;
Hardwood in accordance with AS 2796
Softwood in accordance with AS 4785
Plywood in accordance with AS/NZS 2270 and AS/NZS 2271

Domestic Kitchen Assemblies;
In accordance with AS/NZS 4386

Ceramic Tiling;
In accordance with AS 4662, AS 2358 and AS 4992

Floor Coverings;
In accordance with AS 1884-2012 and AS 2455.1

WATERPROOFING / WET AREAS:

In accordance with ABCB Housing Provisions 10.2 and AS 3740
Waterproofing membrane and substrates to be installed to floors, walls and wall/floor junctions in accordance with AS 3740
Waterproofing of Domestic wet areas.
- Walls and floors of showers, baths, laundries and toilets, splash backs and floor wastes to ABCB Housing Provisions Standard 10.2
- All areas to be lined with resilient 'villaboard' or similar product.

FLOOR FINISHES SCHEDULE		
HATCH	PRODUCT	COLOUR / SELECTION
	LAMINATE	TBA
	CARPET	TBA
	TILES	TBA
	TIMBER DECK	TREATED PINE

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FLOOR FINISHES

Project number	5286
Drawing Status	DA
Current Revision	30/10/2024 R10

2 A-05

Scale on A3 1 : 100

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ISSUE

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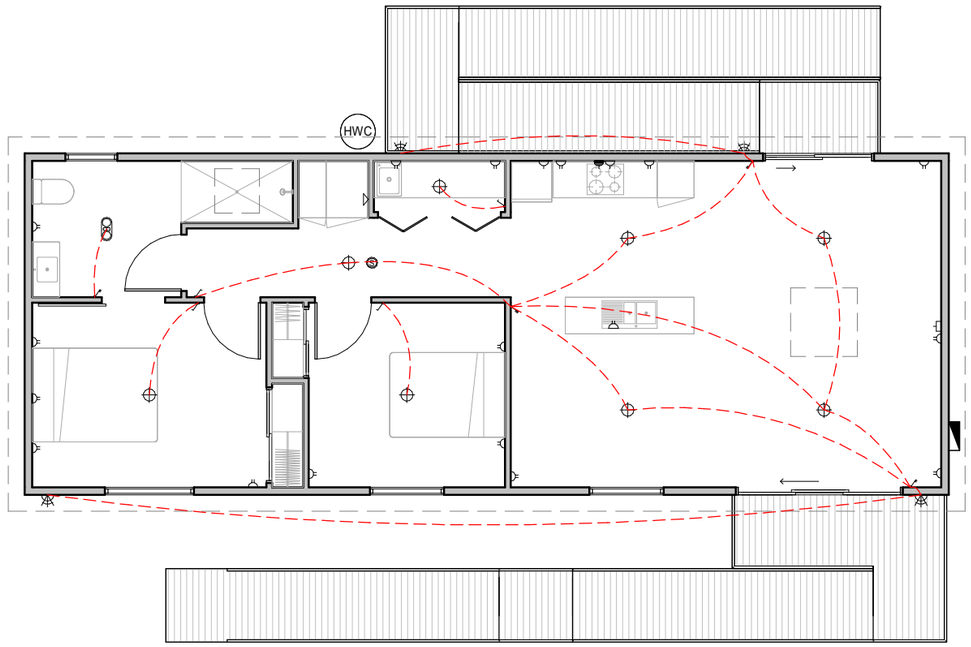

NOTE:

METER BOX LOCATION TO BE CHECKED FOR COMPLIANCE AND CONFIRMED BY ELECTRICAL CONTRACTOR PRIOR TO INSTALLAION

ELECTRICAL NOTES:

Electrical layout indicative only, positioning to be confirmed by owner and in accordance with below.

Electrical installation to be in accordance with AS3000

Smoke Alarms
In accordance with part 9.5 of ABCB Housing Provisions and to AS3768. All smoke alarms to be hard wired with battery back up.

Heating Appliances, Chimneys and Flues
In accordance with ABCB Housing Provisions part 12.4

LIGHTING (maximum):

- 5 watts per square metre (5W/sqm) of lighting indoors
- 4 watts per square metre (4W/sqm) of lighting in outdoor areas
- 3 watts per square metre (3W/sqm) of lighting in garages

Electrical Fixture Schedule		
	Description	Count
	2 Light Tastic	1
	Antenna Point	1
	Batten Light Holder	8
	Circuit Breaker Switch	1
	Data Point	1
	Double GPO	17
	External Weatherproof Wall Light	4
	Heat Pump HWC	1
	Lightswitch 1G	4
	Lightswitch 3G	3
	Lightswitch 4G	1
	Meter Box	1
	Single GPO	2
	Smoke Detector	1

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WARNING:
IT IS THE RESPONSIBILITY OF THE BUILDER TO COMPLETE BYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

LIGHTING SPECIFICATIONS			
SYMBOL	DESCRIPTION	WATTAGE INFORMATION	LUMENS
	BATTEN LIGHT HOLDER	10W	1000
	240V LED DOWNLIGHT	9W	850
	IXL FAN/LIGHT/HEATER	2X275W HEAT LAMPS & 1X60W CENTRE GLOVE	750
	EXTERNAL WALL MOUNTED LIGHT	7.5 W	500

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ELECTRICAL PLAN

Project number	5286
Drawing Status	DA
Current Revision	30/10/2024 R10

2 A-06

Scale on A3 1 : 100

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ISSUE

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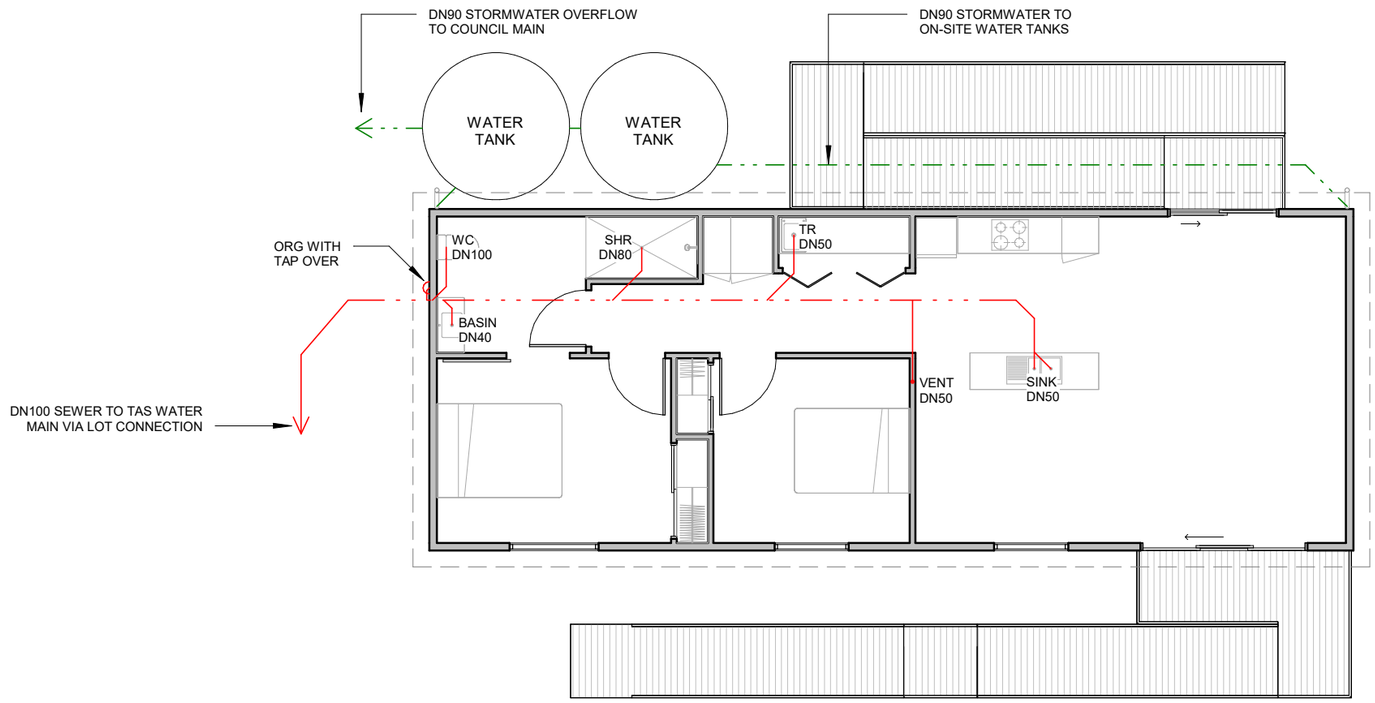

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Water supply to be in accordance with AS/NSZ 3500

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HYDRAULIC PLAN

Project number	5286	3 C-01
Drawing Status	DA	
Current Revision	30/10/2024 R10	Scale on A3 1 : 100

30/10/2024 10:51:18 AM

ISSUE

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
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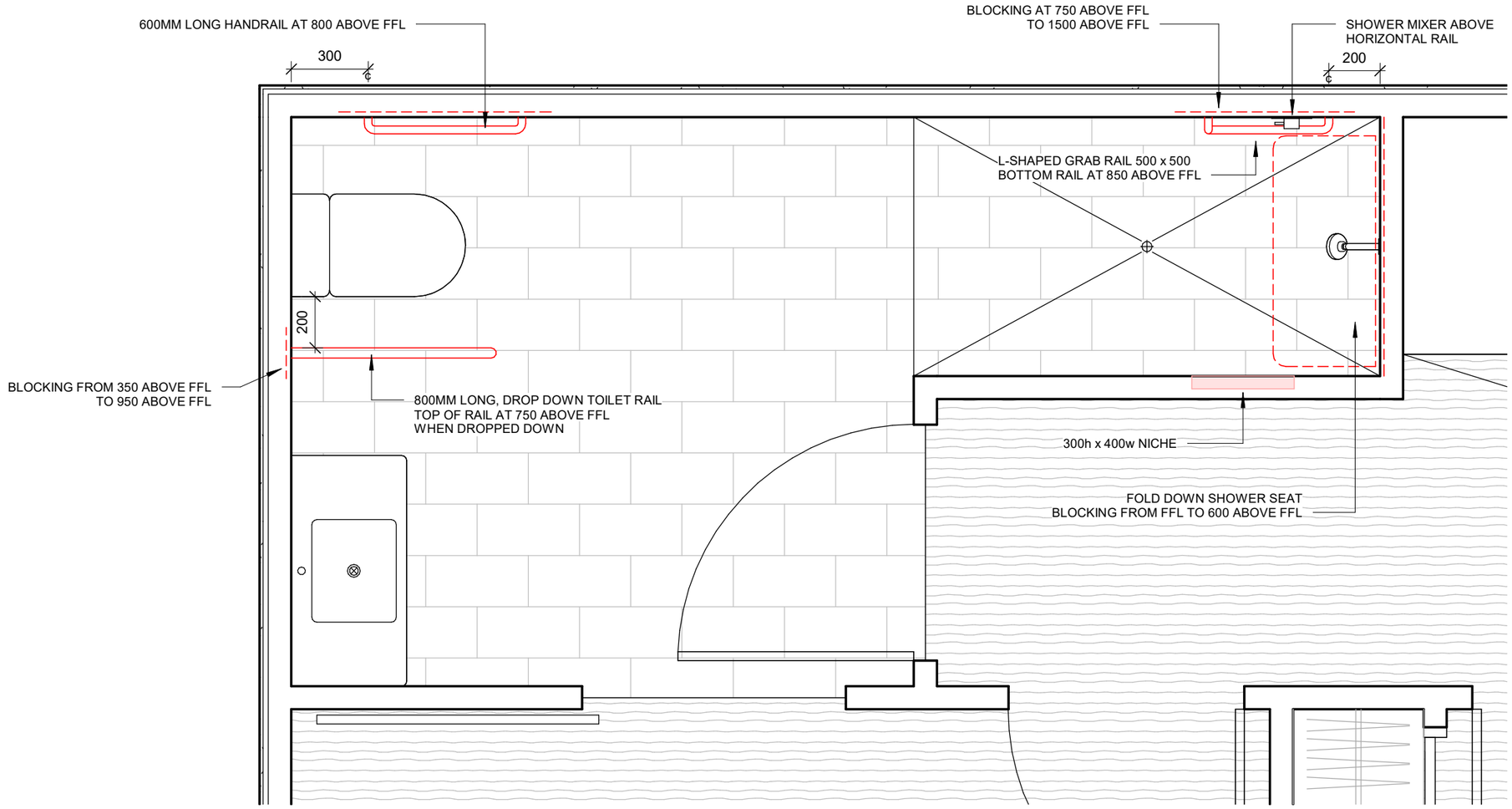

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BATHROOM DETAILS

Project number	5286	
Drawing Status	DA	
Current Revision	30/10/2024 R10	Scale on A3 1 : 20

4 D-00

30/10/2024 10:51:19 AM