



DEVELOPMENT APPLICATION

PDPLANPMTD-2025/054198

PROPOSAL: Dwelling, Outbuilding & Conversion of Existing Dwelling to Secondary Residence

LOCATION: 30 Thompson Way, Clifton Beach

RELEVANT PLANNING SCHEME: Tasmanian Planning Scheme - Clarence

ADVERTISING EXPIRY DATE: 08 September 2025

The relevant plans and documents can be inspected at the Council offices, 38 Bligh Street, Rosny Park, during normal office hours until 08 September 2025. In addition to legislative requirements, plans and documents can also be viewed at www.ccc.tas.gov.au during these times.

Any person may make representations about the application to the Chief Executive Officer, by writing to PO Box 96, Rosny Park, 7018 or by electronic mail to clarence@ccc.tas.gov.au. Representations must be received by Council on or before 08 September 2025.

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

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

Application for Development / Use or Subdivision

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

Proposal: A new house and ancillary buildings

Location: 30 Thompson Way, Clifton Beach, Tas 7020

Personal Information Removed



Is the property on the Tasmanian Heritage Register?

Yes No **No**

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

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

Current use of site: **An existing dwelling**

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

Declaration

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

Acknowledgement

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

Personal Information Removed

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



Development application over

30 Thompson Way

Clifton Beach

Tasmania 7020

List of submitted documents:

1. Certificate of Title, Volume 112756, Folio 30, including a Schedule of Easements
2. Town planning report, All Urban Planning, dated 22 July 2025
3. Architectural drawings:
 - a. Cover Sheet
 - b. Site Location, A1000 Reva
 - c. Site Location, A1001 RevC
 - d. Survey Drawing No 7164, Detail Plan
 - e. Site Key Materials, A 1003, RevC
 - f. Plans Existing Site, A2200, RevC
 - g. Plans Proposed Site, A2201, RevC
 - h. Plans Ground, A2202, RevC
 - i. Plans Upper Floor, A2203, RevC
 - j. Plans Roof, A2204, RevC
 - k. Plans Shadow Diagrams (June), A2206, RevC
 - l. Plans Shadow Diagrams (March), A2207, RevC
 - m. Elevation North, A3301, RevC
 - n. Elevation South, A3302, RevC
 - o. Elevation East, A3303, RevC
 - p. Elevation West, A3304, RevC
4. Shed Drawings
 - a. Floor Plan, SOR01_14777, FP
 - b. Elevation Front and Rear, SOR01_14777, EE
 - c. Elevation East and West, SOR01_14777, SE
5. Environmental Reports:
 - a. Coastal Vulnerability Assessment, Geo Environmental Solutions, 27th June 25
 - b. Geo-Environmental (Wastewater) Assessment, Geo Environmental Solutions, June 25
 - c. Stormwater Assessment, Geo Environmental Solutions, June 25
 - d. Bushfire Hazard Report, Geo Environmental Solutions, June 25
 - e. Flood & Overland Flow, Chris Tanner, 14 July 25
6. Letter of Consent re Boundary Offset, 9th July 2025

CERTIFICATE OF TITLE

LAND TITLES ACT 1980



TASMANIA

TORRENS TITLE

VOLUME		FOLIO	
112756		30	
EDITION	DATE OF ISSUE		
5	02-Jun-2025		
Page 1		of 1	

I certify that the person described in Schedule 1 is the registered proprietor of an estate in fee simple (or such other estate or interest as is set forth in that Schedule) in the land within described subject to such exceptions, encumbrances, interests and entries specified in Schedule 2 and to any additional entries in the Folio of the Register.

Recorder of Titles



DESCRIPTION OF LAND

City of CLARENCE
Lot 30 on Plan 112756
Being the land secondly described in Conveyance 34/4587
Derivation : Part of 1000 acres granted to Edward Paine Butler
& William Woolley
Derived from A14757

SCHEDULE 1

N235330 TRANSFER to CHRISTOPHER JAMES TANNER Registered
02-Jun-2025 at 12.01 PM

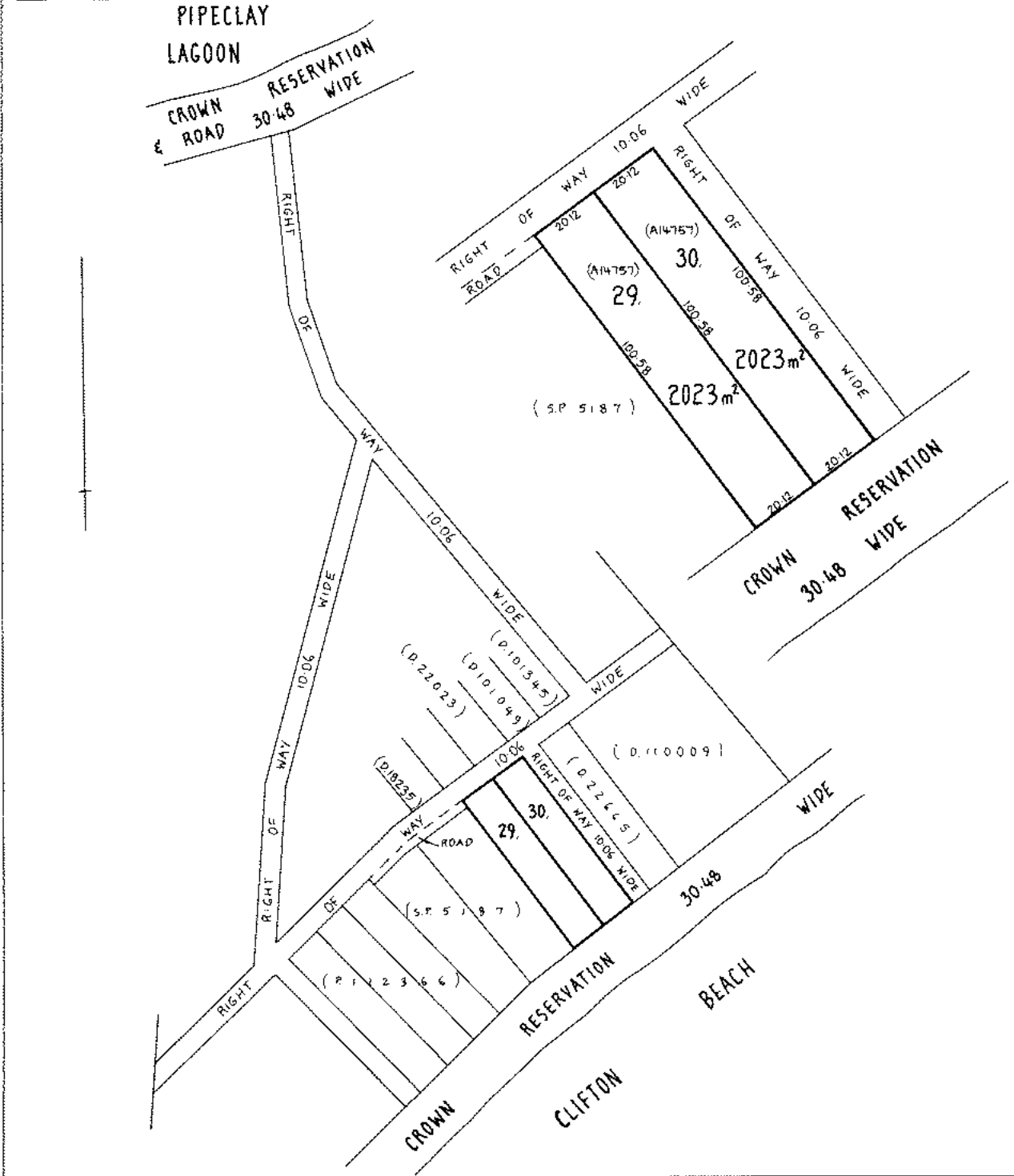
SCHEDULE 2

Reservations and conditions in the Crown Grant if any
34/4587 CONVEYANCE: Benefiting Easement: Right to pass and
repass over the several Rights of Way shown on plan
number 112756

FILE NUMBER A.14757		CONVERSION PLAN	REGISTERED NUMBER P112756
GRANTEE PART OF 1000A-DR-OP-STD. TO EDWARD PAINE BUTLER & WILLIAM WOOLLEY.			LOCATION CITY OF CLARENCE
MAPSHEET MUNICIPAL CODE No. 14		LAST UPI No. 14800 & 14806	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN
NOT TO SCALE.		LENGTHS IN METRES	
DRAWN MK			

SKETCH BY WAY OF ILLUSTRATION ONLY

"EXCEPTED LANDS"



A-193

TANNER ARCHITECTS™

PROJECT

CLIFTON

ADDRESS 30 THOMPSON WAY, CLIFTON BEACH TAS 7020

PROPERTY ID 2179980
TITLE REF 112756/30
OWNER CHRIS & JENNY TANNER

DESIGNER STUART TANNER
SITE AREA 2023 sqm
FLOOR AREA 151 sqm
BUILDING CLASS 1A
BAL 19 (REFER TO GES BUSHFIRE HAZARD REPORT, JUNE 2025)
SITE CLASS P
CLIMATE ZONE 7
WIND CLASS N3

REV C - DA

21/7/2025

DRAWINGS TO BE READ IN CONJUNCTION WITH:
CIVIL ENGINEERING BY ALDANMARK
STRUCTURAL ENGINEERING BY ALDANMARK
ENERGY REPORT BY RED SUSTAINABILITY
WASTEWATER DESIGN BY GEO-ENVIRONMENTAL SOLUTIONS

SHEET INDEX

SHEET	ID	NAME	CURRENT REVISION
A1000	SITE	LOCATION	DA
A1001	SITE	LOCATION	DA
A1002	SITE	SURVEY	DA
A1003	SITE	KEY MATERIALS	DA
A2200	PLANS	EXISTING SITE	DA
A2201	PLANS	PROPOSED SITE	DA
A2202	PLANS	GROUND PLAN	DA
A2203	PLANS	UPPER FLOOR PLAN	DA
A2204	PLANS	ROOF PLAN	DA
A2206	PLANS	SHADOW DIAGRAMS (JUNE)	DA
A2207	PLANS	SHADOW DIAGRAM (MAR.)	DA
A3001	ELEVATIONS	NORTH	DA
A3002	ELEVATIONS	SOUTH	DA
A3003	ELEVATIONS	EAST	DA
A3004	ELEVATIONS	WEST	DA
A12000	DIAGRAMS	EXISTING ANCILLARY DWELLING	DA



PIPE CLAY LAGOON

BICHENO STREET

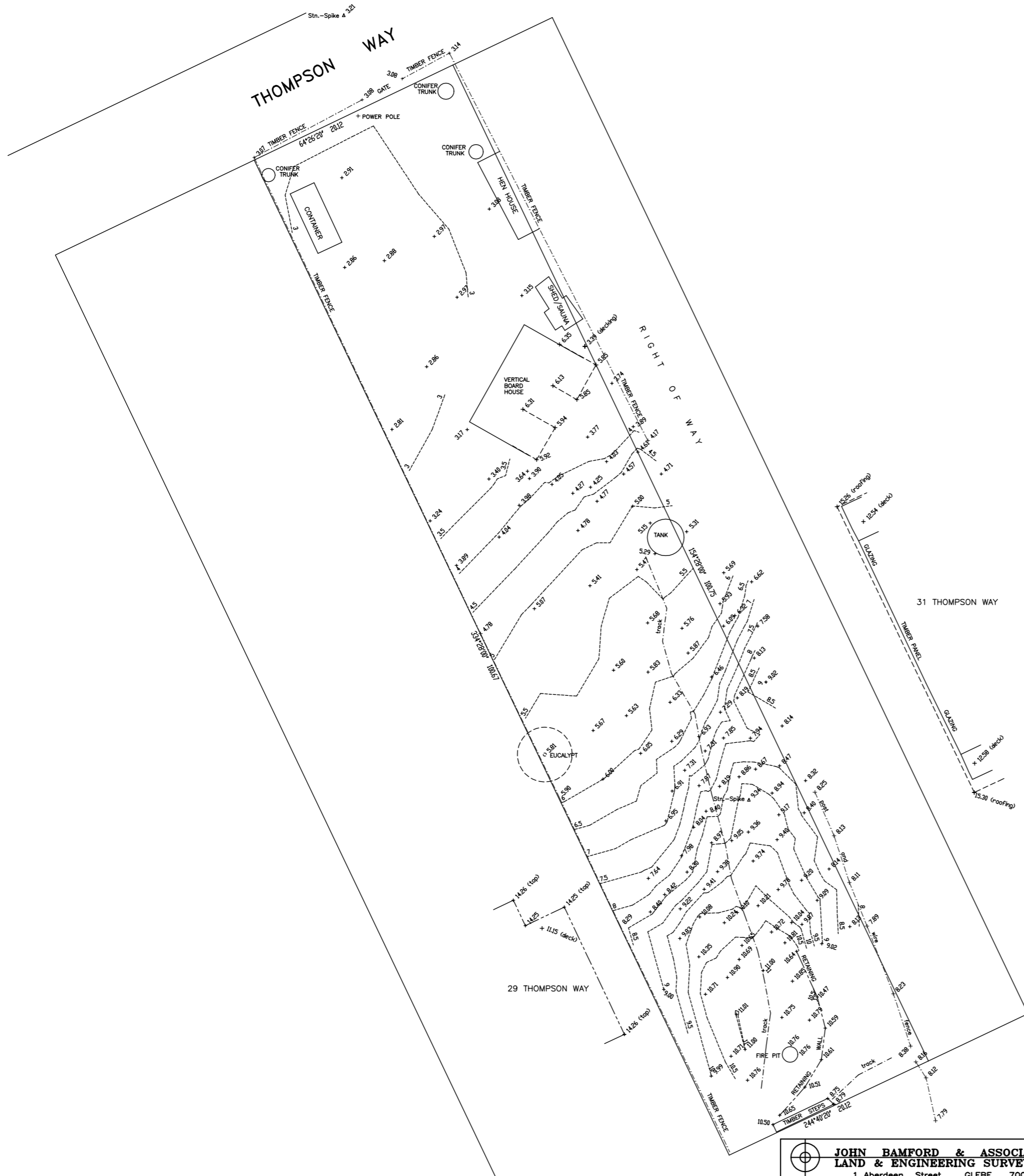
CLIFTON BEACH ROAD


THOMPSON WAY

CLIFTON BEACH



CLIFTON BEACH

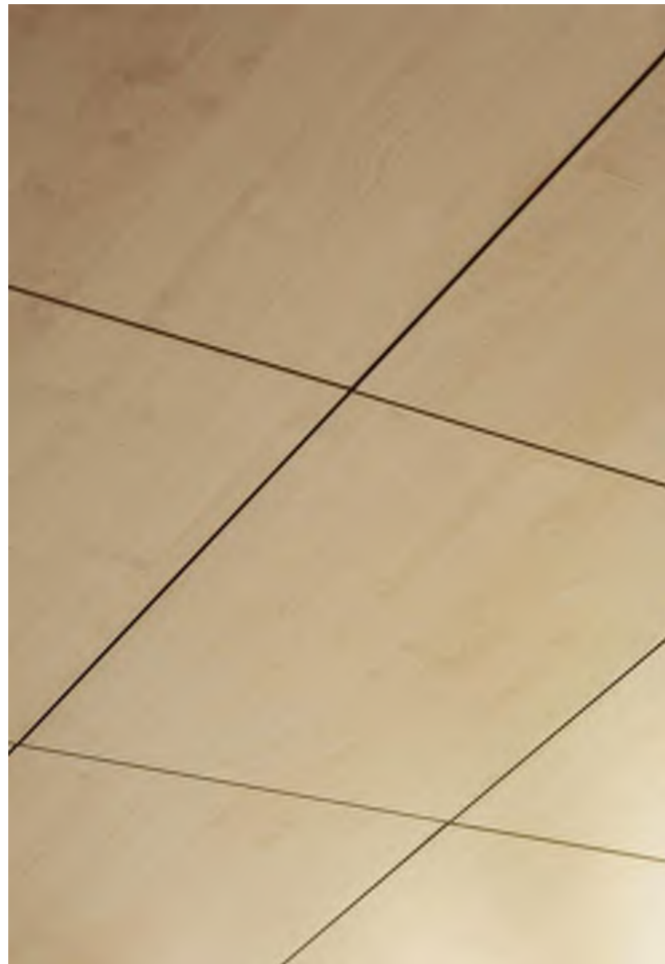



JOHN BAMFORD & ASSOCIATES
LAND & ENGINEERING SURVEYORS
 1 Aberdeen Street GLEBE 7000
 Telephone(03) 6231 3116 - 0408 128 682
 Email: john.bamford@a1.com.au

SCALE: 1:200(A1)
DATE: 9/9/20
DATUM: Azimuth: MGA
 Drawn: jmb
 Checked: jmb
 Contour Int. 0.50
 Level: AHD

DETAIL PLAN - CT 112756/30
30 THOMPSON WAY, CLIFTON BEACH

DRAWING NO.
 7164 DETAIL
 SHEET 1 of 1



INTERNAL PLYWOOD LINING



RAMMED EARTH WALLS



BAL 29 IRONBARK EXTERNAL CALDDING



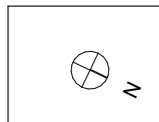
INTERNAL TILES



INTERNAL SEA SHELL BASED PAINT

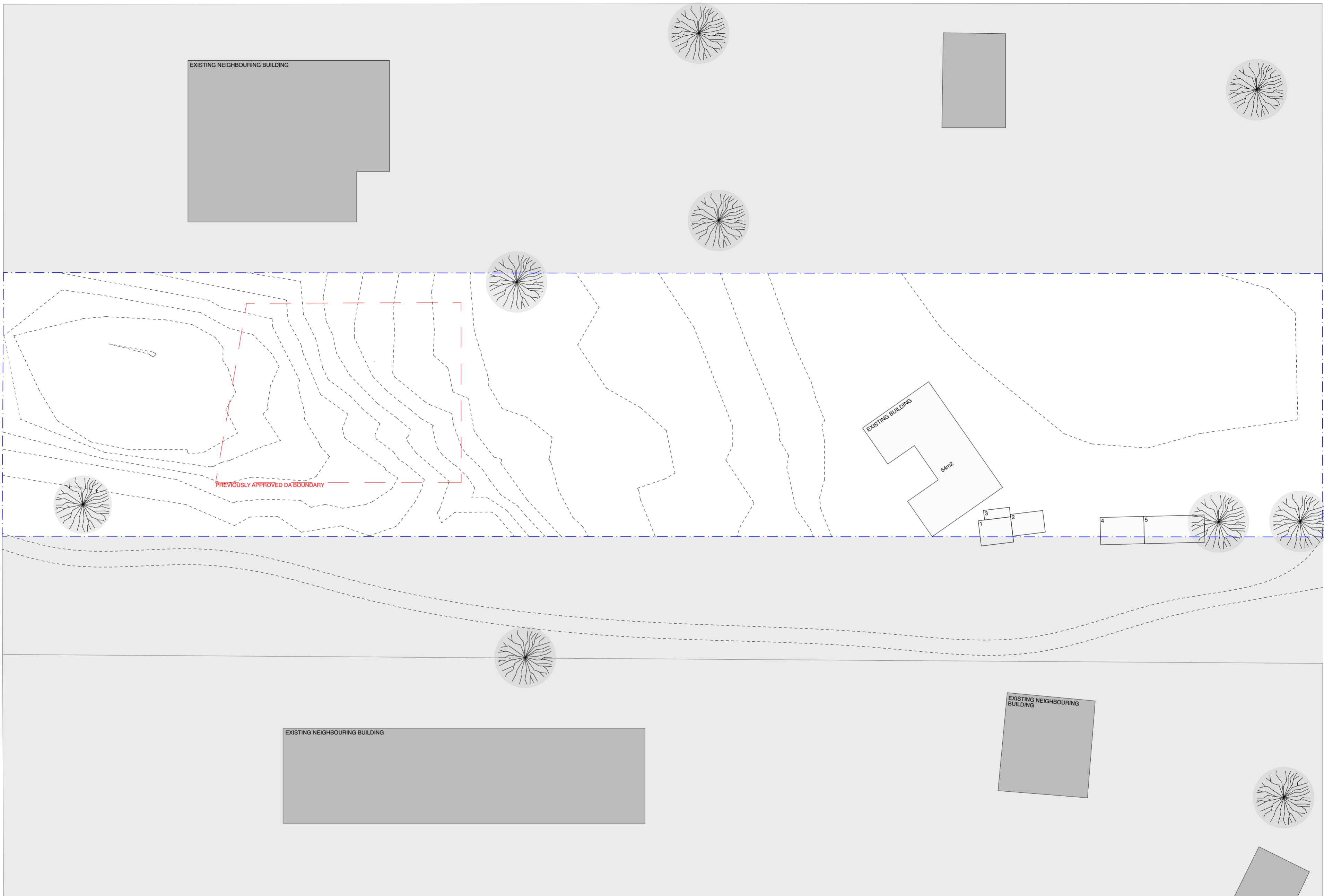


LINEN CURTAINS



Issue ID	Issue Name	Issue Date
REV B	PRE-DA	17/7/2025
REV C	DA	17/7/2025

Drawings to be read in conjunction with specification by TA and all drawings and documents by engineers and subconsultants referred to in these plans. Contractors are to verify all dimensions on site before commencing any work or producing shop drawings. Larger scale drawings and written dimensions take preference. Do not scale from drawings. These drawings are protected by the laws of copyright and may not be copied or reproduced without the written permission of TA. All discrepancies to be brought to the attention of the author. All building levels to AHD unless otherwise noted.



1:200 UPPER LEVEL

NOTES
 1: SAUNA
 2: LAUNDRY
 3: CLIPBOARD
 4: FIREWOOD SHED
 5: STORAGE SHED

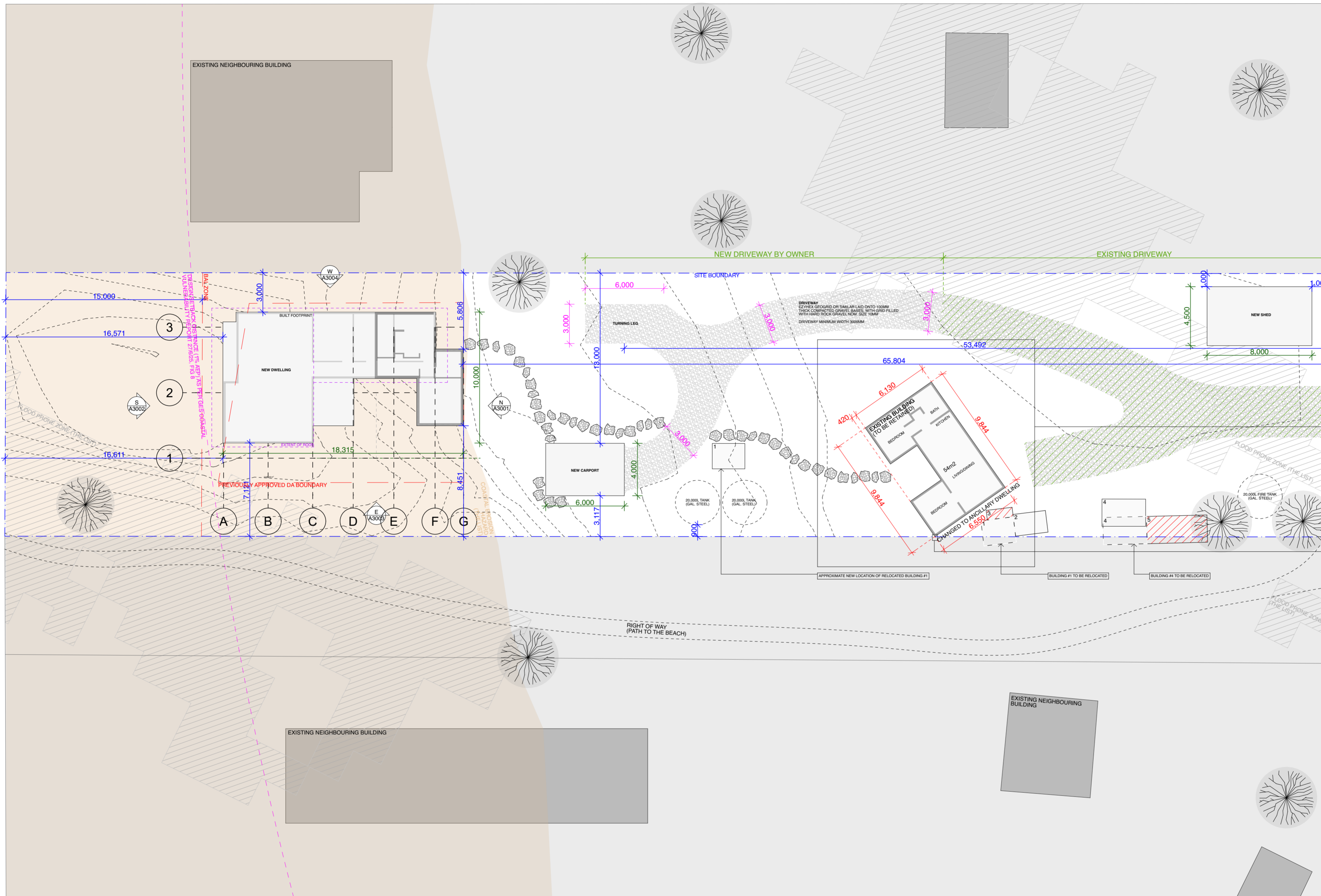
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	REV B	PRE-DA	17/7/2025
	REV C	DA	17/7/2025

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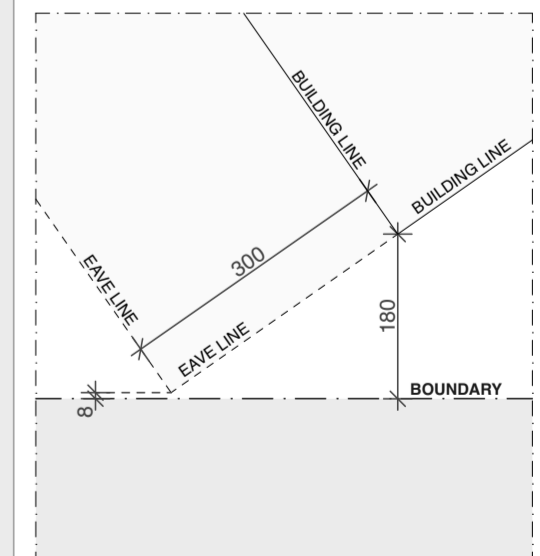
DRAWINGS TO BE READ IN CONJUNCTION WITH:
 CIVIL ENGINEERING BY ALDANMARK
 STRUCTURAL ENGINEERING BY ALDANMARK
 ENERGY REPORT BY RED SUSTAINABILITY
 WASTEWATER DESIGN BY GEO-ENVIRONMENTAL SOLUTIONS

Project Name: CLIFTON
 Client: CHRIS & JENNY TANNER
 Project Address: 30 THOMPSON WAY, CLIFTON BEACH QLD 4202
 Scale: AS SHOWN @ A2
 Status: SCHEMATIC DESIGN
 Checked By: STA
 Date: 15/6/2025

A2200
 REV C



1:200 PROPOSED SITE



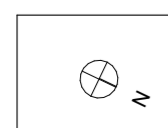
1:10 D2 ANCILLARY DWELLING BOUNDARY OFFSET

NOTES

- 1: SAUNA (RELOCATED)
- 2: LAUNDRY (RETAINED)
- 3: CLIPBOARD (DEMOLISHED)
- 4: FIREWOOD SHED (RELOCATED)
- 5: STORAGE SHED (DEMOLISHED)

TOTAL AREAS OF ROOFED BUILDINGS

- ANCILLARY DWELLING: 54m²
- EXISTING SHEDS: 15m²
- NEW SHED: 32m²
- CARPORIT: 24m²
- NEW DWELLING: 152m² (TOTAL UPPER AND LOWER FLOORS FOOTPRINT: 132m²)



Issue ID	Issue Name	Issue Date
REV B	PRE DA	17/7/2025
REV C	DA	17/7/2025

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WASTEWATER DESIGN BY GEO-ENVIRONMENTAL SOLUTIONS



GROUND FLOOR AREA (EXCL. DECK)= 41.22 m²
 DECK AREA = 6.47 m²

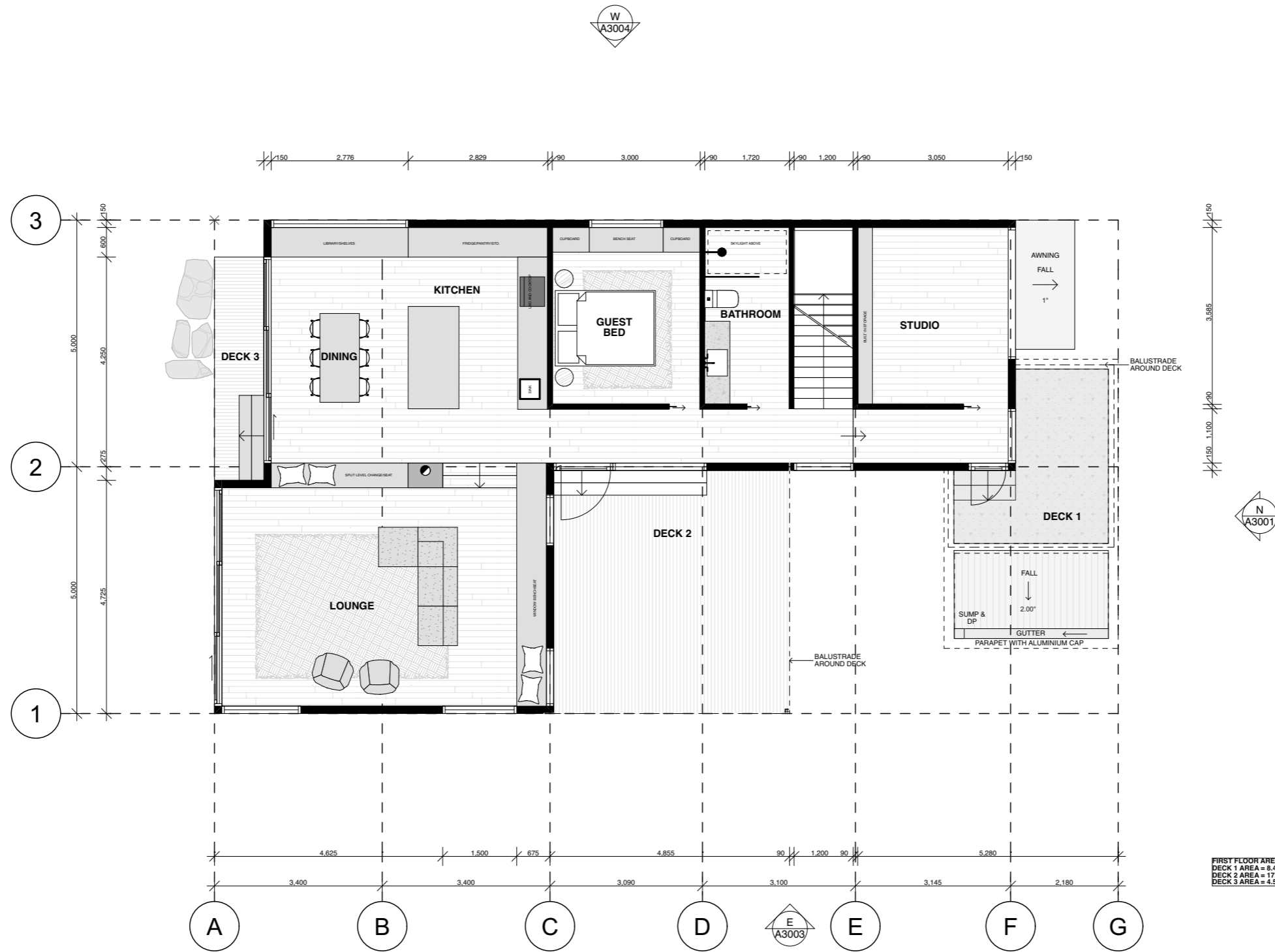
1:100 GROUND FLOOR



Issue ID	Issue Name	Issue Date
REV B	PRE DA	17/7/2025
REV C	DA	17/7/2025

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PLANS - GROUND



FIRST FLOOR AREA (EXCL. DECKS) = 110.92 m²
 DECK 1 AREA = 8.41 m²
 DECK 2 AREA = 17.53 m²
 DECK 3 AREA = 4.57 m²

1:100 UPPER LEVEL

TANNER ARCHITECTS™
 03 6224 4377
 mail@tanner-architects.com.au
 Accreditation: 329877575



Issue ID	Issue Name	Issue Date
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REV C	DA	17/7/2025

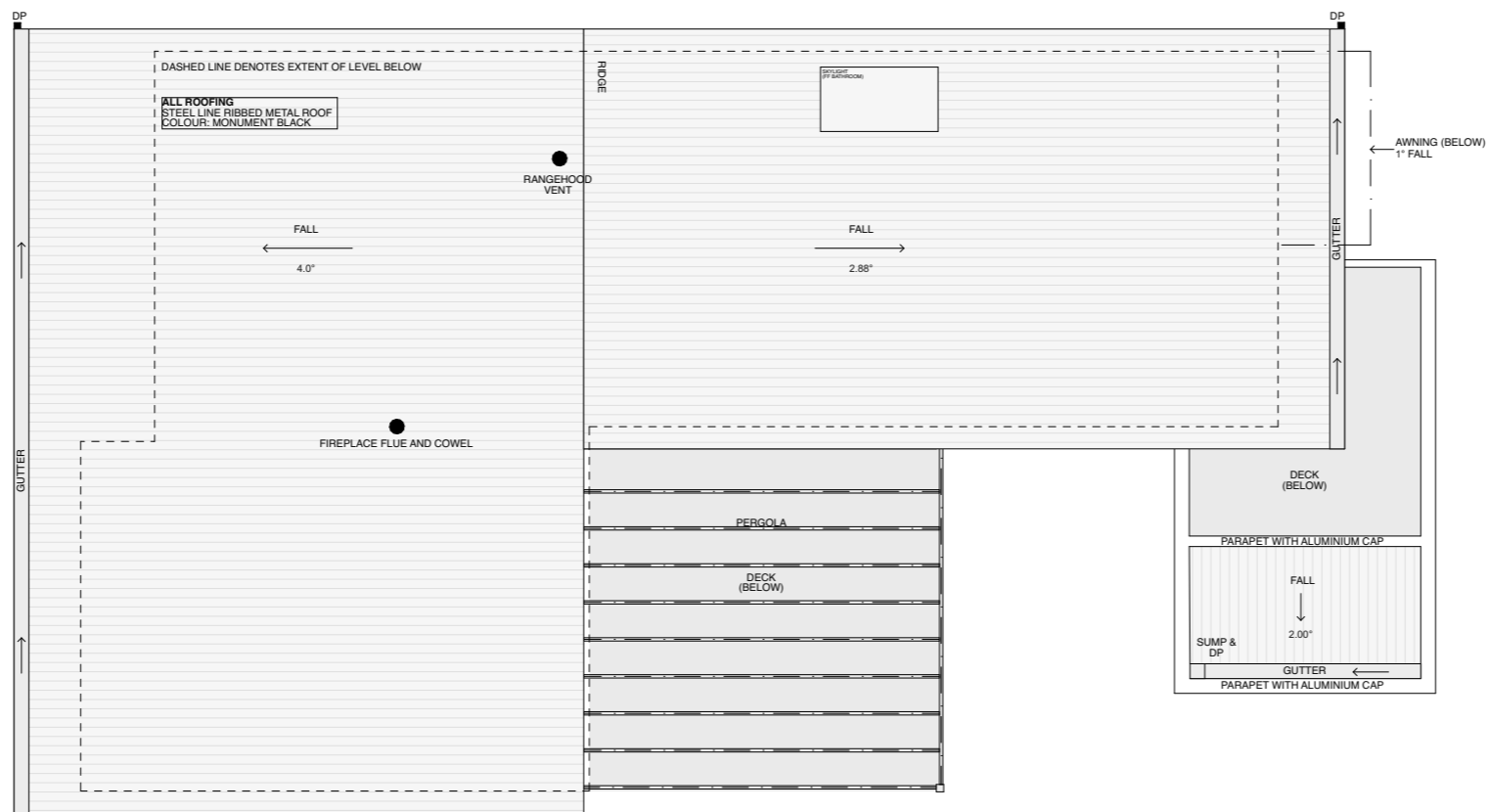
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Project Name
 CLIFTON
 Client
 CHRIS & JENNY TANNER
 Project Address
 30 THOMPSON WAY, CLIFTON BEACH
 TAS 7020

PLANS - UPPER FLOOR

Scale: AS SHOWN @ A3
 Status: SCHEMATIC DESIGN
 Checked By: STA
 Date: 21/7/2025

A2203
 REV C

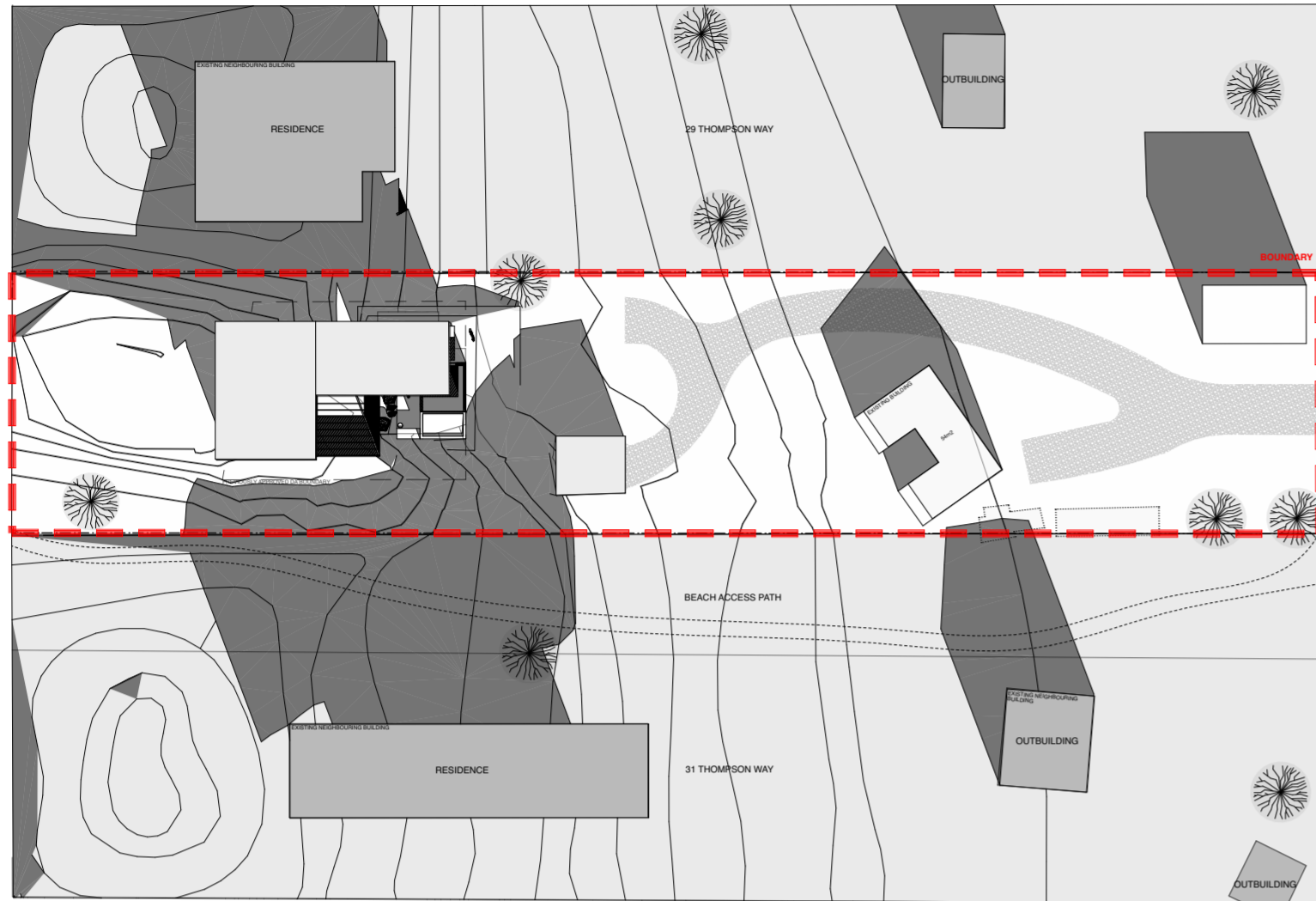


1:100 ROOF PLAN

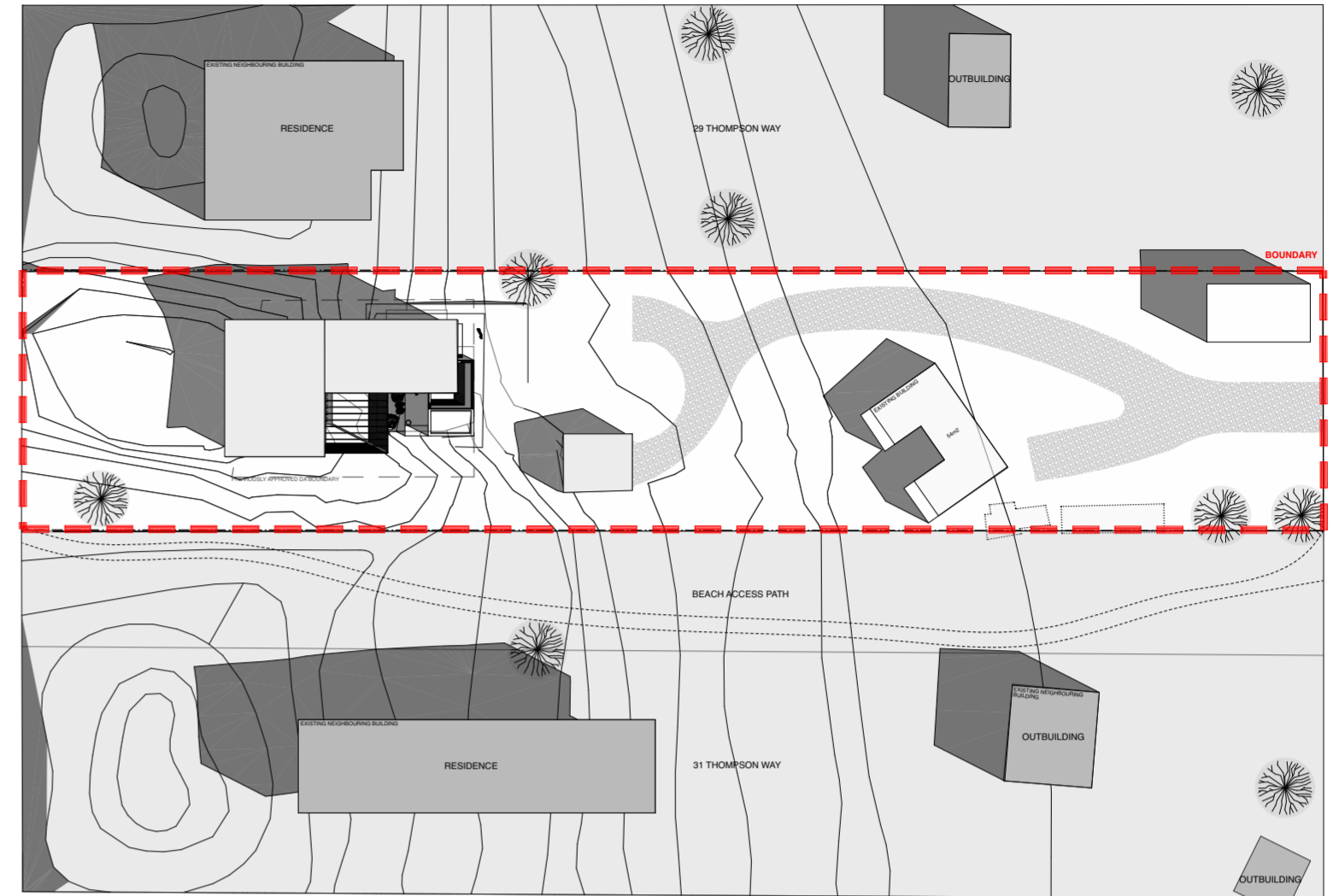


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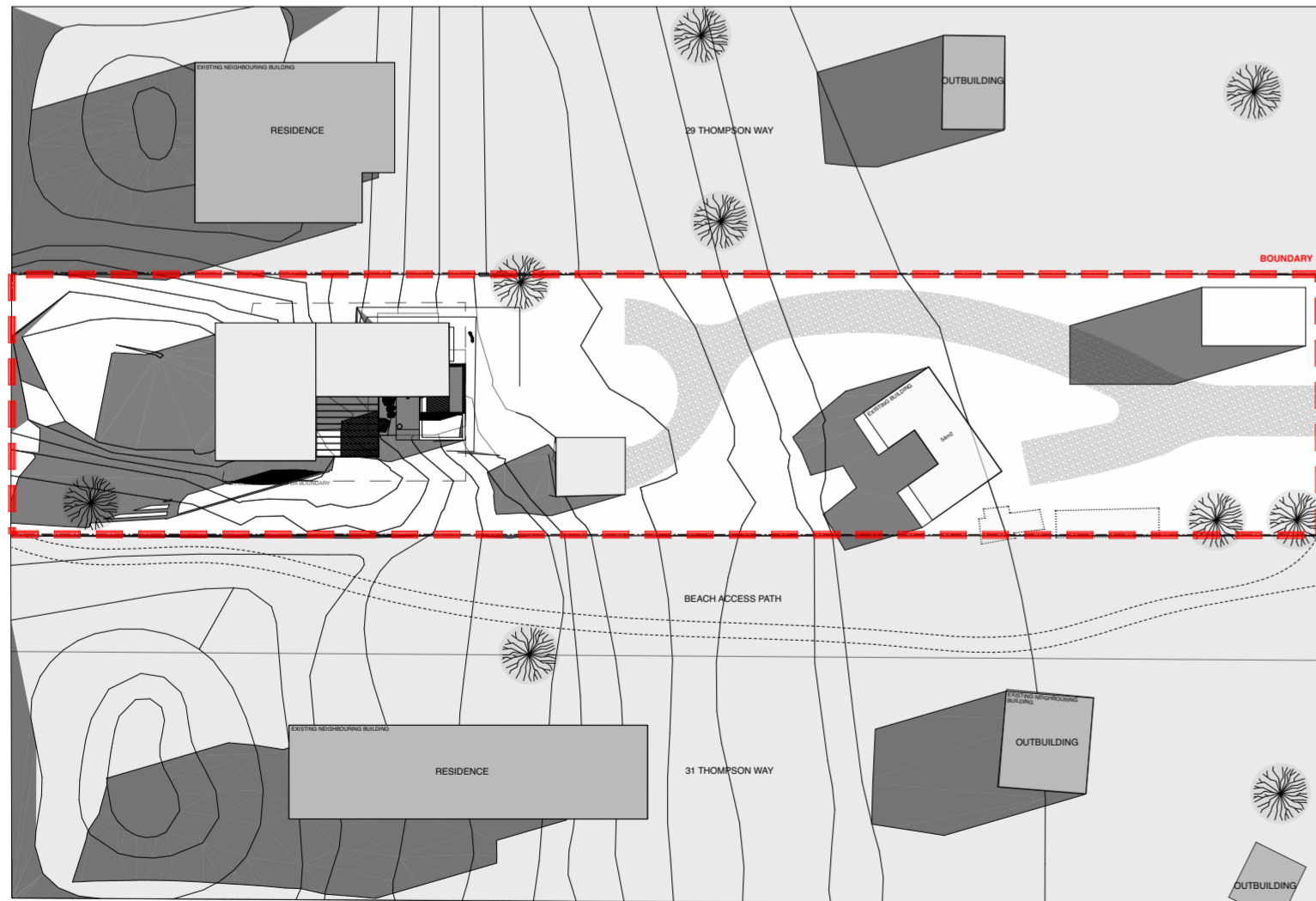
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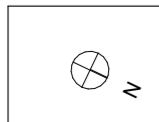
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9AM JUNE 21
SHADOW DIAGRAM SITE PLAN



1:500
12PM JUNE 21
SHADOW DIAGRAM SITE PLAN

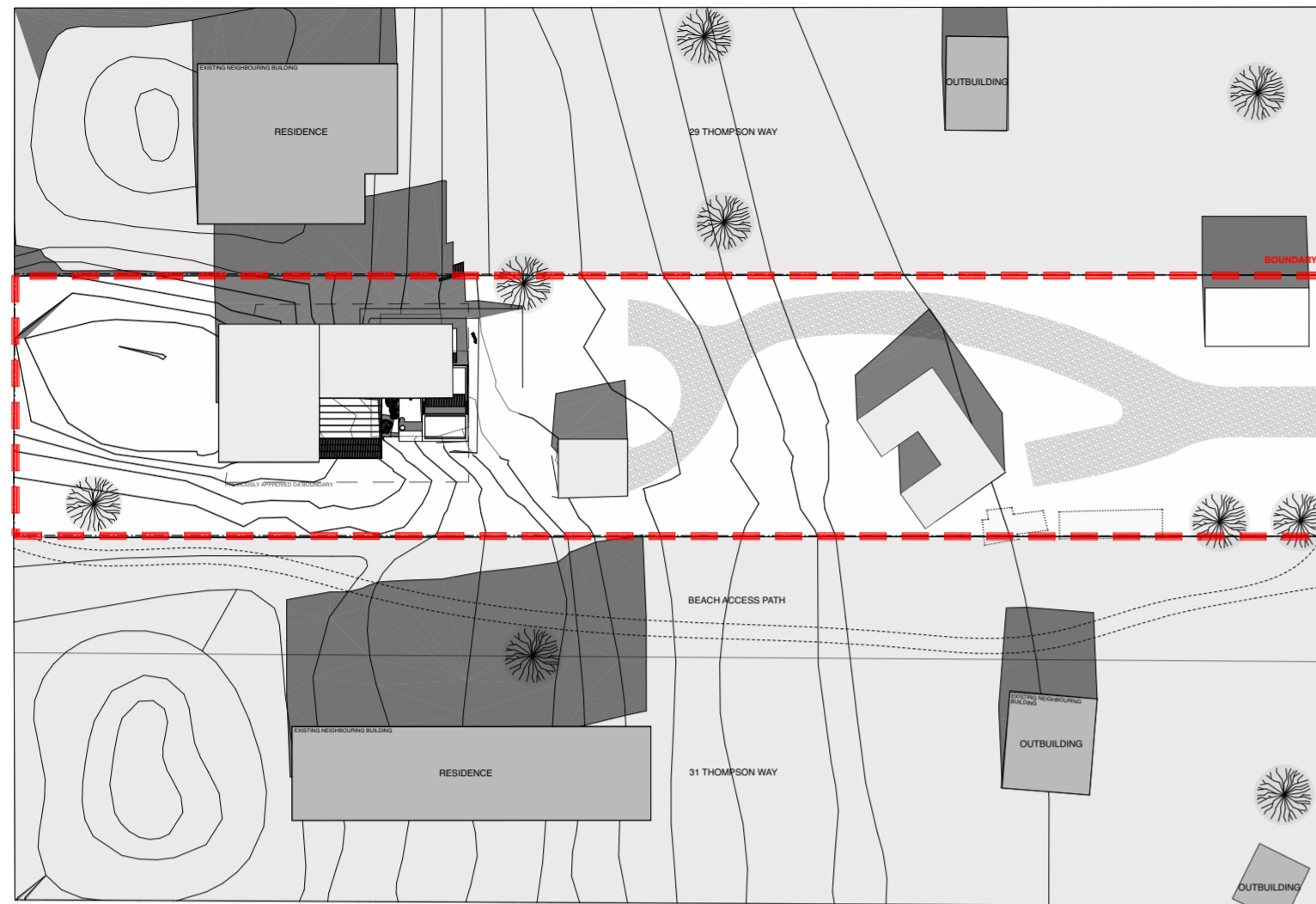


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3PM JUNE 21
SHADOW DIAGRAM SITE PLAN

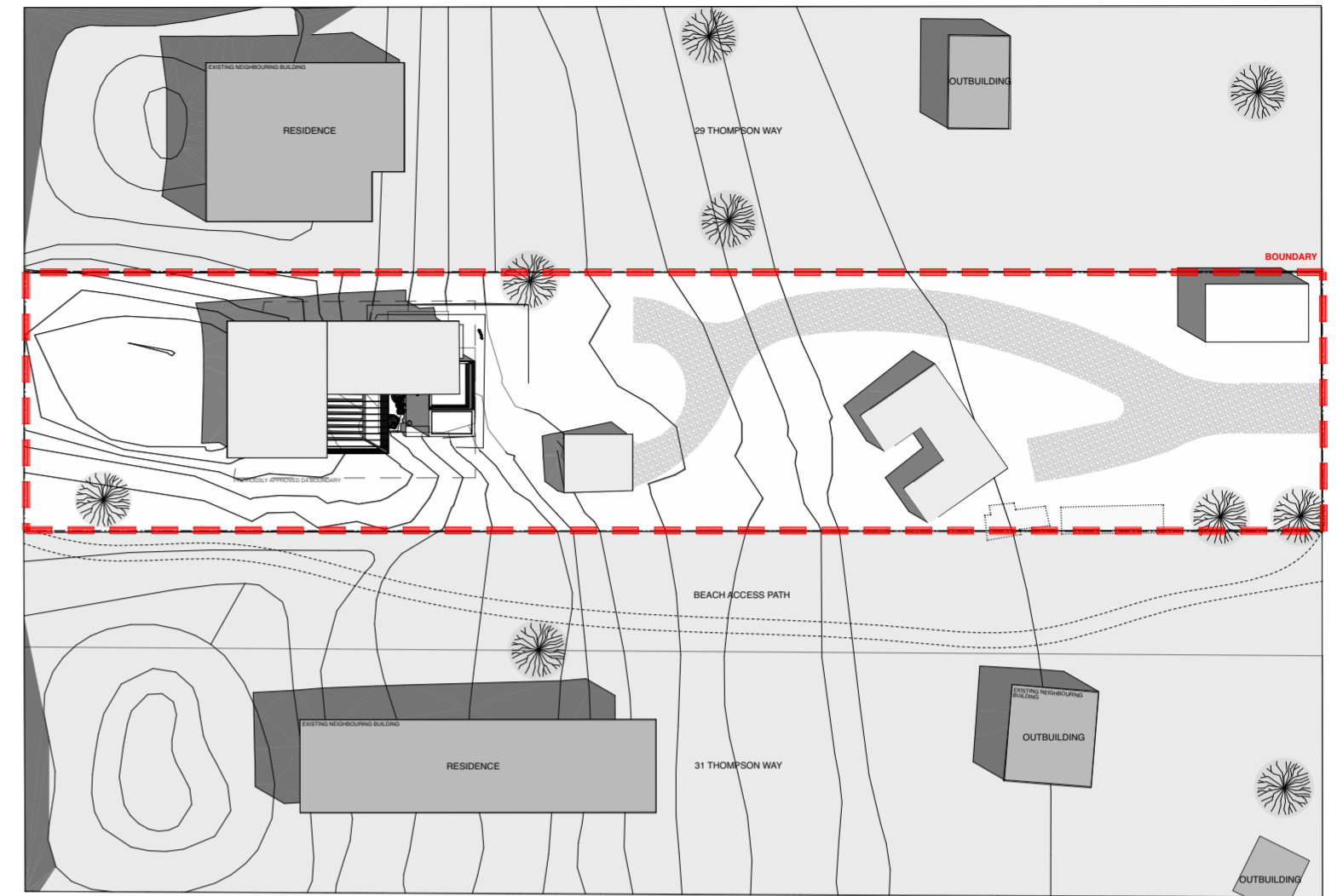


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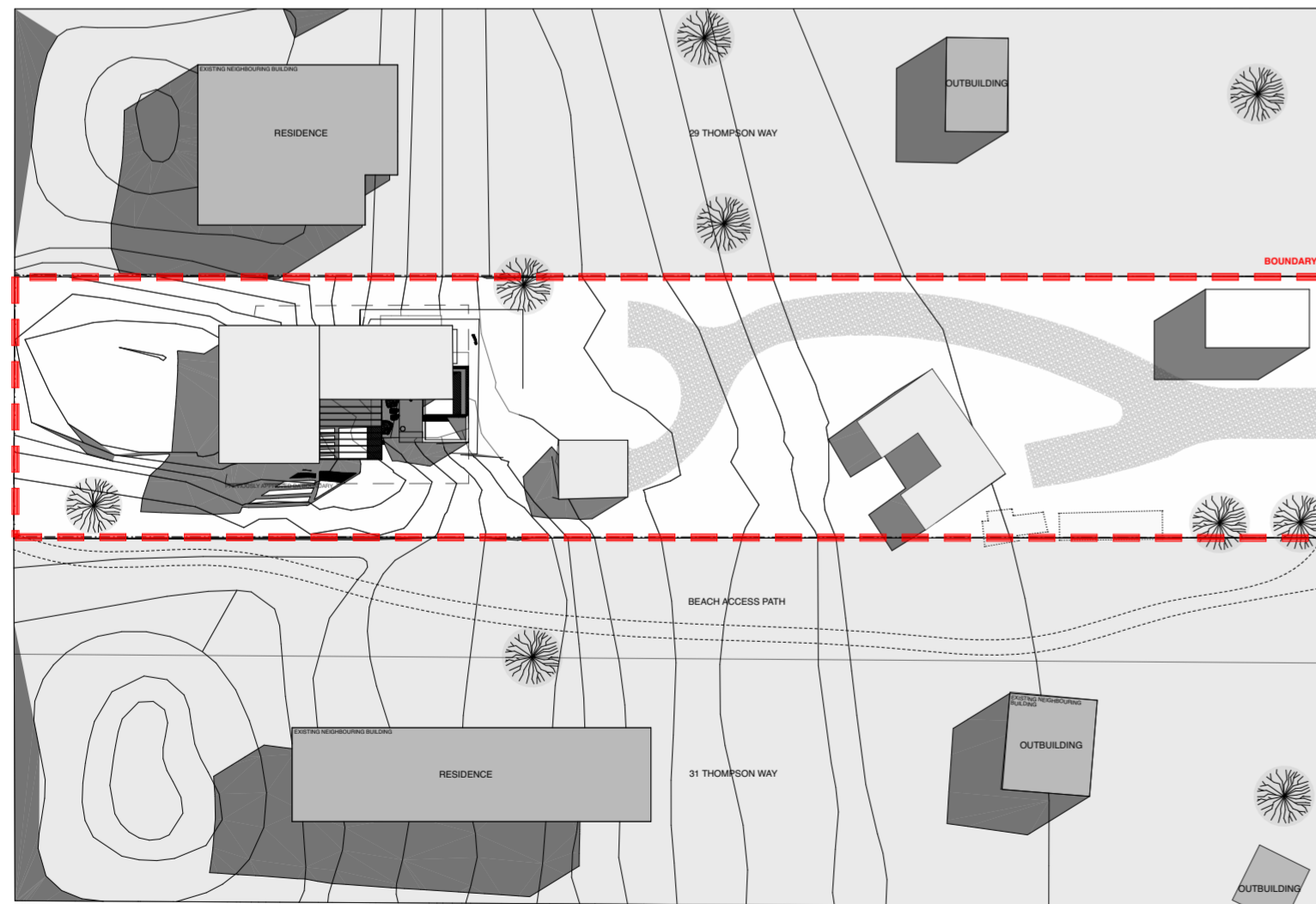
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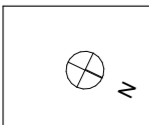
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9AM MARCH 21
SHADOW DIAGRAM SITE PLAN



1:500
12PM MARCH 21
SHADOW DIAGRAM SITE PLAN

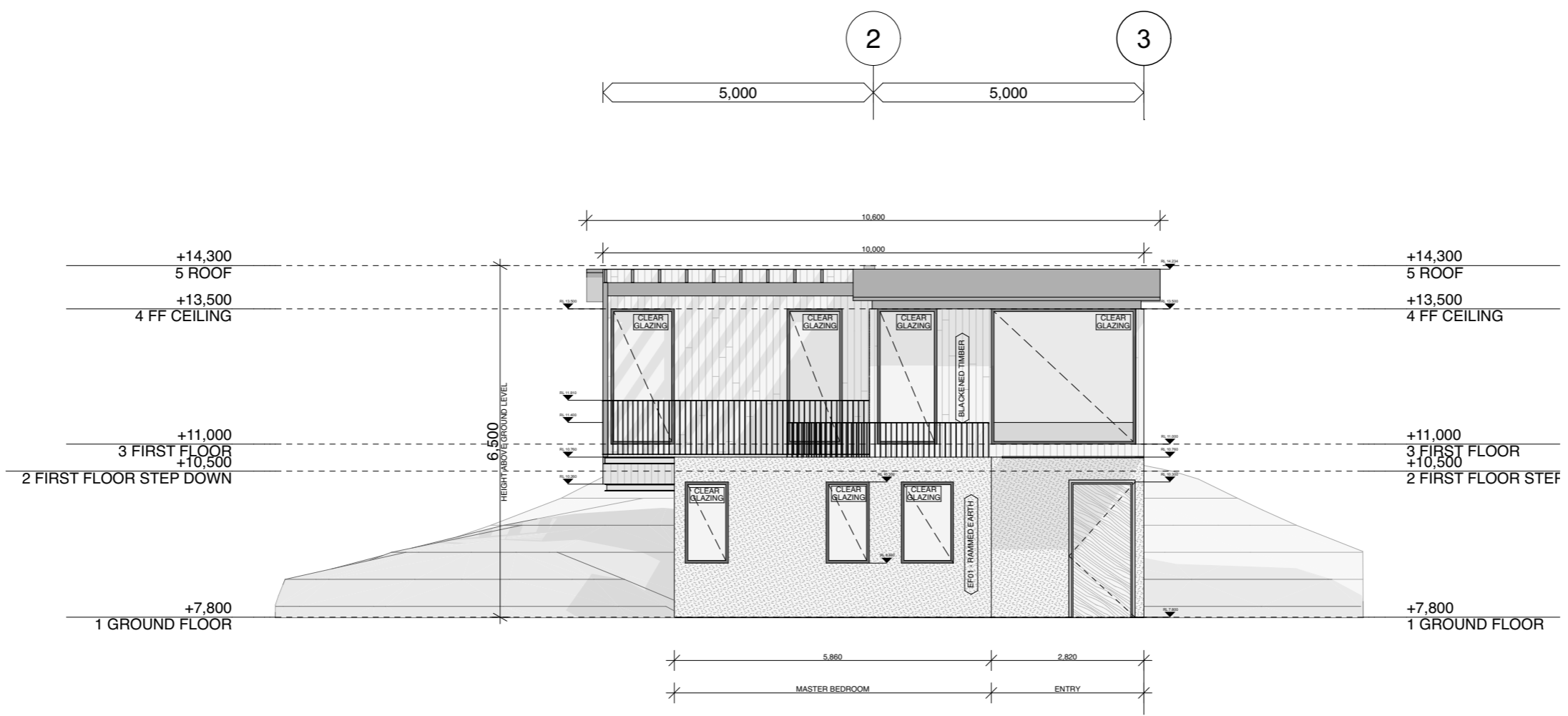


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3PM MARCH 21
SHADOW DIAGRAM SITE PLAN

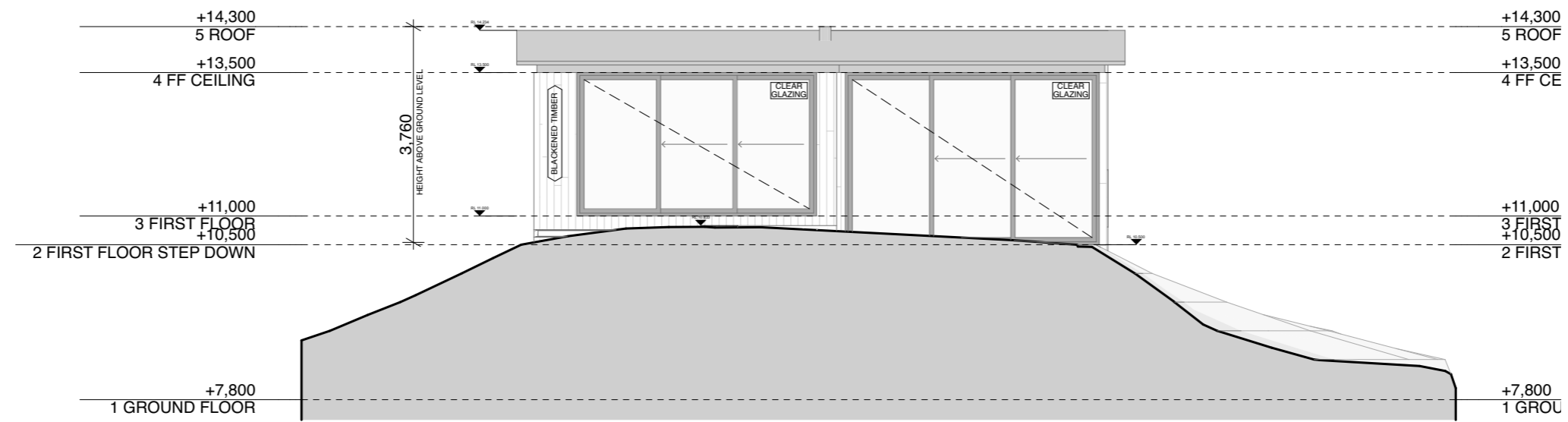
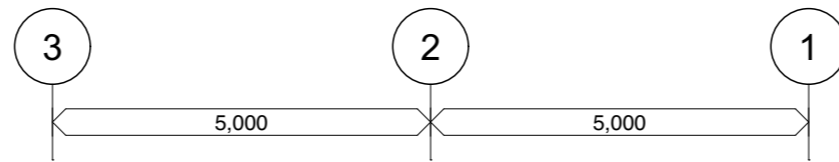


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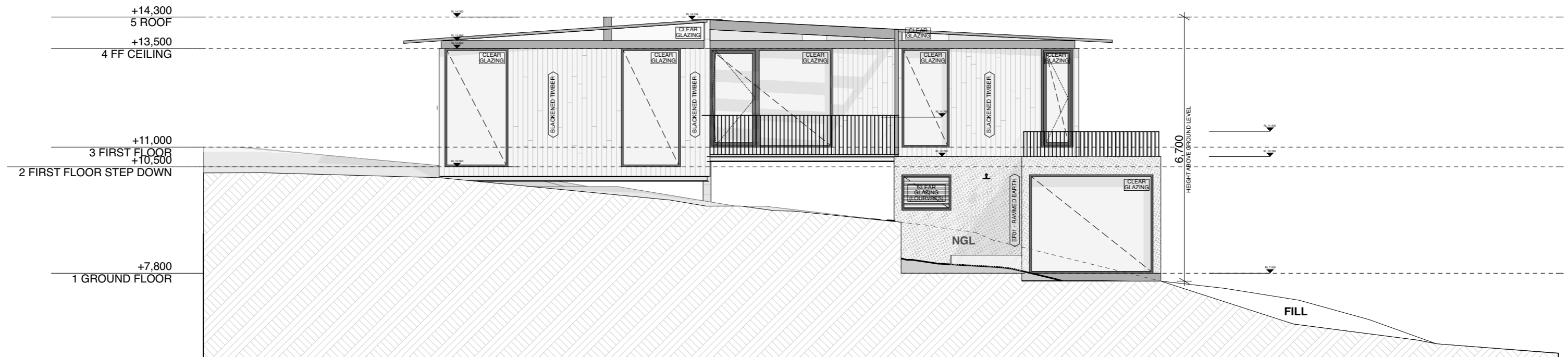
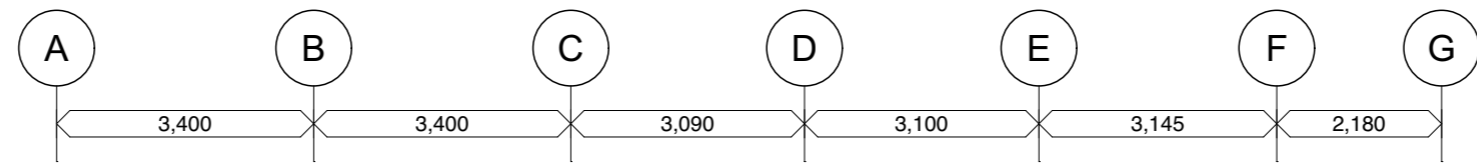
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1:100 UPPER LEVEL

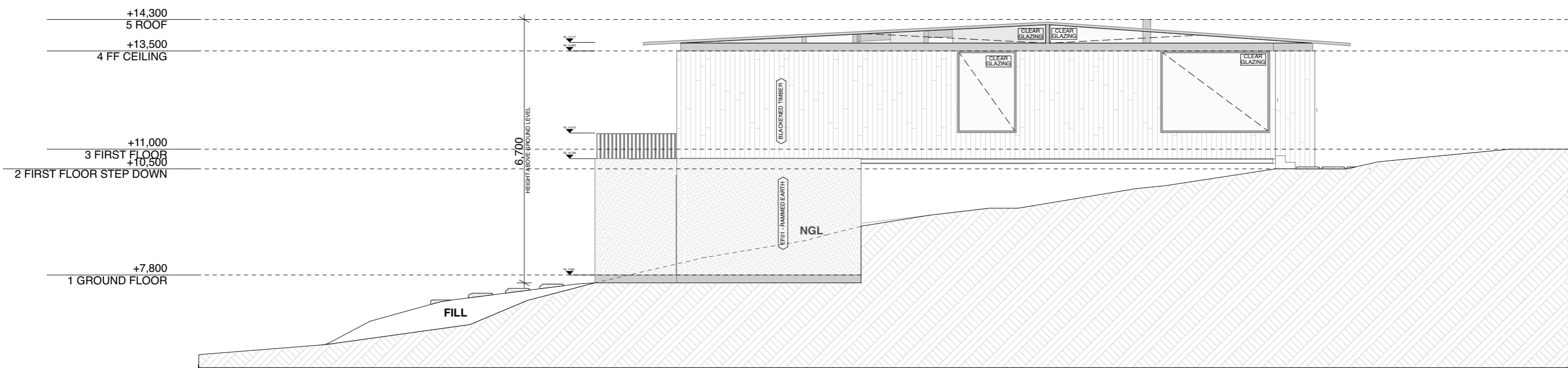


1:100 SOUTH ELEVATION

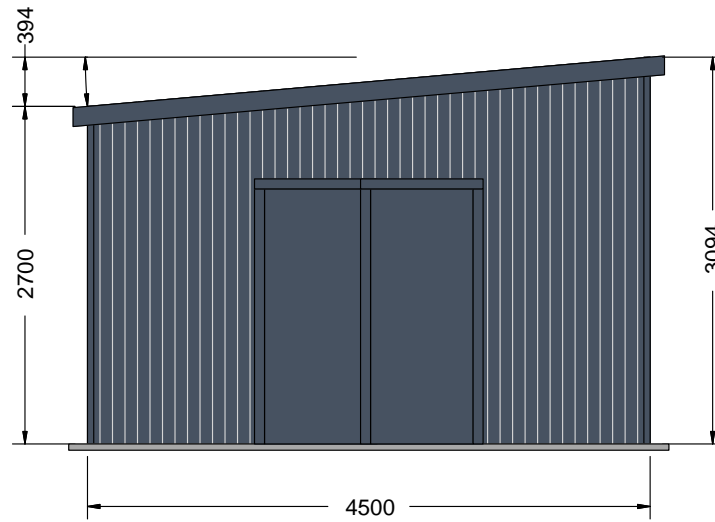


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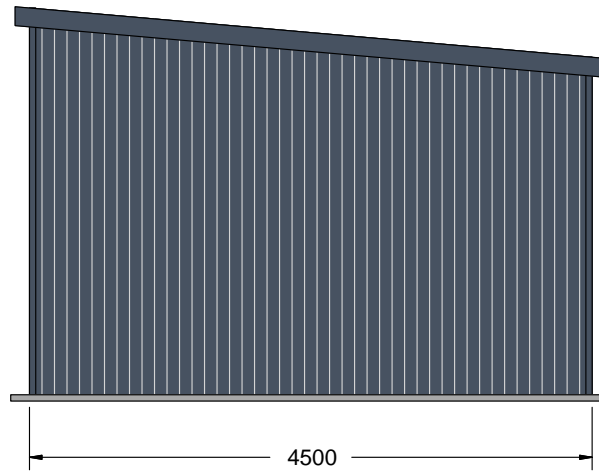
G F E D C B A



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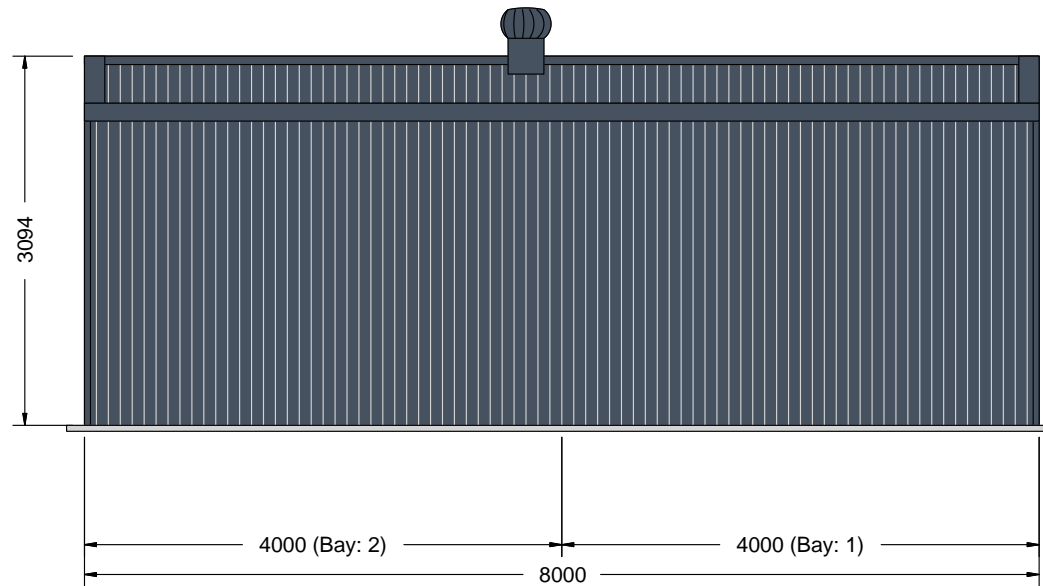


FRONT ELEVATION

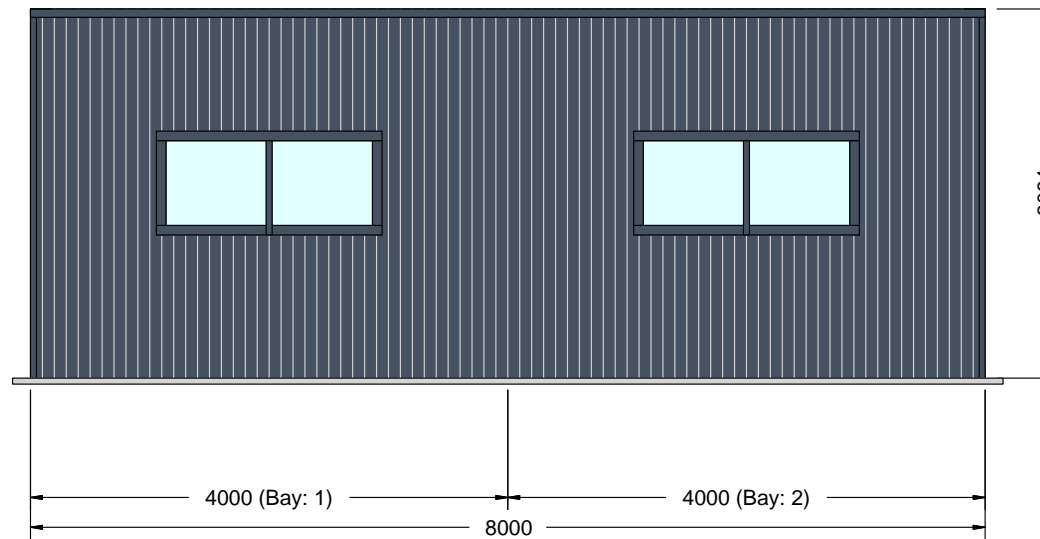


REAR ELEVATION





LEFT ELEVATION



RIGHT ELEVATION

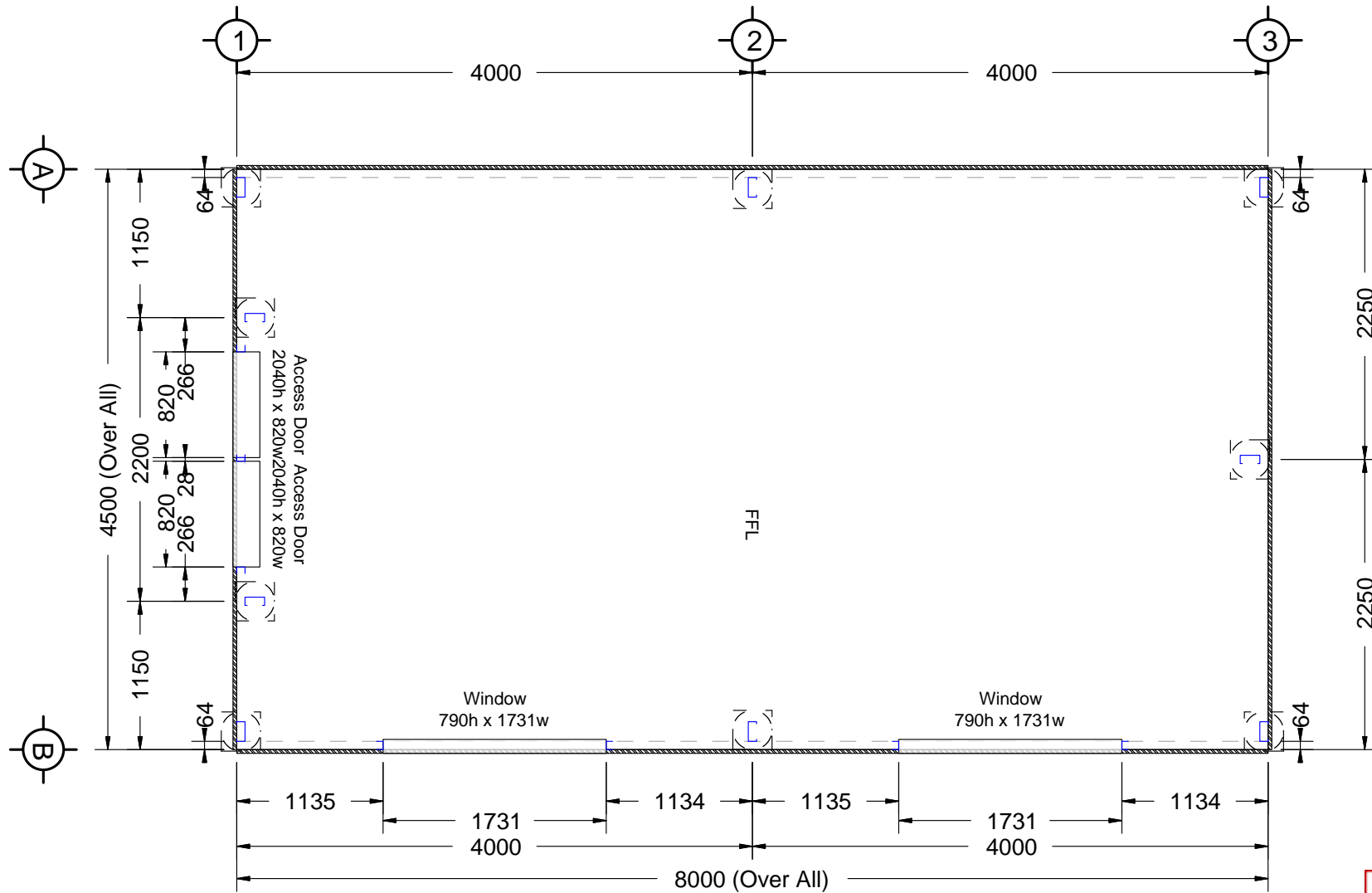


139 Main Road,
Sorell TAS 7172
Phone: 1300 737 910
Email: sales@rainbowbuilding.com.au



CLIENT: Chris Tanner
SITE ADDRESS: 30 Thompson Way, CLIFTON BEACH, TAS, 7020
PHONE: 0413590788
EMAIL: sixpence59@gmail.com

DRAWING TITLE: Side Elevations
SCALE: 1:63.360
DATE: 31-03-2025
Job Number: SOR01_14777
Drawing Number: SE



FLOOR PLAN



139 Main Road,
Sorell TAS 7172
Phone: 1300 737 910
Email: sales@rainbowbuilding.com.au

CLIENT: Chris Tanner
SITE ADDRESS: 30 Thompson Way, CLIFTON BEACH, TAS, 7020
PHONE: 0413590788
EMAIL: sixpence59@gmail.com

DRAWING TITLE: Floor Plan
SCALE: 1:48.650
DATE: 31-03-2025
Job Number: SOR01_14777
Drawing Number: FP

22 July 2025

Daniel Marr
Manager City Planning
Clarence City Council
PO Box 96
ROSNY PARK 7018

Dear Dan,

**Application for a Planning Permit –New Single Dwelling, Outbuilding and Secondary Residence –
30 Thompson Way, Clifton Beach**

All Urban Planning has been engaged by Chris Tanner to prepare the following planning assessment for a new two storey dwelling at 30 Thompson Way, Clifton Beach.



Figure 1– Location Plan

The Proposal

The proposal is for a new two storey dwelling as shown on the accompanying plans prepared by Tanner Architects and includes:

- Ground floor: master bedroom, ensuite, walk-in robe, entry, outdoor bath, laundry and entry (floor area: 41.2m², plus 6.4m² deck);
- Upper floor: living areas including kitchen, dining, lounge, guest room, bathroom, studio, and 3 decks (total upper floor area: 110.9m² + 33.3m² deck);
- A new 4m x 6m open carport and 8m x 4.5m storage shed are located to the north of the dwelling;
- A new 20,000l steel tank for firefighting supply is to be located east of the access. Two additional 20,000L water tanks (1 existing) are proposed 900mm from the eastern boundary for domestic supply;
- Access is retained from the existing crossover off Thompson Way.

The existing 54m² dwelling on the site is to be converted to a secondary residence and will share utilities, access and parking with the proposed primary dwelling.

The Site

The subject site is a 2,023m² allotment situated on Clifton Beach's dune system. The lot is developed with an existing 54m² dwelling in the northern portion and includes associated outbuildings. It is bordered by residential properties and Clifton Beach to the south.

The site forms part of the privately owned Clifton Beach estate and gains access via Thompson Way, a private access road that is held as a Right of Way (ROW) for the benefit of all 52 properties within the estate. While Thompson Way is maintained by the estate and functions in practice in much the same way as a public road, providing vehicle and pedestrian access, it is not considered a road under the planning scheme. This is because the planning scheme defines a road as land over which the general public has a permanent right of passage, and access to Thompson Way is legally limited to the benefited lot owners only. Accordingly, boundaries to Thompson Way do not constitute frontage under the planning scheme, which defines frontage as a boundary that abuts a road.

The Planning Scheme

The site is zoned Low Density Residential Zone under the Clarence Local Provisions Schedule of the Tasmanian Planning Scheme (planning scheme). The site is also subject to several overlays under the planning scheme, specifically the Bushfire-Prone Areas Overlay, the Coastal Erosion Hazard Overlay (Low and Medium hazard bands), and mapping as a Flood-Prone Area. These overlays trigger consideration under the Coastal Erosion Hazard Code (C10.0). The site is not located within a mapped coastal inundation area, and therefore the Coastal Inundation Hazard Code (C11.0) does not apply. The proposal is supported by a certified Bushfire Hazard Management Plan and a Coastal Vulnerability Assessment. The Bushfire Hazard Assessment confirms that no hazard management areas are required beyond the site.

The Zone

The proposed use and development of a single dwelling (including the proposed secondary residence) is a No Permit Required use in this zone, subject to compliance with the relevant Acceptable Solutions.

Development Standards (10.4)

Building Height (Clause 10.4.2)

The proposed dwelling and outbuildings do not exceed 8.5m and therefore complies with A1.

Setback (10.4.3)

A1/P1

The site does not have a frontage as defined under the planning scheme, which requires a boundary to abut a road (i.e. land over which the general public has permanent right of passage). As access is via Thompson Way, a private Right of Way benefiting only the 52 lots within the estate, A1 does not apply.

A2/P2

The proposed dwelling has a setback of 3m to the western side boundary and the proposed shed is to be sited 1m from the western boundary and 1m from the northern boundary with Thompson Way. Two 20,000 litre water tanks are also proposed 900mm from the eastern boundary. This siting does not comply with Acceptable Solution A2 (minimum 5 metres) and must therefore be assessed against Performance Criteria P2.

Under P2, the siting must not cause an unreasonable loss of amenity to adjoining properties, having regard to the following criteria. In this case it is noted that the owner of the adjacent property to the west has provided a letter of support that accompanies the application.

(a) Topography of the site:

The main house building has been stepped into the rising land at the southern end of the site to minimise its visual impact and to follow the natural contour, which reduces its perceived scale from adjoining properties.

(b) Size, shape and orientation of the site:

The site is a large and deep lot (2,023m²), that like other lots in the area is significantly longer than it is wide. The 3m side setback of the house and 1m setback of the shed to the western boundary are considered compatible with the size and proportions of the site and will provide sufficient space for landscaping and visual separation.

(c) Setbacks of surrounding buildings:

Buildings in the surrounding area, particularly on the waterfront lots located on the southern side of Thompson Way, are commonly sited close to side boundaries due to the long and narrow configuration of the lots. The proposed setback is consistent with this established pattern of development and does not represent an unreasonable departure from the prevailing character or expectations for low-density coastal residential areas.

(d) Height, bulk and form of the building:

The dwelling is well-articulated, with a low-profile roof and tiered design that reduces massing. It presents as a modest, well-proportioned form that does not overwhelm or visually dominate the western boundary.

(e) Existing buildings and private open space on the site:

The dwelling maintains separation from the western boundary and does not compromise the function or amenity of private open space either on-site or on adjacent lots.

(f) Sunlight to private open space and habitable rooms of adjoining properties:

The reduced side setback does not result in any overshadowing of adjacent dwellings or their private open space. The orientation of the site and the position of the dwelling ensure that solar access is preserved.

(g) Character of development on established properties:

The 3m setback is within the range of variation found in established coastal dwellings in Clifton Beach.

Although the proposed 3m setback of the dwelling and 1m setback of the proposed shed do not meet the Acceptable Solution, it is considered that the proposed siting satisfies the Performance Criteria P2. The siting does not result in an unreasonable loss of amenity or visual impact for adjoining properties and is considered consistent with the character of the area. The owner of the adjoining property to the west has provided a letter of support that accompanies the application.

Site Coverage (10.4.4)

The proposed total roofed buildings of 242m² on the 2023m² site equates to a proposed site cover of 12% and comfortably complies with the 30% permitted standard under A1.

Frontage fences for all dwellings (10.4.5)

The proposal does not involve a new front fence.

Codes

Parking and Sustainable Transport Code (C2.0)

The proposal involves a single access and provision for two carparking spaces and satisfies the requirements of this Code.

Coastal Erosion Hazard Code (C10.0)

The proposed dwelling is to be located within areas of Low and Medium Coastal Erosion Hazard and is accompanied by a Coastal Vulnerability Assessment to address the requirements of this Code.

The Coastal Vulnerability Assessment confirms that the proposed building site and works area is not regarded as being actively mobile.

Flood-Prone Areas Hazard Code (C12.0)

The proposed dwelling and the existing dwelling to be converted to a secondary residence are located clear of the mapped flood prone area shown in grey hatching on the site plan. This code therefore does not apply to the proposed dwelling or the secondary residence.

The modest encroachment of the proposed non-habitable shed is exempt from the Flood Prone Areas Code under Clause C12.4.1 (b)(vii).

Notwithstanding this exemption, Chris Tanner, a qualified civil engineer with over 40 years of experience, has provided a professional assessment addressing flooding, site topography, and proposed construction details that accompanies the application.

Conclusion

The proposed development for a new two-storey dwelling, conversion of the existing dwelling to a secondary residence and new associated outbuildings is assessed to comply with the applicable Acceptable Solutions or relevant Performance Criteria under the planning scheme.

Key planning considerations including height, site coverage, setbacks and natural hazards have been addressed, including the siting of the dwelling within a Coastal Erosion Hazard Area. Supporting documentation, including a Bushfire Hazard Management Plan, Coastal Vulnerability Assessment, and a Flood Hazard Report prepared by a qualified engineer, demonstrate that the proposal is appropriate for the site and local context and does not pose an unreasonable risk or loss of amenity to adjoining properties.

Accordingly, the proposal is considered to satisfy the provisions of the planning scheme and is recommended for approval following public advertisement pursuant to Section 57 of the Act

Yours sincerely,



Frazer Read
Principal
All Urban Planning Pty Ltd



Proposed Residential Development – 30 Thompson Way, Clifton Beach

Bushfire Hazard Report

Applicant: Chris Tanner



June 2025 J11370v2.0

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Disclaimer

The measures contained in Australian Standard 3959-2018 cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions.

Reasonable steps have been taken to ensure that the information contained within this report is accurate and reflects the conditions on and around the lot at the time of assessment. The assessment has been based on the information provided by you or your designer.

Authorship

This report was prepared by Alice Higgins FPO (planning), BFP - 165 of Geo Environmental Solutions. Base data for mapping: TasMap, Digital and aerial photography: Alice Higgins, GoogleEarth.

1.0 Purpose

This bushfire hazard report is intended to provide information in relation to development in a bushfire-prone area. It will demonstrate compliance with the Building Regulations 2016, and the Directors Determination – Bushfire Hazard Areas, version 1.2, 16th July 2024. Provide a certificate of others (Form 55) as specified by the Director of Building Control for bushfire hazard and give guidance by way of a certified Bushfire Hazard Management Plan (BHMP) which shows a means of protection from bushfires in a form approved by the Chief Fire Officer of the Tasmania Fire Service.

2.0 Summary

Site details & compliance

Title reference	112756/30
PID	2179980
Address	30 Thompson Way, Clifton Beach
Applicant	Chris Tanner
Municipality	Clarence
Planning Scheme	Tasmanian Planning Scheme – Clarence
Zoning	Low Density Residential
Land size	~0.2Ha
Bushfire Attack Level	BAL-19
Certificate of others (form 55)	Complete and attached
Bushfire Hazard Management Plan	Certified & Attached

Construction of a new class 1a habitable building at 30 Thompson Way, Clifton Beach requires demonstrated compliance with the Building Regulations 2016, and the Directors Determination – Bushfire Hazard Areas, version 1.2, 16th July 2024. The site is within a bushfire prone area as defined under the Tasmanian Planning Scheme – Clarence. The Bushfire attack level has been determined as BAL-19, provisions for construction standards, hazard management areas (HMA), property access and water supplies for firefighting will be required as detailed in this report and on the BHMP.

3.0 Introduction

This bushfire hazard report has been completed to form part of supporting documentation for a building permit application for the proposed development. The proposed development site has been identified as being in a bushfire prone area. A site-specific BHMP has been provided for compliance purposes.

4.0 Proposal

The proposal is for the construction of a new class 1a habitable building and two new class 10a buildings (shed and carport) at 30 Thompson Way, Clifton Beach (Appendix B). The class 10a buildings are further than 6 metres from the class 1a habitable building and further than 6 metres from another class 10a building that is within 6 metres of the proposed class 1a habitable building. Therefore, no construction standards apply to the class 10a buildings.

5.0 Bushfire Attack Level (BAL) Assessment

5.1 Methods

The bushfire attack level has been determined through the application of section 2 of AS3959-2018 'Simplified Procedure'. Vegetation has been classified using a combination of onsite observations and remotely sensed data to be consistent with Table 2.3 of AS359-2018. Slope and distances have been determined by infield measurement and/or the use of remotely sensed data (aerial/satellite photography, GIS layers from various sources) analysed with proprietary software systems. Where appropriate vegetation has been classified as low threat.

5.2 Site Description

The proposal is located at 30 Thompson Way, Clifton Beach, in the municipality of Clarence and is zoned Low Density Residential under the Tasmanian Planning Scheme – Clarence. Access to the lot will be by an existing crossover from Thompson Way, a privately owned and maintained road. The lot is ~0.2 Ha, is rectangular in shape and is located approximately ~1.5 km northeast of Watsons Hill (Figure 1). Adjacent lands surrounding the lot are zoned Low Density Residential and supports existing residential development with both managed gardens and remnant native vegetation with Open Space to the south supporting Clifton Beach. At a landscape scale the lot occurs on coastline characterised by predominantly coastal scrub, shrubland, grassland, and woodland with larger areas of native forest vegetation further to the east and west. The lot has gentle to moderate slopes with a predominantly north westerly aspect; the southern portion of the site has a southeasterly aspect down onto Clifton Beach which is likely to affect the bushfire attack at the site.

Vegetation surrounding the lot was assessed (Table 1) and described as ‘shrubland and forest’ or excluded from the assessment as low threat vegetation (as per AS3959-2018). The shrubland directly to the south is on downslopes of 5 to 10 degrees with a short fire run of 25 metres, this is not considered the direction of the main bushfire threat. The classified vegetation potentially having the greatest impact on the site occurs to the southeast and southwest along a thin strip (approximately 30 metres wide) of shrubland on the sand dunes with a fire run >100 metres (Figure 2). The well used 10 metre wide Right of Way (ROW) beach access is a 1 to 2-metre-wide sand path with low lying vegetation. Beyond the ROW to the northeast is existing residential development for >100 metres. The ROW and has been excluded as a part of this assessment. The vegetation classification system as defined in AS 3959-2018 Table 2.3 and Figure 2.4 (A to H) has been used to determine vegetation types within 100 metres of the site (Table 1)



Figure 1. Site location plan (outlined in pink) (Image source: LISTmap 2025)



Figure 2. Shows the location of the site (outlined in pink) in the context of the adjacent lands, classified vegetation, and slopes (Image source: LISTmap 2025).

Table 1. Bushfire Attack Level (BAL) Assessment for the proposed class 1a habitable building

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-Prone Vegetation	Hazard Management Area Width	Bushfire Attack Level
North	Exclusion 2.2.3.2 (e, f) ^{^^}	>5° to 10° downslope	0 to 40 metres	Title Boundary	BAL-LOW
	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	40 to >100 metres		
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	--	--	--		
North-east	Exclusion 2.2.3.2 (e, f) ^{^^}	>0 to 5° downslope	0 to 55 metres	Title Boundary	BAL-LOW
	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	55 to >100 metres		
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East	Exclusion 2.2.3.2 (e, f) ^{^^}	>0 to 5° downslope	0 to 34 metres	5 metres	BAL-19
	Shrubland [^]	>0 to 5° downslope	34 to >100 metres		
	--	--	--		
	--	--	--		
South-east	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	0 to 16 metres	Min 15 metres	BAL-19
	Shrubland [^]	>0 to 5° downslope	16 to 44 metres		
	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	44 to >100 metres		
	--	--	--		
South	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	0 to 16 metres	Title Boundary	BAL-19
	Shrubland [^]	>5° to 10° downslope	16 to 40 metres		
	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	40 to >100 metres		
	--	--	--		
South-west	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	0 to 30 metres	Min 15 metres	BAL-19
	Shrubland [^]	>0 to 5° downslope	30 to >100 metres		
	--	--	--		
	--	--	--		
West	Exclusion 2.2.3.2 (e, f) ^{^^}	>0 to 5° downslope	0 to >100 metres	4 metres	BAL-LOW
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Exclusion 2.2.3.2 (e, f) ^{^^}	>5° to 10° downslope	0 to 45 metres	Title Boundary	BAL-19
	Exclusion 2.2.3.2 (e, f) ^{^^}	flat 0°	45 to 95 metres		
	Forest [^]	flat 0°	95 to >100 metres		
	--	--	--		

[^] Vegetation classification as per AS3959-2018 and Figures 2.4(A) to 2.4(H).

^{^^} Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

6.0 Results

The bushfire attack level for the building area has been assessed and classified as BAL-19, indicating a moderate risk profile. The site is susceptible to ember attack and may experience increasing levels of radiant heat exposure. The construction components of the building are expected to withstand a maximum heat flux of 19 kW/m².

The eastern azimuth requires a minimum separation distance from the bushfire prone vegetation of 15 metres to achieve a BAL of 19. This will be a combination of 5 metres inside the title boundary and 10 metres on the adjoining managed land (beach access Right of Way and existing residential development).

The southwestern azimuth requires a minimum separation distance from the bushfire prone vegetation of 15 metres to achieve a BAL of 19. This will be a combination of 4 metres inside the title boundary and 11 metres on the adjoining managed land (existing residential development).

The northwestern azimuth requires a minimum separation distance from the bushfire prone vegetation of 23 metres to achieve a BAL of 19. This will be contained inside the title boundary.

6.1 Property Access

Property access is less than 30 metres to the indicative static firefighting water supply. In this circumstance there are no minimum design or construction standards applicable to property access.

6.2 Water Supplies for Firefighting

The site is not serviced by a reticulated water supply and there is no water supplies dedicated for firefighting; a static water supply and associated infrastructure for firefighting is required in accordance with Clause 2.3.3 and Table 3B of the Directors Determination – Bushfire Hazard Areas, v1.2, 16th July 2024.

Note: It is recommended an additional 10,000 litres is onsite for the existing class 1a habitable building (total 20,000 litres onsite).

Table 2. Requirements for Static Water Supplies dedicated for Firefighting

Element		Requirement
A.	Distance between building area to be protected and water supply	The following requirements apply: (a) The building area to be protected must be located within 90 metres of the firefighting water point of a static water supply; and (b) The distance must be measured as a hose lay, between the firefighting water point and the furthest part of the building area.
B.	Static Water Supplies	A static water supply: (a) May have a remotely located offtake connected to the static water supply, (b) May be a supply for combined use (firefighting and other uses) but the specified minimum quantity of firefighting water must always be available, (c) Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose including firefighting sprinkler or spray systems, (d) Must be metal, concrete or lagged by non-combustible materials if above ground, and (e) If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959:2018, the tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by: (i) metal, (ii) non-combustible material, or (iii) fibre-cement a minimum of 6 mm thickness.
C.	Fittings, pipework and accessories (including stands and tank supports)	Fittings and pipework associated with a firefighting water point for a static water supply must: (a) Have a minimum nominal internal diameter of 50 mm, (b) Be fitted with a valve with a minimum nominal internal diameter of 50 mm, (c) Be metal or lagged by non-combustible materials if above ground, (d) Where buried, have a minimum depth of 300 mm, (e) Provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to firefighting equipment, (f) Ensure the coupling is always accessible and available for connection, (g) Ensure the coupling is fitted with a blank cap and securing chain (minimum 220 mm length), (h) Ensure underground tanks have either an opening at the top of not less than 250 mm diameter or a coupling compliant with this Table, and (i) Where a remote offtake is installed, ensure the offtake is in a position that is: (i) Visible, (ii) Accessible to allow connection by firefighting equipment, (iii) At a working height of 450 – 600 mm above ground level, and (iv) Protected from possible damage, including damage by vehicles.
D.	Signage for static water connections	The firefighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within AS 2304:2019, or (b) comply with the Tasmania Fire Service Water Supply Signage Guideline published by the Tasmania Fire Service.
E.	Hardstand - A hardstand area for fire appliances must be provided:	(a) No more than three metres from the firefighting water point, measured as a hose lay (including the minimum water level in dams, swimming pools and the like), (b) No closer than six metres from the building area to be protected, (c) With a minimum width of three metres constructed to the same standard as the carriageway, and (d) Connected to the property access by a carriageway equivalent to the standard of the property access.

6.3 Hazard Management Area.

A HMA will need to be established and maintained for the life of the development and is shown on the BHMP. Guidance for the establishment and maintenance of the HMA is given below and on the BHMP. A HMA is the area, between a habitable building or building area and the bushfire prone vegetation, which provides access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire. This can be achieved through but is not limited to the following strategies.

- Remove fallen limbs, sticks, leaf and bark litter,
- Maintaining grass at less than a 100mm height,
- Avoid or minimise the use of flammable mulches (especially against buildings),
- Thin out under-story vegetation to provide horizontal separation between fuels,
- Prune low-hanging tree branches (<2 metres from the ground) to provide vertical separation between fuel layers,
- Remove and or prune larger trees to maintain a 6-metre horizontal separation between canopies,
- Minimise the storage of flammable materials such as firewood,
- Maintaining vegetation clearance around vehicular access,
- Use low-flammability plant species for landscaping purposes where possible, and
- Clear out any accumulated leaf and other debris from roof gutters and other debris accumulation points.

HMA Maintenance

The established HMA must be maintained in a minimal fuel state for bushfire protection mechanisms to be effective. The need to maintain an effective HMA into the future must be considered when planting gardens and landscaping. An annual inspection and maintenance of the HMA should be conducted prior to the bushfire season. It is particularly important that any flammable fine fuels at ground level such as leaves, litter and wood piles are suitably managed.

Any additional fire protection measures implemented by the owners such as fire pumps and sprinkler systems must be tested regularly to ensure functionality.

7.0 Compliance

Table 3. Compliance with the Directors Determination - Bushfire Hazard Areas, version 1.2, 16th July 2024.

Requirements	Compliance
2.3.1 Design & Construction Requirements	<p>Clause 2.3.1 requires buildings to be constructed in accordance with AS3959-2018 or NASH standard – Steel Framed Construction in Bushfire Areas consistent with the BAL determined for the site.</p> <p>The BHMP specifies construction to BAL-19 standards of AS3959-2018.</p> <p>If the proposed class 1a habitable building is designed and constructed in accordance with BAL-19 construction standards the development will comply with clause 2.3.1.</p>
2.3.2 Property Access	<p>Clause 2.3.2 requires property access to be designed and constructed to comply with Table 2 of the determination and is applicable from the public roadway to within (at minimum) 90 metres of the furthest part of the building/s and includes access to a hardstand for the firefighting water point.</p> <p>Property access is less than 30 metres in length to the static firefighting water supply and therefore no design and construction requirements will apply for compliance with Table 2.</p>
2.3.3 Water Supply for Firefighting	<p>Clause 2.3.3 requires that a new building constructed in a bushfire-prone area is provided with a dedicated firefighting water supply in accordance with Tables 3A or 3B.</p> <p>Static water supplies consistent with Table 3B have been specified in this report and are required for compliance on the BHMP.</p> <p>If the requirements of section 6.2 of this report are implemented the proposal will comply with clause 2.3.3.</p>
2.3.4 Hazard Management Areas	<p>Clause 2.3.4 requires that new buildings in bushfire-prone areas are provided with an HMA which is compliant with Table 4. The HMA must have the minimum separation distances required for the BAL determined for the site and, have an HMA established which reduces fuels and other hazards so that fuels and other hazards do not significantly contribute to the bushfire attack.</p> <p>HMA's are shown on the BHMP and are specified to the minimum widths required to achieve BAL-19 for the site. This report and the BHMP specify requirements for hazard management areas.</p> <p>If the HMA's are established in accordance with the BHMP the proposal will comply with clause 2.3.4</p>
2.3.5 Emergency Plan	<p>The proposal is for the construction of a new class 1a habitable building and therefore in this circumstance Emergency Plans are not required for compliance.</p>
3. Bushfire Hazard Management Plan and Certificate	<p>A bushfire hazard management plan has been prepared for work for which this division applies and has been certified in accordance with the Chief Officers requirements by an accredited person.</p>

8.0 Guidance

The defensible space (HMA) around a building is critical for providing occupants and/or fire fighters with safe access to the building in order that firefighting activities may be undertaken. The larger the defensible space, the safer it will be for those defending the structure. Some desirable characteristics of a hazard management area are:

- The area directly adjacent to the building has a significant amount of flammable material removed such that there is little to no material available to burn around the building,
- Includes non-flammable areas such as paths, driveways, managed lawns,
- Establishment of orchards, vegetable gardens, dams or wastewater effluent disposal areas on the fire prone side of the building,
- Creating wind breaks and radiation shields such as non-combustible fences and low flammability hedges, and
- It is not necessary to remove all vegetation from the defensible space, trees can provide protection from wind borne embers and radiant heat in some circumstances.

9.0 Further Information

For further information on preparing yourself and your property for bushfires visit the Tasmania Fire Service website at www.fire.tas.gov.au or phone 1800 000 699 for information on:

- Preparing a bushfire survival plan
- Preparing yourself and your home for a bushfire
- Guidelines for development in bushfire prone areas in Tasmania
- Fire resisting plants for the urban fringe and rural areas
- Using fire outdoors
- Fire permits
- Total fire bans
- Bushfires burning in Tasmania

10.0 Glossary and Abbreviations

AS – Australian Standard

BAL – Bushfire Attack Level – A means of measuring the severity of a building's potential exposure to ember attack, radiant heat, and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire (AS3959-2018).

BFP – Bushfire Practitioner – An accredited practitioner recognised by Tasmania Fire Service.

BHMP – Bushfire Hazard Management Plan – A plan for an individual habitable building or subdivision identifying separation distances required between a habitable building(s) and bushfire-prone vegetation based on the BAL for the site. The BHMP also indicates requirements for construction, property access and firefighting water.

Class 1a building – A single habitable building, being a detached house, or one of a group of attached habitable buildings being a town house, row house or the like (NCC 2022).

deg – degrees

FDI – fire danger index – Relates to the chance of a fire starting, its rate of spread, its intensity, and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short-term drought effects (AS3959-2018).

ha – hectares

HMA – Hazard Management Area – The area, between a habitable building or building area and the bushfire-prone vegetation, which provides access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire.

km - kilometres

m – metres

mm – millimetres

NASH – National Association of Steel Framed Housing

t – tonnes

11.0 References

Australian Building Codes Board, National Construction Code, Building Code of Australia, Australian Building Codes Board, Canberra.

Building Act 2016. The State of Tasmania Department of Premier and Cabinet.

Building Regulations 2016. The State of Tasmania Department of Premier and Cabinet.

Directors Determination – Bushfire Hazard Areas, version 1.2 16th July 2024. Director of Building Control.

LISTmap 2025. Land Information System Tasmania, Tasmania Government.

Standards Australia, AS3959-2018 Construction of buildings in bushfire-prone areas. Sydney, NSW., Australia.

Tasmania Fire Service 2020, Building for Bushfire – Planning and Building in Bushfire-Prone Areas for Owners and Builders. Tasmania Fire Service, Tasmania.

Tasmanian Planning Scheme – Clarence, Tasmanian Planning Commission 2015, Tasmanian Planning Commission, Hobart.

12.0 Limitations Statement

This bushfire hazard report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and the applicant named in section 2. To the best of GES's knowledge, the information presented herein represents the client's requirements at the time of printing of the report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that described in this report. In preparing this report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible bushfire hazard condition and does not provide a guarantee that no loss of property or life will occur as a result of bushfire. As stated in AS3959-2018 "It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions". In addition, no responsibility is taken for any loss which is a result of actions contrary to AS3959-2018 or the Tasmanian Planning Commission Bushfire code.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required. No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third party.

Appendix A - Site Photos



Figure 3. Northern azimuth from the site of the proposed development looking at managed land (inside the title boundaries) 5 to 10 degrees downslope.



Figure 4. Northeastern azimuth from the site of the proposed development looking at managed land 0 to 5 degrees downslope.



Figure 5. Southern azimuth from the site of the proposed development looking at shrubland 5 to 10 degrees downslope with excluded land across slope beyond.



Figure 6. Western azimuth from the site of the proposed development looking at shrubland 0 to 5 degrees downslope in the left of the photo and managed land across slope in the right side of the photo.

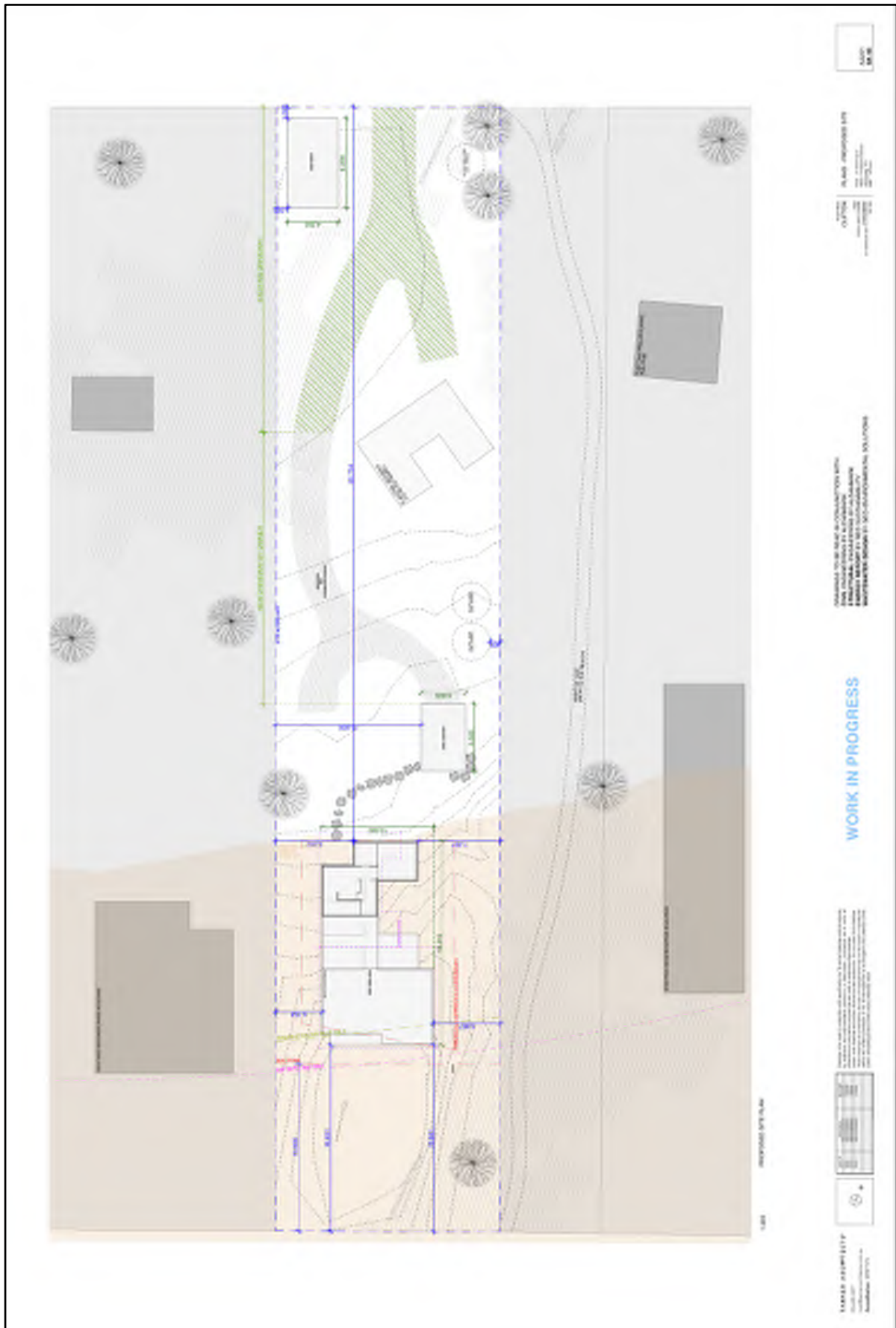


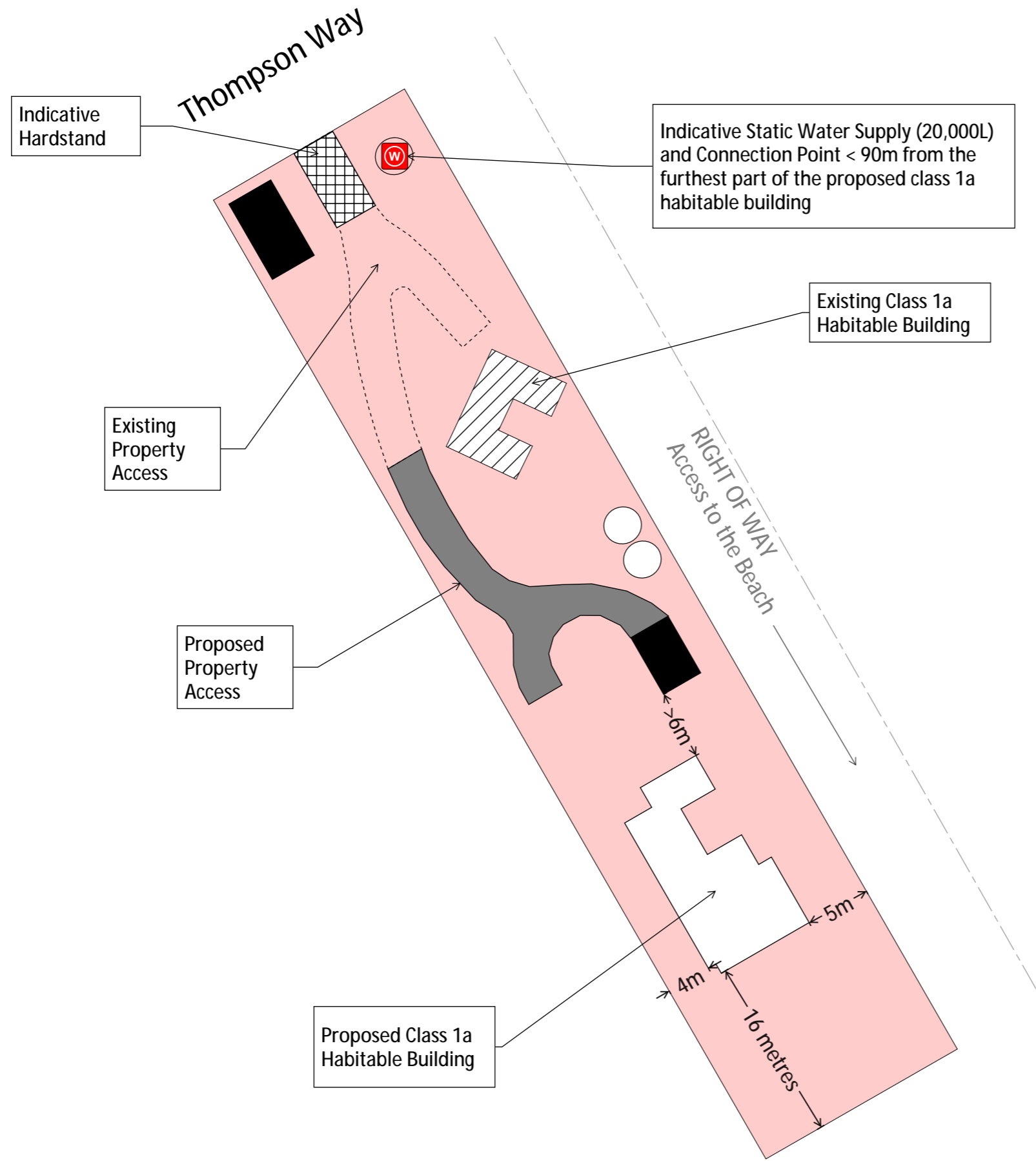
Figure 7. Looking northwest at managed land across slope along 10 metre wide Right of Way beach access.



Figure 8. Looking southwest along Thompson Way.

Appendix B – Site Plan





- Proposed Class 1a Habitable Building
- Existing Class 1a Habitable Building
- Proposed Class 10a Buildings >6m from the proposed class 1a building
- Proposed Property Access
- Existing Property Access
- Hazard Management Area
- Indicative Hardstand
- Indicative Static Fire Fighting Water Supply

Building Specifications to BAL-19 for the proposed class 1a habitable building of AS3959-2018

Certification No. J11370

 Alice Higgins
 Acc. No. BFP-165
 Scope 1, 2, 3A, 3B, 3C.

Do not scale from these drawings. Dimensions to take precedence over scale. Written specifications to take precedence over diagrammatic representations.	Client Name and Address: Chris Tanner c/- 30 Thompson Way Clifton Beach, TAS, 7020	C.T.: 112756/30 PID: 2179980	Date: 25/06/2025	Bushfire Hazard Management Plan: 30 Thompson Way, Clifton Beach. 25th June 2025. J11370v2.0 Bushfire Hazard Report: 30 Thompson Way, Clifton Beach. 25th June 2025. J11370v2.0	Drawing Number: A01	Sheet 1 of 2 Prepared by: Alice Higgins
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Design and Specification Requirements

Standards for Property Access

Property access is less than 30 metres in length to the static fire fighting water supply. In this circumstance there are no minimum design or construction requirements for property access.

Static Water Supply for Fire fighting

The site is not serviced by a reticulated water supply, therefore a dedicated, static fire fighting water supply will be provided in accordance with the following;

Static water supplies and associated infrastructure for fire fighting purposes will be provided in accordance with Table 3B of the Directors Determination - Bushfire Hazard Areas, version 1.2, 16th July 2024

Note: An additional 10, 000 litres of water supplies for fire fighting is recommended for the existing class 1a habitable building (total 20,000 litres on site)

A Distance between building area to be protected and water supply

The following requirements apply:

- (a) The building area to be protected must be located within 90 metres of the fire fighting water point of a static water supply; and
- (b) The distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.

B) Static Water Supplies

A static water supply:

- (a) May have a remotely located offtake connected to the static water supply;
- (b) May be a supply for combined use (fire fighting and other uses) but the specified minimum quantity of fire fighting water must be available at all times;
- (c) Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose including fire fighting sprinkler or spray systems;
- (d) Must be metal, concrete or lagged by non-combustible materials if above ground; and
- (e) If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959-2009, the tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by:
 - (i) metal;
 - (ii) non-combustible material; or
 - (iii) fibre-cement a minimum of 6 mm thickness.

Static Water Supply for Fire fighting

C) Fittings and pipework associated with a fire fighting water point for a static water supply must:

- (a) Have a minimum nominal internal diameter of 50mm; (2) Be fitted with a valve with a minimum nominal internal diameter of 50mm;
- (b) Be fitted with a valve with a minimum nominal internal diameter of 50mm;
- (c) Be metal or lagged by non-combustible materials if above ground;
- (d) Where buried, have a minimum depth of 300mm (compliant with AS/NZS 3500.1-2003 Clause 5.23);
- (e) Provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to fire fighting equipment;
- (f) Ensure the coupling is accessible and available for connection at all times;
- (g) Ensure the coupling is fitted with a blank cap and securing chain (minimum 220 mm length);
- (h) Ensure underground tanks have either an opening at the top of not less than 250 mm diameter or a coupling compliant with this Table; and
- (i) Where a remote offtake is installed, ensure the offtake is in a position that is:
 - (i) Visible;
 - (ii) Accessible to allow connection by fire fighting equipment,
 - (iii) At a working height of 450 – 600mm above ground level; and
 - (iv) Protected from possible damage, including damage by vehicles.

D) Signage for static water connections

The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must comply with the Tasmania Fire Service Water Supply Signage Guideline published by the Tasmania Fire Service

E) Hardstand

A hardstand area for fire appliances must be provided:

- (a) No more than three metres from the fire fighting water point, measured as a hose lay (including the minimum water level in dams, swimming pools and the like);
- (b) No closer than six metres from the building area to be protected;
- (c) With a minimum width of three metres constructed to the same standard as the carriageway; and
- (d) Connected to the property access by a carriageway equivalent to the standard of the property access.

Hazard Management Area Requirements

A hazard management area is required to be established and maintained for the life of the building and is shown on this BHMP. Guidance for the establishment and maintenance of the hazard management area is also provided.

A hazard management area is the area, between a habitable building or building area and the bushfire prone vegetation, which provides access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire. This can be achieved through, but is not limited to the following actions;

- Remove fallen limbs, sticks, leaf and bark litter;
- Maintain grass at less than a 100mm height;
- Remove pine bark and other flammable mulch (especially from against buildings);
- Thin out under-story vegetation to provide horizontal separation between fuels;
- Prune low-hanging tree branches (<2m from the ground) to provide (vertical separation between fuel layers);
- Prune larger trees to maintain a 6 metre horizontal separation between canopies;
- Minimise the storage of flammable materials such as firewood;
- Maintain vegetation clearance around vehicular access and water supply points;
- Use low-flammability species for landscaping purposes where appropriate;
- Clear out any accumulated leaf and other debris from roof gutters and other accumulation points.

It is not necessary to remove all vegetation from the hazard management area, trees may provide protection from wind borne embers and radiant heat under some circumstances.

Certification No. J11370



Alice Higgins
 Acc. No. BFP-165
 Scope 1, 2, 3A, 3B, 3C.

Do not scale from these drawings. Dimensions to take precedence over scale. Written specifications to take precedence over diagrammatic representations.

Client Name and Address:
 Chris Tanner
 c/- 30 Thompson Way
 Clifton Beach, TAS, 7020

C.T.: 112756/30
 PID: 2179980

Date: 25/06/2025

Bushfire Hazard Management Plan: 30 Thompson Way, Clifton Beach. 25th June 2025. J11370v2.0
 Bushfire Hazard Report: 30 Thompson Way, Clifton Beach. 25th June 2025. J11370v2.0

Drawing Number:
 A01

Sheet 2 of 2
 Prepared by:
 Alice Higgins

Attachment 2

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Owner /Agent
 Address
 Suburb/postcode

Qualified person details:

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

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

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

Details of work:

Address: Lot No:
 Certificate of title No:

The assessable item related to this certificate: (description of the assessable item being certified)
Assessable item includes –

- a material;
- a design
- a form of construction
- a document
- testing of a component, building system or plumbing system
- an inspection, or assessment, performed

Certificate details:

Certificate type:

Bushfire Hazard

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

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

building work, plumbing work or plumbing installation or demolition work:

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:

The attached Bushfire Hazard Report and Bushfire Hazard Management Plan for the address detailed above in 'details of work'

Relevant

calculations:

Reference the above report.

References:

AS3959-2018 Construction of Buildings in Bushfire-prone Areas.
Directors Determination for: Bushfire Hazard Areas v1.2 or Requirements for Building in Bushfire-prone Areas (transitional) v2.3

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

Bushfire Attack Level Assessment in accordance with AS3959-2018 and determination of other mitigation measures as required by the relevant Directors Determination as cited in the Bushfire Hazard Report.

Scope and/or Limitations

Scope: This report was commissioned to identify the Bushfire Attack Level for the existing property. Limitations: The inspection has been undertaken and report provided on the understanding that;-1. The report only deals with the potential bushfire risk all other statutory assessments are outside the scope of this report. 2. The report only identifies the size, volume and status of vegetation at the time the site inspection was undertaken. 3. Impacts of future development and vegetation growth have not been considered.

I certify the matters described in this certificate.

Qualified person:

Signed:



Certificate No:

J11370

Date:

25/06/2025



COASTAL VULNERABILITY ASSESSMENT

PROJECT:

Proposed Dwelling

Site Address:

30 Thompson Way,
Clifton Beach,
TAS
7020

CLIENT:

Chris Tanner

DATE:

27/06/2025

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DOCUMENT CONTROL		
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Project Type:	Coastal Vulnerability Assessment	
Client:	Chris Tanner	
Project Job Number:	J11370	
Revision Version:	V02	
Date:	27/06/2025	
Approved By:	V. Gupta	
	Signature:	Date
		27/06/2025

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EXECUTIVE SUMMARY

Geo-Environmental Solutions Pty Ltd (GES) were contracted by Chris Tanner to prepare a coastal vulnerability assessment for a proposed works at Clifton Beach, Tasmania. The project area consists of a single cadastral title (CT 112756/30) located at 30 Thompson Way, Clifton Beach TAS 7020. (The Site).

An application to conduct construction works has triggered the assessment in accordance with the Tasmania Planning Scheme (TPS) – Clarence City Council and following of the Director’s Determination for Coastal Erosion and Inundation areas which provides building requirements for building and demolition work in coastal erosion hazard areas.

The proposed works are for the new dwelling within a low and medium coastal erosion overlay as per Tasmanian Planning Scheme – Clarence City Council.

A coastal erosion assessment has been conducted for the site area which involved and review of coastline hydrodynamics and erosion processes.

A coastal vulnerability assessment has been conducted for the site area by Carley *et. al.*, (2011) which involved an assessment of coastline hydrodynamics and erosion processes. This assessment has been reviewed and built upon in an erosion assessment which involved site-specific hydrodynamic and erosion modelling to further assess the site inundation and erosion risks.

GES has established setbacks for the proposed works to account for both short and long-term erosion. The designed setback has been determined to be approximately 80 meters from the 0-meter AHD contour line.

Based upon the concept plans provided the proposed structure is located landward of the Design Setback (DS) and represents a low and acceptable level of risk from future sea level rise and coastal erosion over the life of the building.

If any of the proposed structure is to be located seaward of the Design Setback (DS) it must be founded on deep pier foundations extending below the design scour depth of -1.0 m AHD with appropriate structural engineering design including accounting for hydrostatic pressures. The pier foundations should be end bearing case only and not assume lateral support within the scour zone.

If the recommendations are adhered to, the proposed development will meet the requirements for works in the coastal erosion hazard area and it will fulfill the performance solution codes C10.6.1 as outlined in the Tasmanian Planning Scheme - Clarence Council (2021).

1 INTRODUCTION

Geo-Environmental Solutions Pty Ltd (GES) were contracted by Chris Tanner to prepare a coastal vulnerability assessment for a proposed works at Clifton Beach, Tasmania. The project area consists of a single cadastral title (CT 112756/30) located at 30 Thompson Way, Clifton Beach TAS 7020. (The Site).

An application to conduct construction works has triggered the assessment in accordance with the Tasmania Planning Scheme (TPS) – Clarence City Council and following of the Director’s Determination for Coastal Erosion and Inundation areas which provides building requirements for building and demolition work in coastal erosion and inundation hazard areas.

GES have undertaken this assessment using available scientific literature and datasets. Estimations are determined by approximation with appropriate regional information applied where appropriate to site specific information. Data collection and site-specific modelling was undertaken in assessment of the site.

2 OBJECTIVES

The objective of the site investigation is to:

- Identify which codes need to be addressed in terms of coastal vulnerability and identify the performance criteria relevant to the project which need addressing;
- Conduct a literature review of all geological, geomorphologic, hydrodynamic information and any erosion or inundation assessments which are relevant to the site;
- Review hydrodynamic assessments of the local area to determine projected sea level rise, storm tides and site-specific hydrodynamic conditions and where applicable, GES’s site-specific soil investigation findings;
- Conduct a detailed erosion assessment of site erosion vulnerability in terms of long-term beach recession and short-term storm erosion.
- Conduct a site risk assessment for the proposed development ensuring relevant performance criteria are addressed; and
- Where applicable, provide recommendations on methods and design approach to reduce inundation and erosion impact.

3 SITE DETAILS

3.1 Project Area Land Title

The land studied in this report is defined by the following title reference:

- CT 112756/30

the ‘Site’ and/or the ‘Project Area’ in this report.

3.2 Project Area

The Project Area is located on Clifton Beach on Tasmania's Southeast Coast, approximately 35 km by road (approximately 20 km directly to the southeast) from Hobart (Figure 1).

The site comprises of beachfront property within and behind the dune area of Clifton Beach. Clifton Beach opens into Storm Bay to the south, which in turn opens to the Southern Ocean where ocean swell is generated.

The site is subject to the following coastal processes;

- Swell directed from the Southern Ocean, through Storm Bay from the south;
- Wind fetch from the south and east;
- Storm tide and sea level rise inundation; and
- Coastline recession and storm erosion.

The site is fronting on to Clifton Beach, located on the rear side of a primary beach dune ridge system which has a height range of 8 – 10 m AHD. The property is bounded to the east and west by residential properties, by Clifton Beach to the south and by Thompson Way to the North (Figure 1).



Figure 1 - Location of the site

3.2.1 Proposed Works

The project site covers an area of approximately 2,012 square meters and currently includes an existing outbuilding located on the northern portion of the site. The proposed works involve the construction of a

new two-storey residential dwelling on the southern side of the site. The existing buildings will remain unchanged.

Plans for proposed works have been provided to GES from the Tanner Architects (Dated: 25/02/2025). The plans are presented in Figure 2.



Figure 2 – Proposed works

4 PLANNING

4.1 Australian Building Code Board

This report presents a summary of the overall building construction risk to coastal erosion and inundation processes. This assessment has been conducted a 'normal' building design life category based on a 2023 baseline (ABCB 2015).

'The design life of buildings should be taken as 'Normal' for all building importance categories unless otherwise stated.'

As per Table 3-1, the following sub systems are identified for the proposed development:

- Building foundations subsystems are considered not accessible or economical to repair and therefore are to be designed with a 50-year life till 2073; and
- Wastewater subsystems are considered to have moderate ease of access but difficult or costly to replace or repair and are therefore to be designed with a 15-year life till 2038.

Table 3-1 Design life of building and plumbing installations and their components

Building Design Life Category	Building Design Life (years)	Design life for components or sub systems readily accessible and economical to replace or repair (years)	Design life for components or sub systems with moderate ease of access but difficult or costly to replace or repair (years)	Design life for components or sub systems not accessible or not economical to replace or repair (years)
Short	1 < dl < 15	5 or dl (if dl<5)	dl	dl
Normal	50	5	15	50
Long	100 or more	10	25	100

Note: Design Life (dl) in years

4.2 The Tasmanian Building Regulations 2016

The Tasmanian Building Regulations are regulated by the Consumer, Building and Occupation Services (CBOS) department and are formed from the Tasmanian Building Act 2016. New state-wide planning and building requirements are being implemented for hazardous areas. These include areas potentially subject to landslip, bushfire, flooding, coastal erosion, & coastal inundation. Details of the Tasmanian Building Regulations are presented in Appendix 1.

4.3 Tasmanian Planning Scheme Overlay – Clarence Council (TPS, 2021)

4.3.1 Coastal Erosion Hazard Code Overlay (CEHC)

The proposed works fall within Low and Medium Coastal Erosion Hazard Overlay Figure 3.

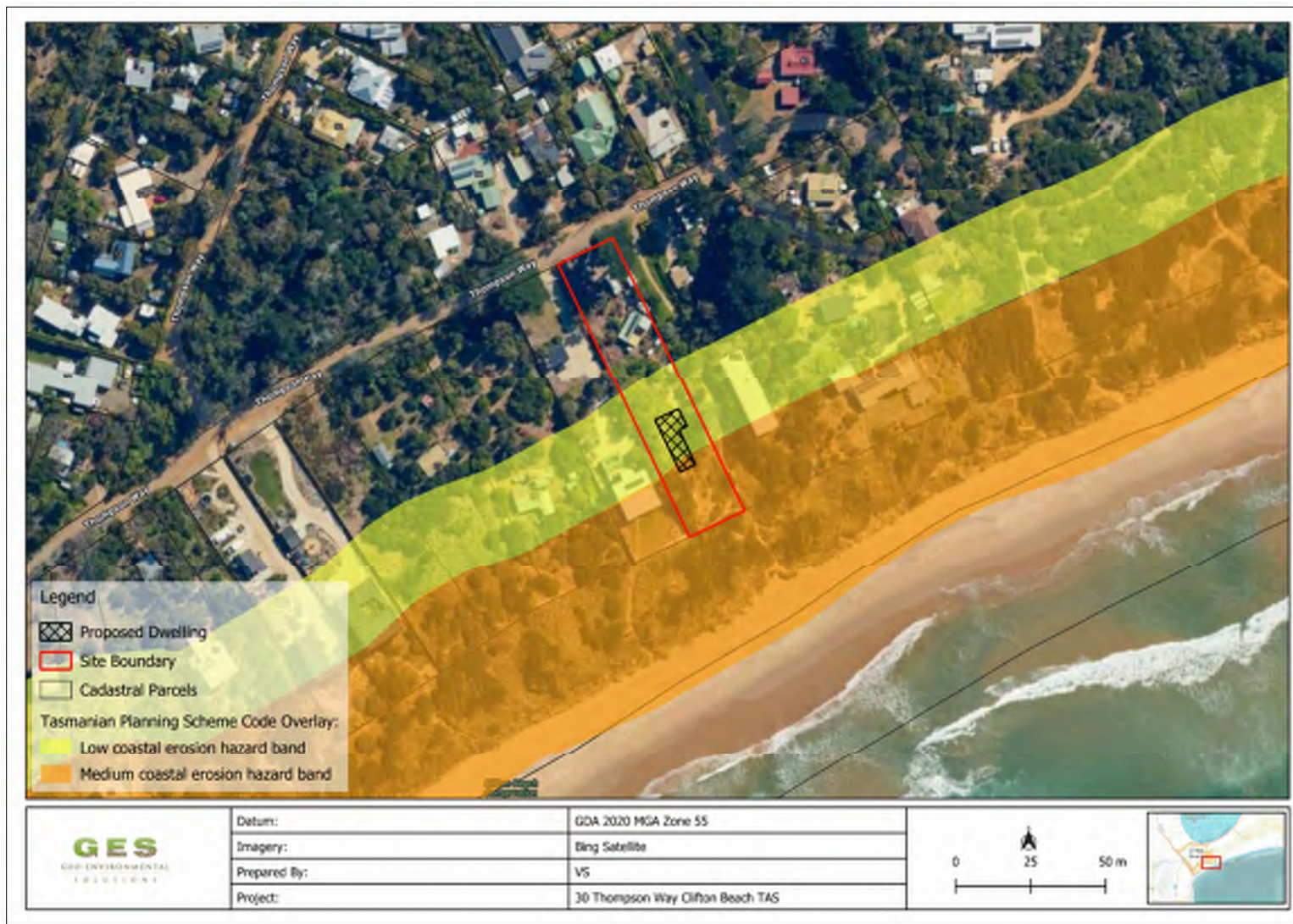


Figure 3 – Coastal Erosion Hazard Overlay (Source: The List)

4.3.2 Coastal Inundation Hazard Code Overlay (CIHC)

The proposed works are located outside of the Coastal Inundation Overlay (CIHC) Figure 4.



Figure 4 - Coastal Inundation Hazard Overlay (Source: The List)

4.4 Development & Works Acceptable Solutions

Where applicable, the need for further performance criteria compliance is outlined in Appendix 1.

4.4.1 Coastal Erosion Hazard Code (CEHC)

C10.6.1.P1 Buildings and works.

Given that the proposed development resides in the CEHC Area, and there are no acceptable solutions for buildings and works in a CEHC Area,

The following performance criteria need to be addressed:

- C10.6.1 P1.1 and P1.2

4.4.2 Coastal Inundation Hazard Areas Code (CIHC)

C11.6.1.P1 Buildings and works.

The proposed development is outside of the CIHC overlay and no further assessment required.

5 SITE MAPPING

To assist in determination of the vulnerability of the site to erosion from coastal processes, it is important to determine the geological and geomorphological characteristics of the site, Clifton Beach.

5.1 Site Hydrodynamics

Previous studies by Carley, along with GES's findings, were used to support the assessment. GES adopted a projected swell wave as concluded that swell wave conditions at the site could reach up to 5.4 meters by the year 2100. This projection is based on long-term analysis of offshore wave climate and the potential effects of sea level rise. Using this information, GES modelled the expected wave run-up levels that could impact the site. The results show that by 2100, waves could run up onto the land to a level of approximately 4.5 meters AHD at the R2% exceedance probability.

5.2 Geological Mapping and Geomorphology

The property is bounded to the east and west by residential properties, by Clifton Beach to the south and by Thompson Way to the North

Based on the MRT 1:50,000 geological map of Sorell indicates the site to be underlain by Quaternary sand dune deposits, stabilised by vegetation (Map Unit: Qhd') the site is not mapped to be underlain by mobile dunes (Map Unit: Qhd).

The proposed development is located behind a 10 - 11 m high east-northeast to west-southwest orientated dune crest of a primary dune system, which the existing residential dwelling is located on. The proposed development is located on gently to moderately sloping back dune with elevations ranging between 6 to 11.0 m AHD. The hillshade model was used to present the elevation of the site using Greater Hobart 2013 Lidar data. The site elevation has been presented in Figure 5.

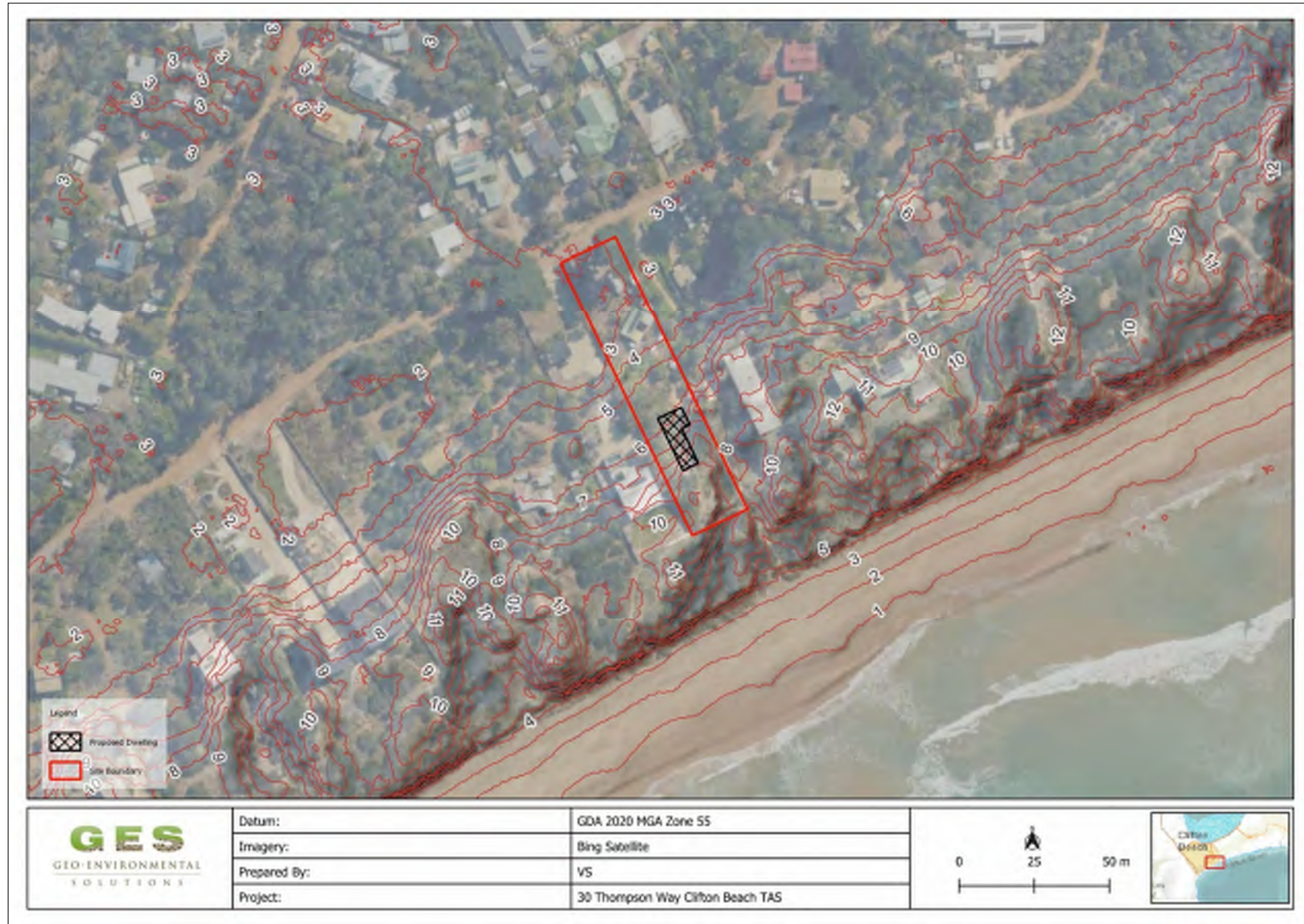


Figure 5 - Local Hill shade Model (Map Source: Greater Hobart LiDAR 2013)

6 COASTAL EROSION ASSESSMENT

6.1 Design Setbacks

When developing an understanding of the coastal erosion risk there are five key factors which need to be assessed (Mariani et al, 2012), these are detailed below:

- S1: Allowance for storm erosion
- S2: Allowance for long term (underlying) recession.
- S3: Allowance for beach rotation and/or medium-term fluctuations in sediment supply
- S4: Allowance for reduced foundation capacity (to Stable Foundation Zone)
- S5: Allowance for future recession (Bruun Rule)
- N: Design life of project – 50

Figure 6 below presents the method of estimation of present day and future position of the coastal hazard lines diagrammatically for the sandy beaches investigated in the present study.

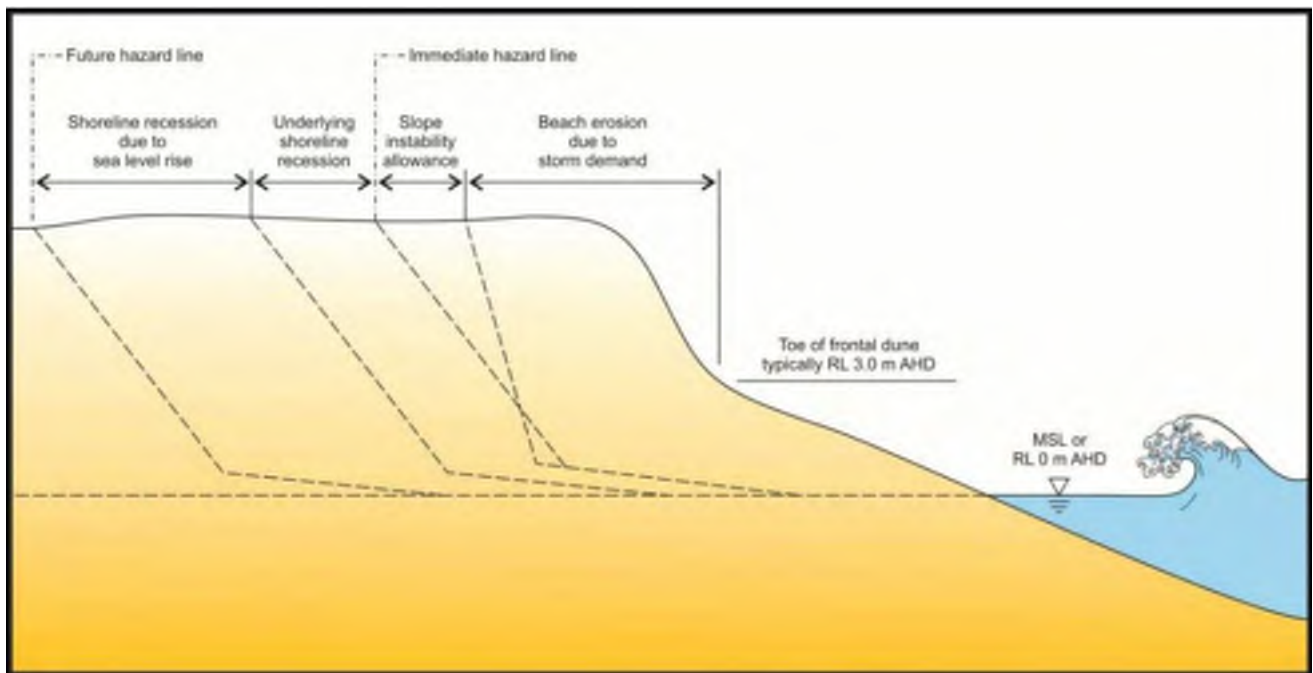


Figure 6 – Estimation of Coastal Hazard Lines

6.1.1 Storm Erosion Demand (S1)

Recommendations set out in Mariani et. al. (2012) was adopted to determine storm erosion demand for the site based on beach geomorphology in combination with past observation of storm erosion events. A probability analysis was conducted on observed site-specific storm erosion history for the duration of all data measurements. The calculated historical extreme storm erosion demand is used to project future storm erosion demand by scaling the figure up to a more extreme storm event based on consecutive 1% AEP storms. The specific scaling adopted is selected based on the specific beach geomorphology as outlined in Martini et. al. (2012). Beach geomorphology is selected based on Ozcoasts beach definitions which best fits with the regional geomorphology recommendations outlined in Martini et. al. (2012).

- *Based on the previously published information for storm erosion impacts, a storm erosion potential of 20m has been applied to the shoreline*

6.1.2 Long Term (underlying) Recession (S2)

The long-term erosion (potential non sea level rises related recession) was determined to be 0.2m/year based on the shoreline contour located along Clifton Beach.

- *Adopted Recession for proposed site is 5m.*

6.1.3 Beach Rotation and/or medium – term fluctuations in sediment supply (S3)

The shoreline of Clifton Beach shows no evidence of beach rotation, and instead, a stable vegetation line is present at the site. As a result, the total erosion allowance will not incorporate any provisions for beach rotation.

6.1.4 Reduce Foundation Capacity (to Stable Foundation Zone) (S4)

A stable foundation zone assessment has been conducted for the site. Foundation behind this assessment involves the use of Nielsen et. al. (1992) methods for assessing stable foundation zones in sand.

- *Adopted Stable Foundation Zone for proposed site is 10m.*

6.1.5 Future Recession (Bruun Rule) (S5)

The Bruun Rule has been applied to the site to estimate the response of the shoreline profile to sea-level rise. The Bruun Rule is widely used by government and non-government bodies to determine recession rates on sandy shores which are at risk of inundation. The Bruun Rule states that a typical concave-upward beach profile erodes sand from the beach face and deposits it offshore to maintain constant water depth. There are a few cases where the Bruun rule cannot be applied, which include cases where longshore drift is predominant, where there is dominant influence of surrounding headlands and in environments where wave activity is minimal. Longshore drift at Clifton Beach has been observed to be very localised and it is also supported at the ends by large rocky capes effectively preventing significant longshore drift. While there are objections to the Bruun Rule in some cases, given the apparent lack of significant longshore drift conditions, the Bruun rule is considered as an acceptable model.

6.1.6 Bruun Rule Beach Recession Model

The standard Bruun Rule has been applied to the site to determine sea level rise induced recession from the dominant waves active at the site.

The Standard Bruun Rule is typically expressed as $R = s(L/(D + h))$ or $R = SLR * 50$ and is illustrated in Figure 7.

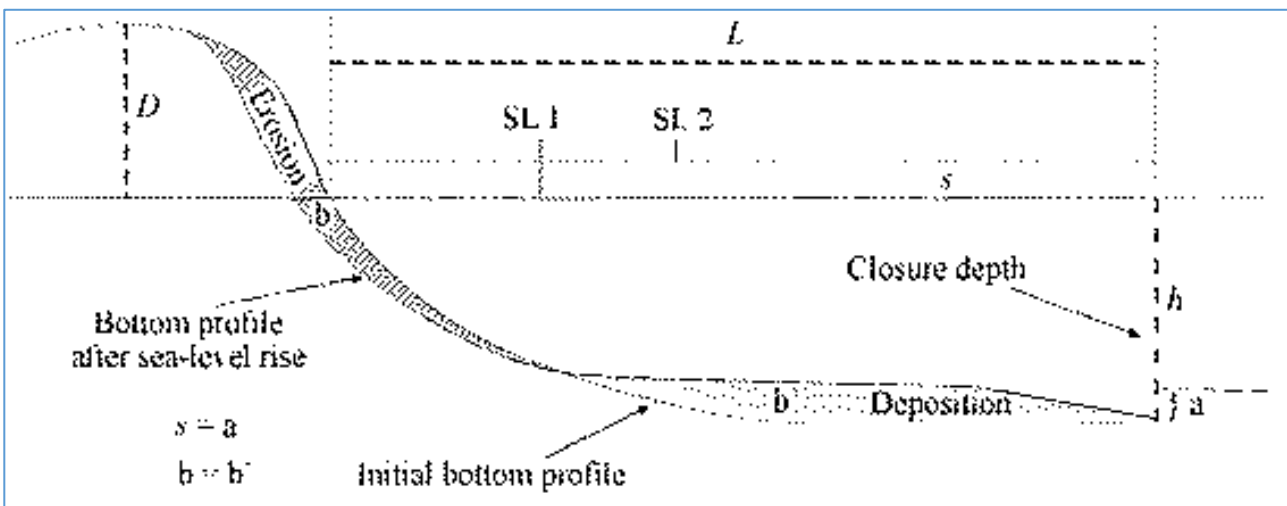


Figure 7 - Summary of standard Bruun Rule for Calculating Beach Recession

- Adopted future recession due to sea level rise is 45m by 2100.

6.2 Summary of Erosion Allowance

The total erosion allowance as specified above has been calculated along the Clifton Beach shoreline for 2100 is presented below within Table 1 and Figure 8.

Table 1 Summary of Design Setbacks at the site

<i>S1 - Erode 2x1% AEP storm (m)</i>	<i>S2 - Yearly Recede (m, p.a.)</i>	<i>S3 - Beach Rotates (m)</i>	<i>S4 -Stable Zone (m)</i>	<i>S5 - 2100 SLR Recedes (m)</i>
20	5	0	10	45

Allowance for the design setback (DS) is defined as:

$$DS=S1+N*S2+S3+S4+S5$$

$$DS= 80m$$

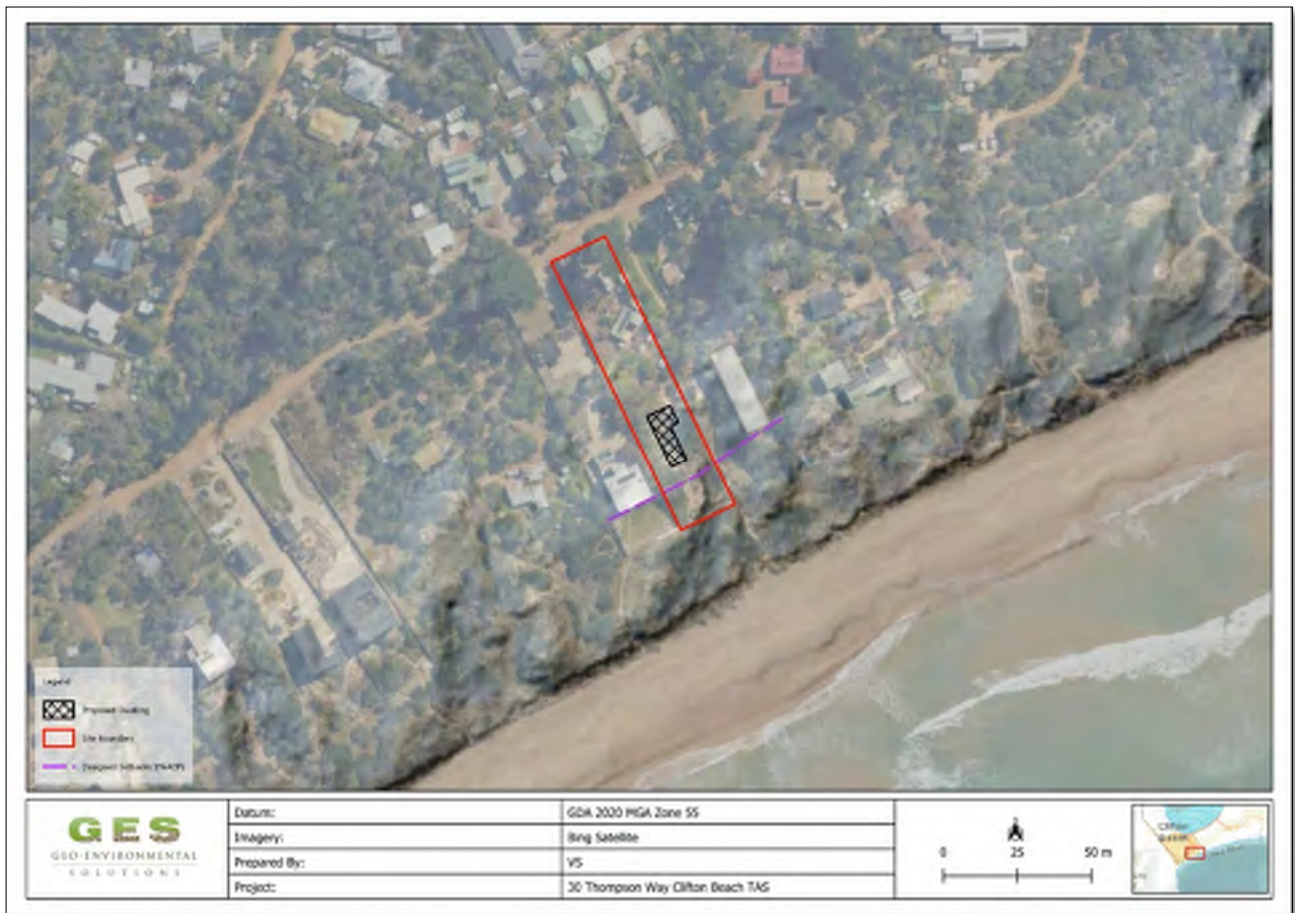


Figure 8 - Designed Setback distance (1% AEP)

7 RISK ASSESSMENT

The qualitative risk assessment criteria have been developed to identify key risks that may arise from building works in areas that are vulnerable to erosion hazard. The risk assessment based on year 2100, 1.01m AHD high SLR scenario.

Given the current data set and uncertainty over long term responses (more than 77 years) to climate change the calculated long term future risk must be viewed with caution, and adjustments to the risk assessment will need to be made over time. Future data and modelling may calculate a low or higher risk, and it is important to understand that the risk estimations in this report are based upon worst case scenario sea level rise from the current data sets.

The criteria are based on a risk assessment matrix consistent with Australian Standard AS4360 on Risk Management (AS4360). The qualitative assessment of risk severity and likelihood were used to help provide a qualitative risk assessment based upon the coastal vulnerability assessment completed for the site.

A detailed risk assessment addressing the performance criteria is presented in Appendix 6. GES has established from the risk assessment that the level of risk is tolerable for the proposed development works.

8 CONCLUSIONS AND RECOMMENDATIONS

GES recommended the following:

- Based upon the concept plans provided the proposed structure is located landward of the Design Setback (DS) and represents a low and acceptable level of risk from future sea level rise and coastal erosion over the life of the building.
- If any of the proposed structure is to be located seaward of the Design Setback (DS) it must be founded on deep pier foundations extending below the design scour depth of -1.0 m AHD with appropriate structural engineering design including accounting for hydrostatic pressures. The pier foundations should be end bearing case only and not assume lateral support within the scour zone.

LIMITATIONS STATEMENT

The following limitations apply to this report:

- Climate Futures Light Detection and Ranging (LIDAR) digital elevation model is used for the site modelling;
- The values estimated in this report provide an order of magnitude for assessing climate change impacts and in particular climate change induced sea level rise impacts. The information is based on a collation of existing information and data, with some site specific modelling for planning purposes.

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APPENDIX 1 – ACCEPTABLE SOLUTIONS

Coastal Erosion Hazard Code (CEHC) Areas

C10.6.1 Buildings and works, excluding coastal protection works, within a coastal erosion hazard area	
Objective:	
That:	
(a) building and works, excluding coastal protection works, within a coastal erosion hazard area, can achieve and maintain a tolerable risk from coastal erosion; and	
(b) buildings and works do not increase the risk from coastal erosion to adjacent land and public infrastructure.	
Acceptable Solutions	Performance Criteria
A1	P1.1
No Acceptable Solution.	Buildings and works, excluding coastal protection works, within a coastal erosion hazard area must have a tolerable risk, having regard to:
	(a) whether any increase in the level of risk from coastal erosion requires any specific hazard reduction or protection measures;
	(b) any advice from a State authority, regulated entity or a council; and
	(c) the advice contained in a coastal erosion hazard report.
	P1.2
	A coastal erosion hazard report demonstrates that:
	(a) the building and works:
	(i) do not cause or contribute to any coastal erosion on the site, on adjacent land or public infrastructure; and
	(ii) can achieve and maintain a tolerable risk from a coastal erosion event in 2100 for the intended life of the use without requiring any specific coastal erosion protection works;
	(b) buildings and works are not located on actively mobile landforms, unless for engineering or remediation works to protect land, property and human life.

APPENDIX 2 – TASMANIAN BUILDING REGULATIONS 2016

Division 4 - Coastal erosion

57. Coastal erosion hazard areas

- 1) For the purposes of the Act, land is a coastal erosion hazard area if –
 - a. the land is shown on a planning scheme overlay map as being land that is within a coastal erosion hazard area; and
 - b. the land –
 - i. is classified as land within a hazard band of a coastal erosion hazard area; or
 - ii. is shown on a planning scheme overlay map as being land in an investigation area for a coastal erosion hazard area and the land has not been subsequently classified as being an acceptable risk.
- 2) For the purposes of the definition of hazardous area in section 4(1) of the Act –
 - a. classification under a coastal erosion determination as being land that is within a hazard band of a coastal erosion hazard area is a prescribed attribute; and
 - b. a coastal erosion hazard area is a hazardous area.

58. Works in coastal erosion hazard areas

- 1) A person must not perform work in a coastal erosion hazard area unless he or she is authorised to do so under the Act.
- 2) If a person intends to perform work in an investigation area of a coastal erosion hazard area, the person must, before performing the work, ensure that the land is classified in accordance with the coastal erosion determination –
 - a. as being an acceptable risk; or
 - b. into a hazard band for the coastal erosion hazard area.
- 3) A responsible person for work being performed in a coastal erosion hazard area must ensure that the work is being performed in accordance with the Act and the coastal erosion determination.
- 4) A person performing work in a coastal erosion hazard area must ensure that the work complies with the Act and the coastal erosion determination.

APPENDIX 3 - DIRECTORS DETERMINATION & BUILDING REGULATIONS 2016 - COASTAL EROSION HAZARD REPORTING

Coastal Erosion Hazard Assessment

This coastal erosion hazard report has been prepared in general accordance with methodology specified in the Directors Determination – Coastal Erosion Hazard Areas pursuant to section 20(3)(b) of the Building Act 2016 and regulation 51 of the Building Regulations 2016 (Document Version 1.2 Dated 27 September 2021).

This report has been prepared by Vinamra Gupta who has more than 7 years' experience as a Geotechnical Engineer. Vinamra has a master's degree in civil engineering. In his role at GES, he prepares technical reports such as Geotechnical Reports in accordance with AS1726 including Coastal Vulnerability Assessments, Stormwater Assessment, Landslip Assessments in Accordance Australian Geomechanics Guidelines (AGS 2007) and Site Classification Reports as per AS2870.

Practices used in this assessment are developed from recent literature, including regional public domain remote sensing, wave, sea level, and storm tide modelling data obtained through various government agencies. This data is refined to a local (site scale) using detailed bathymetry models and methods within the coastal engineering manual (CEM) as well as equations obtained from recent publications to determine wind setup, wave setup, and wave runup which is specific to the coastal setting.

Specific determinations regarding coastal hazard reporting as presented in the Director's Determination - Coastal Erosion Hazard Areas, Division 2, Section 4 'Coastal Hazard Reporting' are presented in the Table below.

Signature



Vinamra Gupta

Senior Geotechnical Engineer

Works in a Coastal Erosion Hazard Area

According to this director's determination, the following regulations are applicable for the works in a coastal erosion hazard area:

- (1) The AS 2870 site classification of any land located in a coastal erosion hazard area must be Class P, on the basis that it may be subject to coastal erosion.
- (2) A coastal erosion hazard report must be prepared.
- (3) The design of the building footing system must be prepared by an engineer-civil.
- (4) The building design (including footing system) must take into account the coastal erosion hazard report.
- (5) In determining an application for a Certificate of Likely Compliance, the building surveyor must:
 - (a) take into account the coastal erosion hazard report and any relevant coastal erosion management plan; and
 - (b) be satisfied that the proposed work will not cause or contribute to coastal erosion on the site or on adjacent land; 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 erosion protection measures; and
 - (d) be satisfied that the proposed work will not be located on actively mobile landforms, except where the work relates to protection measures or remediation works to protect land, property or human life.
- (6) In determining an application for a permit, the permit authority must take into account the coastal erosion hazard report and any relevant coastal erosion management plan.

Report Determination Criteria	Coastal Erosion Hazard Report Compliance Checklist	Compliance	Specific Comments
4. (1)	Geotechnical practitioner with experience and competence in the preparation of coastal erosion hazard reports	Yes	
4. (1) (a)	Signed Declaration	Yes	Report Author:
4. (1) (b)	A report of a geotechnical site investigation undertaken consistent with AS 1726	Yes	The AS 1726 geotechnical model presented herein is based on deep sand profiles which are mapped at the site. No further information was required in the assessment given the site conditions are known.
4. (1) (c)	Conclusions based on consideration of the proposed work as to:		
4. (1) (c) (i)	whether the work is likely to cause or contribute to coastal erosion on the land or on adjacent land;	Yes	Given the recommendations herein are adhered to, the works will not cause or contribute to coastal erosion on the land or on adjacent land within the proposed building design life.
4. (1) (c) (ii)	whether work is proposed on actively mobile landforms;	Yes	The proposed building site and works area is not regarded as being actively mobile.
4. (1) (c) (iii)	whether the work can achieve and maintain a tolerable risk for the intended life of the building having regard to:		
	<ul style="list-style-type: none"> the nature, intensity and duration of the use; 	Yes	This assessment has been conducted with measures put in place to ensure that within the building's design life, the risks are tolerable in line with sites typical of residential use and with typical intensity of use. This assessment is based on the intended use as outlined in the development application. Other aspects not considered in this assessment include site or foreshore disturbance as the result of the development of

			vehicle access tracks, unauthorised clearing of vegetation, and unauthorised pedestrian access tracks.
	<ul style="list-style-type: none"> the type, form and duration of any development ; 	Yes	<p>The proposed development is adequately set back from the beach dune to achieve tolerable risk.</p> <p>The design of the building footing system must be prepared by an engineer-civil.</p> <p>Beyond the design life of the development, it is always recommended that consideration is given to a footing system which will allow for greater ease for any future underpinning works, allowance for building retreat and allowance for future cross bracing if required.</p>
	<ul style="list-style-type: none"> the likely change in the risk across the intended life of the building; 	Yes	<p>Consideration is given to projected coastline recession based on site specific modelling, regionally specific sea level rise forecasts, and geotechnical foundation considerations consistent with a site-specific slope stability assessment (Neilsen et. al. 1992).</p>
	<ul style="list-style-type: none"> the ability to adapt to a change in the risk; 	Yes	<p>Additional buffer allowances are accounted for in the assessment.</p>
	<ul style="list-style-type: none"> the ability to maintain access to utilities and services; 	Yes	<p>The site will retain full access to utilities and services within the design life of the proposed development.</p>
	<ul style="list-style-type: none"> the need for specific coastal erosion hazard reduction or protection measures on the site; 	Yes	<p>Coastal erosion hazard reduction or protection measures are recommended on the site as part of the site engineering design for civil works and the risk is deemed tolerable</p>
	<ul style="list-style-type: none"> the need for coastal erosion hazard reduction or protection measures beyond the boundary of the site; and 	NA	<p>Coastal erosion hazard reduction or protection measures are not recommended beyond the boundary of the site based on the projected lifetime of the proposed development.</p>
	<ul style="list-style-type: none"> any coastal erosion management plan in place for the site and/or adjacent land. 	NA	<p>A coastal erosion management plan is not required to mitigate risks to the site within the lifetime of the proposed development.</p>
4. (2)	protection measures for any hazardous chemical used,	Yes	<p>Overall risks associated with the storage of hazardous chemicals at the site will not be heightened beyond what has been assessed as low risk based on recommendations . No</p>

	handled, generated or stored on the site, taking into consideration the potential risks of the hazardous chemical to human health and safety as a consequence of coastal erosion on the site or adjacent land.		additional protection measures are recommended for the storage of hazardous chemicals at the site.
4. (4)	The declaration format for a coastal erosion hazard report must contain:		
4. (4) (a)	details of, and be signed by, the person who prepared or verified the report;	Yes	
4. (4) (b)	confirmation they have the appropriate qualifications, expertise and level of current indemnity insurance;	Yes	
4. (4) (c)	confirmation that the report has been prepared in accordance with the specified methodology.	Yes	

APPENDIX 4 QUANTITATIVE RISK ASSESSMENT TABLES

Consequence Index

Consequence	Details - Storm Erosion and Inundation	Details – Waterways and Coastal Protection
Catastrophic	Loss of life, loss of significant environmental values due to a pollution event where there is not likely to be recovery in the foreseeable future.	Very serious environmental effects with impairment of ecosystem function. Long term, widespread effects on significant environment (eg. RAMSAR Wetland)
Major	Extensive injuries. Complete structural failure of development, destruction of significant property and infrastructure, significant environmental damage requiring remediation with a long-term recovery time.	Serious environmental impact effects with some impairment of ecosystem function. Relatively widespread medium-long term impacts.
Moderate	Treatment required, significant building or infrastructure damage i.e. loss of minor outbuildings such as car ports, garages and the like. Replacement of significant property components. linings, hard paved surfaces, cladding, flooring. Moderate environmental damage with a short-term natural or remedial recovery time.	Moderate effects on biological or physical environment (air, water) but not affecting ecosystem function. Moderate short term widespread impacts (e.g. significant spills)
Minor	Medium loss – repair of outbuildings and repair and minor replacement of building components of buildings. Replacement of floor/window coverings, some furniture through seepage (where applicable). Minor environmental damage easily remediated.	Minor effects on biological or physical environment. Minor short-term damage to small area of limited significance.
Insignificant	No injury, low loss – no replacement of habitable building components, some remediation of garden beds, gravel driveways etc. Environment can naturally withstand and recover without remediation. Inundation of the site, but ground based access is still readily available and habitable buildings are not inundated, including incorporated garages.	Limited damage to minimal area of low significance.

Likelihood Index

Level	Descriptor	Description	Guideline
A	Almost Certain	Consequence is expected to occur in most circumstances.	Occurs more than once per month.
B	Likely	Consequence will probably occur in most circumstances.	Occurs once every 1 month – 1 year.
C	Occasionally	Consequence should occur at some time.	Occurs once every 1 year - 10 years.
D	Unlikely	Consequence could occur at some time.	Occurs once every 10 years – 100 years.
E	Rare	Consequence may only occur in exceptional circumstances.	Occurs less than once every 100 years.

Source: AS/NZS 4360:2004 Risk Management

Qualitative Risk Matrix

Likelihood of the Consequence	Maximum Reasonable Consequence				
	(1) Insignificant	(2) Minor	(3) Moderate	(4) Major	(5) Catastrophic
(A) Almost certain	11 High	16 High	20 Extreme	23 Extreme	25 Extreme
(B) Likely	7 Moderate	12 High	17 High	21 Extreme	24 Extreme
(C) Occasionally	4 Low	8 Moderate	13 High	18 Extreme	22 Extreme
(D) Unlikely	2 Low	5 Low	9 Moderate	14 High	19 Extreme
(E) Rare	1 Low	3 Low	6 Moderate	10 High	15 High

Source: AS/NZS 4360:2004 Risk Management

APPENDIX 5 QUANTATIVE RISK ASSESSMENT

BUILDING AND WORKS WITHIN A COASTAL EROSION HAZARD AREA

Performance Criteria C10.6.1 P1.1 Buildings and works, excluding coastal protection works, within a coastal erosion hazard area must have a tolerable risk, having regard to:	Relevance	Management Options	Managed Risk Assessment (where relevant)			Further Assessment Required
			Consequence	Likelihood	Risk	
(a) whether any increase in the level of risk from coastal erosion requires any specific hazard reduction or protection measures	The proposed development will not increase level of the risk	The proposed development works must be founded within stable foundation zone.	Minor (2)	Unlikely (D)	Low (1)	No
(b) any advice from a State authority, regulated entity or a council; and	N/A					
(c) the advice contained in a coastal erosion hazard report	Refer to recommendations	The proposed development works must be founded within stable foundation zone.	Minor (2)	Unlikely (D)	Low (1)	No

STORMWATER ASSESSMENT

30 Thompson Way

Clifton Beach

June 2025



GEO-ENVIRONMENTAL

S O L U T I O N S

Disclaimer: The author does not warrant the information contained in this document is free from errors or omissions. The author shall not in any way be liable for any loss, damage or injury suffered by the User consequent upon, or incidental to, the existence of errors in the information.

Investigation Details

Client:	Chris Tanner
Site Address:	30 Thompson Way, Clifton Beach
Date of Inspection:	28/09/2020
Proposed Works:	Alterations/Additions
Investigation Method:	Hand Auger
Inspected by:	G. McDonald

Site Details

Certificate of Title (CT):	112756/30
Title Area:	Approx. 2012 m ²
Applicable Planning Overlays:	Bushfire-prone areas, Coastal Erosion Hazard Area
Slope & Aspect:	3-5° NW facing slope
Vegetation:	Mixed Flora

Background Information

Geology Map:	MRT
Geological Unit:	Quaternary Sediments
Climate:	Annual rainfall 550mm
Water Connection:	Tank
Sewer Connection:	Unserviced-On-site required
Testing and Classification:	Onsite Stormwater Retention

Investigation

A number of bore holes were completed to identify the distribution and variation of the soil materials at the site, bore hole locations are indicated on the site plan. See soil profile conditions presented below. Tests were conducted across the site to obtain bearing capacities of the material at the time of this investigation.

Soil Profile Summary

BH 1 Depth (m)	BH 2 Depth (m)	USCS	Description
0.00-0.40	0.00-0.30	SP	SAND: yellow brown, moist, medium dense, trace gravels
0.40-2.0+	0.30-2.0+	SP	SAND: pale yellow brown, slightly moist, medium dense, trace gravels, no refusal

Soil Conditions

The soil onsite consists of deep Quaternary sands with an estimated permeability of approximately >5m/day

GES have identified the following at the site:

- The site has an undulating slope predominantly consisting of the backside of a dune.
- There are no proposals for cuts or changes of grade which may impact on any proposed onsite stormwater absorption.
- The soil onsite has been identified as comprising of deep sands. No soil dispersion was identified.
- No evidence of a water table was observed at the time of the investigation
- There is a low risk of the natural soils being impacted by contamination
- No bedrock was encountered during the investigation

Soil Dispersion

The soil is non-dispersive.

Existing Conditions and Assumptions

The site covers an area of approximately 2012m² with a total new roof area of approx. 204m² consisting of a proposed new dwelling with roof area 148m², a carport (20m²) and new shed (36m²).

There is no public stormwater system that the property can connect to, and it is therefore it is proposed that stormwater from the site would be routed through the proposed conventional underground drainage system comprising of Grated Sumps and PVC Pipes, coupled with soakage trench elements for on-site detention.

The stormwater management report is prepared in accordance with the design criteria listed below:

- The stormwater drainage system is designed using Bureau of Meteorology (BOM) published rainfall Intensity Frequency Duration (IFD) data as a minor / major system to accommodate the 5% AEP / 20 min storm events.
- The flow rate of stormwater leaving the site shall be designed so that it does not exceed the pre- developed flow rate for both the minor and major rain events.
- The total site discharges are modelled as described in *Storm Drainage Design in Small Urban Catchments*, a handbook for Australian practice by *Australian Rainfall and Runoff (ARR2019)*, Book 9 – Runoff in Urban Areas.

Detention Calculations

Detention calculations area provided in Appendix A

Summary and Conclusions

- Detention design to be adopted as per design and documentation.
- The designed solution complies with the performance solution design check carried out.
- Two separate stormwater absorption areas are proposed.
 - Stormwater from the proposed dwelling and carport is to be directed to rainwater tanks with a minimum detention volume of 2000L and tank overflow directed to a 9.6m² base (8m x 1.2m), 0.6m deep soakage trench
 - Stormwater from the proposed shed is to be directed to a separate 3.6m² base (3m x 1.2m), 0.6m soakage trench
- DN100 slotted PVC pipe with geotextile covering on top of aggregate to be installed within the soakage trench.

It is also recommended that regular inspection and maintenance is conducted to ensure the stormwater system is operating without obstruction. A schematic of recommended checks is attached.

GES Stormwater Maintenance Plan Checklist

Indicative frequency	Inspection and criteria	Maintenance activities (where required)
Annual	Check whether any tree branches overhang the roof or are likely to grow to overhang the roof	If safe and where permitted, consider pruning back any overhanging branches
	Check that access covers to storage tanks are closed	Secure any open access covers to prevent risk of entry
	Check that screens on inlets, overflows and other openings do not have holes and are securely fastened	Repair any defective screens to keep out mosquitoes
	Inspect tank water for presence of rats, birds, frogs, lizards or other vermin or insects	Remove any infestations, identify point of entry and close vermin and insect-proof mesh
	Inspect tank water for presence of mosquito larvae (inspect more frequently in sub-tropical and tropical northern Australia, based on local requirements)	Identify point of entry and close with insect-proof mesh with holes no greater than 1.6 mm in diameter
	Inspect gutters for leaf accumulation and ponding	Clean leaves from gutters-remove more regularly if required. If water is ponding, repair gutter to ensure water flows to downpipe
	Check signage at external roof water taps and that any removable handle taps are being properly used	Replace or repair the missing or damaged signage and fittings
	Check plumbing and pump connections are watertight/without leakage	Repair any leaks as necessary
	Check suction strainers, in-line strainers and pump location for debris	Clean suction strainers, in-line strainers or debris from pump location
	Check pump installation is adequate for reliable ongoing operation	Modify and repair as required
	Check first flush diverter, if present	Clean first flush diverter, repair and replace if necessary
	Check health of absorption trench area and surrounding grass or plants	Investigate any adverse impacts observed that might be due to irrigation
Check condition of roof and coatings	Investigate and resolve any apparent changes to roof condition, such as loss of material coatings	
Triennial	Drain, clean out and check the condition of the tank walls and roof to ensure no holes have arisen due to tank deterioration	Repair any tank defects

	Check sediment levels in the tank	Organise a suitable contractor to remove accumulated sediment if levels are approaching those that may block tank outlets
	Undertake a systematic review of operational control of risks to the system	Identify the reason for any problems during inspections and take actions to prevent failures occurring in future
After 20 years and then every 5 years	Monitor the effectiveness of the stormwater absorption area to assess for any clogging due to algal growth, or blocking due to tree roots/grass growth/trench failure.	Clean or replace clogged equipment
Ongoing	Inspect and follow up on any complaints or concerns raised that could indicate problems with the system	Repair or replace any problems that are notified

APPENDIX A: STORMWATER DETENTION CALCULATIONS

PROPOSED DWELLING AND CARPORT (DETENTION TANK STORAGE)

STORAGE TRENCH															
Hydrology															
Total Catchment Area	168	m ²													
Runoff Coefficient	1														
Annular Recurrence Interval (ARI)	20	yr													
Ground Conditions															
Hydraulic conductivity (K)	5.000	m/day													
	3.470	mm/min													
Adjusted Rate (15% clogging factor)	2.950	mm/min													
Trench Design															
Length	8	m													
Width	1.2	m													
Depth	0.6	m													
Infiltration Area	9.6	m ²													
Porosity	0.35	%													
Trench Storage	2.0	m ³													
	2016	L													
Detention tank data		Final Check													
Tank Storage	2	m ³													
Tank Underflow	0.985	L/s	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Criteria</th> <th style="width: 25%;">Requirement</th> <th style="width: 25%;">Design</th> <th style="width: 25%;">Check</th> </tr> </thead> <tbody> <tr> <td>Total Detention needed</td> <td>3120</td> <td>4016</td> <td style="background-color: #92d050;">OK</td> </tr> <tr> <td>Trench Capacity underflow for 5% AEP 20-minute storm</td> <td>1298</td> <td>2016</td> <td style="background-color: #92d050;">OK</td> </tr> </tbody> </table>	Criteria	Requirement	Design	Check	Total Detention needed	3120	4016	OK	Trench Capacity underflow for 5% AEP 20-minute storm	1298	2016	OK
Criteria	Requirement	Design	Check												
Total Detention needed	3120	4016	OK												
Trench Capacity underflow for 5% AEP 20-minute storm	1298	2016	OK												
Tank Underflow	59.1	L/min													
Total Available storage	4.0	m ³													
	4016	L													

PROPOSED SHED

STORAGE TRENCH			
Hydrology			
Total Catchment Area	36	m ²	
Runoff Coefficient	1		
Annular Recurrence Interval (ARI)	20	yr	
Ground Conditions			
Hydraulic conductivity (K)	5	m/day	
	3.470	mm/min	
Adjusted Rate (15% clogging factor)	2.950	mm/min	
Trench Design			
Length	3	m	
Width	1.2	m	
Depth	0.6	m	
Infiltration Area	3.6	m ²	
Porosity	0.35	%	
Trench Storage	0.76	m ³	
	756	L	
Final Check			
Criteria	Requirement	Design	Check
Detention reqd	540	756	OK

Location

Label: 30 Thompson Way Clifton Beach

Easting: 540065

Northing: 5240220

Zone: 55

Latitude: Nearest grid cell: 42.5875 (S)

Longitude: Nearest grid cell: 147.5375 (E)



IFD Design Rainfall Intensity (mm/h)

Issued: 10 June 2025

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New AEP probability terminology](#)

Table

Chart

Unit:

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	61.0	59.6	95.0	115	135	165	189
2 min	52.2	58.3	77.9	91.7	105	122	135
3 min	46.4	51.9	69.8	82.5	95.3	111	124
4 min	42.0	47.1	63.9	76.0	88.3	105	118
5 min	38.6	43.3	59.1	70.7	82.6	98.9	112
10 min	28.2	31.8	44.0	53.1	62.8	77.0	88.9
15 min	22.9	25.8	35.7	43.2	51.1	62.8	72.7
20 min	19.5	22.0	30.4	36.7	43.4	53.2	61.4
25 min	17.3	19.4	26.8	32.2	38.0	46.4	53.3
30 min	15.6	17.5	24.0	28.9	34.0	41.3	47.3
45 min	12.4	13.9	18.0	22.6	26.3	31.6	35.8
1 hour	10.5	11.8	16.0	19.0	22.0	26.1	29.4
1.5 hour	8.40	9.41	12.7	14.9	17.2	20.1	22.4
2 hour	7.18	8.05	10.8	12.7	14.5	16.9	18.7
3 hour	5.78	6.49	8.70	10.2	11.6	13.4	14.7
4.5 hour	4.66	5.26	7.07	8.25	9.38	10.8	11.9
6 hour	4.00	4.53	6.12	7.15	8.13	9.42	10.4
9 hour	3.21	3.65	4.99	5.85	6.67	7.80	8.64
12 hour	2.73	3.11	4.29	5.06	5.79	6.82	7.59
18 hour	2.14	2.45	3.43	4.07	4.69	5.58	6.27
24 hour	1.77	2.04	2.88	3.44	3.99	4.78	5.39
30 hour	1.52	1.76	2.49	2.99	3.48	4.18	4.73
36 hour	1.34	1.54	2.20	2.64	3.08	3.72	4.22
48 hour	1.08	1.24	1.77	2.14	2.51	3.03	3.45
72 hour	0.777	0.895	1.28	1.54	1.81	2.18	2.49
96 hour	0.609	0.700	0.991	1.19	1.40	1.68	1.92
120 hour	0.503	0.576	0.809	0.968	1.13	1.36	1.55
144 hour	0.430	0.491	0.683	0.812	0.945	1.14	1.29
168 hour	0.377	0.430	0.593	0.699	0.810	0.975	1.11

Notes

The 50% AEP IFD does not correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

* The 20% AEP IFD does not correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

Location: Clifton Beach
 Site: 168m² with tc = 20 and tcs = 15 mins.
 PSD: AEP of 5%, Above ground PSD = 0.63L/s
 Storage: AEP of 5%, Above ground volume = 1.99m³

Design Criteria (Custom AEP IFD data used)

Location = Clifton Beach
 Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 5 %
 Storage annual exceedance probability (APE) = 5 %

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 168 m² = 0.0168 Ha
 Pre-development coefficient (Cp) = 0.30
 Post development coefficient (Cw) = 1.00
 Total catchment (tc) = 20 minutes
 Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	0	0.90	0	Concrete	0	0.90	0
Roof	0	1.00	0	Roof	168	1.00	168
Gravel	0	0.50	0	Gravel	0	0.50	0
Garden	168	0.30	50	Garden	0	0.30	0
Total	168	m²	50	Total	168	m²	168

Cp = $\Sigma \text{Area} * C / \text{Total} = 0.300$ Cw = $\Sigma \text{Area} * C / \text{Total} = 1.000$

Permissible Site Discharge (PSD) (AEP of 5%)

PSD Intensity (I) = 43.4 mm/hr For catchment tc = 20 mins.
 Pre-development (Qp = Cp * I * As / 0.36) = 0.61 L/s
 Peak post development (Qa = 2 * Cw * I * As / 0.36) = 4.05 L/s = (0.093 x I) Eq. 2.24
 Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom
 Permissible site discharge (Qu = PSD) = 0.634 L/s

Above ground - Eq 3.8

$$0 = \text{PSD}^2 - 2 * Q_a / t_c * (0.667 * t_c * Q_p / Q_a + 0.75 * t_c + 0.25 * t_{cs}) * \text{PSD} + 2 * Q_a * Q_p$$

Taking x as = PSD and solving

a = 1.0 b = -8.4 c = 4.9

$$\text{PSD} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

PSD = 0.634 L/s

Below ground pipe - Eq 3.3

$$Q_p = \text{PSD} * [1.6 * t_{cs} / \{t_c * (1 - 2 * \text{PSD} / (3 * Q_a))\} - 0.6 * t_{cs}^{2.67} / \{t_c * (1 - 2 * \text{PSD} / (3 * Q_a))\}^{2.67}]$$

= 0.61

PSD = 0.629 L/s

Below ground rectangular tank - Eq 3.4

$$t = t_{cs} / \{t_c * (1 - 2 * \text{PSD} / (3 * Q_a))\} = 0.834$$

$$Q_p = \text{PSD} * [0.005 - 0.455 * t + 5.228 * t^2 - 1.045 * t^3 - 7.199 * t^4 + 4.519 * t^5]$$

= 0.61

PSD = 0.610 L/s

Design Storage Capacity (AEP of 5%)

Above ground (Vs) = $[0.5*Qa*td - [(0.875*PSD*td)(1-0.917*PSD/Qa) + (0.427*td*PSD^2/Qa)]]*60/10^3 \text{ m}^3$ Eq 4.23
 Below ground pipe (Vs) = $[(0.5*Qa - 0.637*PSD + 0.089*PSD^2/Qa)*td]*60/10^3 \text{ m}^3$ Eq 4.8
 Below ground rect. tank (Vs) = $[(0.5*Qa - 0.572*PSD + 0.048*PSD^2/Qa)*td]*60/10^3 \text{ m}^3$ Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m ³)	Pipe Vs (m ³)	B/G Vs (m ³)
5	82.6	7.7	1.00		
15	51.1	4.8	1.68		
20	43.4	4.1	1.81		
25	38.0	3.5	1.89		
31	33.3	3.1	1.95		
36	30.3	2.8	1.97		
41	27.9	2.6	1.98		
46	26.0	2.4	1.99		
51	24.3	2.3	1.98		
56	23.0	2.1	1.97		

Table 1 - Storage as function of time for AEP of 5%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m ³)
Above Pipe B/ground	45.0	26.3	2.5	1.99

Table 2 - Storage requirements for AEP of 5%

Frequency of operation of Above Ground storage

$Q_{op2} = 0.75$ Cl 2.4.5.1
 $Q_{p2} = Q_{op2} * Q_{p1}$ (where $Q_{p1} = PSD$) = 0.48 L/s at which time above ground storage occurs
 $I = 360 * Q_{p2} / (2 * C_w * A_s * 10^3)$ = 5.1 mm/h Eq 4.24

Period of Storage

Time to Fill:

Above ground (tf) = $td * (1 - 0.92 * PSD / Qa)$ Eq 4.27
 Below ground pipe (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2
 Below ground rect. tank (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2

Time to empty:

Above ground (te) = $(Vs + 0.33 * PSD^2 * td / Qa * 60 / 10^3) * (1.14 / PSD) * (10^3 / 60)$ Eq 4.28
 Below ground pipe (te) = $1.464 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.32
 Below ground rect. tank (te) = $2.653 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe B/ground	45.0	2.5	2.0	34.3	63.9	98.3

Table 3 - Period of Storage requirements for AEP of 5%

Orifice

Permissible site discharge ($Q_u = PSD$) = 0.63 L/s (Above ground storage)
 Orifice coefficient (CD) = 0.61 For sharp circular orifice
 Gravitational acceration (g) = 9.81 m/s²
 Maximum storage depth above orifice (H) = 350 mm
 Orifice flow (Q) = $CD * A_o * \sqrt{2 * g * H}$
 Therefore:
 Orifice area (Ao) = 396 mm²
 Orifice diameter (D = $\sqrt{4 * A_o / \pi}$) = 22.5 mm

Location: Clifton Beach
Site: 36m² with tc = 20 and tcs = 15 mins.
PSD: AEP of 5%, Underground rectangular tank PSD = 0.13L/s
Storage: AEP of 5%, Underground rectangular tank volume = 0.54m³

Design Criteria (Custom AEP IFD data used)

Location = Clifton Beach
 Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 5 %
 Storage annual exceedance probability (APE) = 5 %

Storage method = U (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 36 m² = 0.0036 Ha
 Pre-development coefficient (Cp) = 0.30
 Post development coefficient (Cw) = 1.00
 Total catchment (tc) = 20 minutes
 Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	0	0.90	0	Concrete	0	0.90	0
Roof	0	1.00	0	Roof	36	1.00	36
Gravel	0	0.50	0	Gravel	0	0.50	0
Garden	36	0.30	11	Garden	0	0.30	0
Total	36	m²	11	Total	36	m²	36

$C_p = \frac{\sum Area * C}{Total} = 0.300$

$C_w = \frac{\sum Area * C}{Total} = 1.000$

Permissible Site Discharge (PSD) (AEP of 5%)

PSD Intensity (I) = 43.4 mm/hr For catchment tc = 20 mins.
 Pre-development (Qp = Cp*I*As/0.36) = 0.13 L/s
 Peak post development (Qa = 2*Cw*I*As/0.36) = 0.87 L/s = (0.020 x I) Eq. 2.24
 Storage method = U (A)bove,(P)ipe,(U)nderground,(C)ustom
 Permissible site discharge (Qu = PSD) = 0.131 L/s

Above ground - Eq 3.8

$$0 = PSD^2 - 2 * Q_a / t_c * (0.667 * t_c * Q_p / Q_a + 0.75 * t_c + 0.25 * t_{cs}) * PSD + 2 * Q_a * Q_p$$

Taking x as = PSD and solving

a = 1.0 b = -1.8 c = 0.2

$$PSD = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

PSD = 0.136 L/s

Below ground pipe - Eq 3.3

$$Q_p = PSD * [1.6 * t_{cs} / \{t_c * (1 - 2 * PSD / (3 * Q_a))\} - 0.6 * t_{cs}^{2.67} / \{t_c * (1 - 2 * PSD_p / (3 * Q_a))\}^{2.67}]$$

= 0.13
 PSD = 0.738 L/s

Below ground rectangular tank - Eq 3.4

$$t = t_{cs} / \{t_c * (1 - 2 * PSD / (3 * Q_a))\} = 0.834$$

$$Q_p = PSD * [0.005 - 0.455 * t + 5.228 * t^2 - 1.045 * t^3 - 7.199 * t^4 + 4.519 * t^5]$$

= 0.13
 PSD = 0.131 L/s

Design Storage Capacity (AEP of 5%)

Above ground (Vs) = $[0.5*Qa*td - [(0.875*PSD*td)(1-0.917*PSD/Qa) + (0.427*td*PSD^2/Qa)]] * 60/10^3 \text{ m}^3$ Eq 4.23
 Below ground pipe (Vs) = $[(0.5*Qa - 0.637*PSD + 0.089*PSD^2/Qa)*td] * 60/10^3 \text{ m}^3$ Eq 4.8
 Below ground rect. tank (Vs) = $[(0.5*Qa - 0.572*PSD + 0.048*PSD^2/Qa)*td] * 60/10^3 \text{ m}^3$ Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m ³)	Pipe Vs (m ³)	B/G Vs (m ³)
5	82.6	1.7			0.23
25	38.0	0.8			0.46
35	30.9	0.6			0.49
45	26.3	0.5			0.51
55	23.2	0.5			0.53
64	21.1	0.4			0.53
74	19.3	0.4			0.53
84	17.9	0.4			0.54
94	16.7	0.3			0.53
104	15.7	0.3			0.53

Table 1 - Storage as function of time for AEP of 5%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m ³)
Above Pipe				
B/ground	83.3	18.0	0.4	0.54

Table 2 - Storage requirements for AEP of 5%

Frequency of operation of Above Ground storage

$Q_{op2} = 0.75$ Cl 2.4.5.1
 $Q_{p2} = Q_{op2} * Q_{p1}$ (where $Q_{p1} = PSD$) = 0.10 L/s at which time above ground storage occurs
 $I = 360 * Q_{p2} / (2 * C_w * A_s * 10^3)$ = 5.1 mm/h Eq 4.24

Period of Storage

Time to Fill:

Above ground (tf) = $td * (1 - 0.92 * PSD / Qa)$ Eq 4.27
 Below ground pipe (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2
 Below ground rect. tank (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2

Time to empty:

Above ground (te) = $(Vs + 0.33 * PSD^2 * td / Qa * 60 / 10^3) * (1.14 / PSD) * (10^3 / 60)$ Eq 4.28
 Below ground pipe (te) = $1.464 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.32
 Below ground rect. tank (te) = $2.653 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe						
B/ground	83.3	0.4	0.5	63.1	207.9	271.0

Table 3 - Period of Storage requirements for AEP of 5%

Orifice

Permissible site discharge ($Q_u = PSD$) = 0.13 L/s (Underground storage)
 Orifice coefficient (CD) = 0.61 For sharp circular orifice
 Gravitational acceration (g) = 9.81 m/s²
 Maximum storage depth above orifice (H) = 350 mm
 Orifice flow (Q) = $CD * A_o * \sqrt{2 * g * H}$

Therefore:

Orifice area (A_o) = 82 mm²
 Orifice diameter ($D = \sqrt{4 * A_o / \pi}$) = 10.2 mm

New Services

- STORMWATER PIPE WITH FLOW DIRECTION
- GRATED STORMWATER PIT 450x450 CLASS A ACO GALVANISED HEELGUARD OR SIMILAR ENGINEER APPROVED

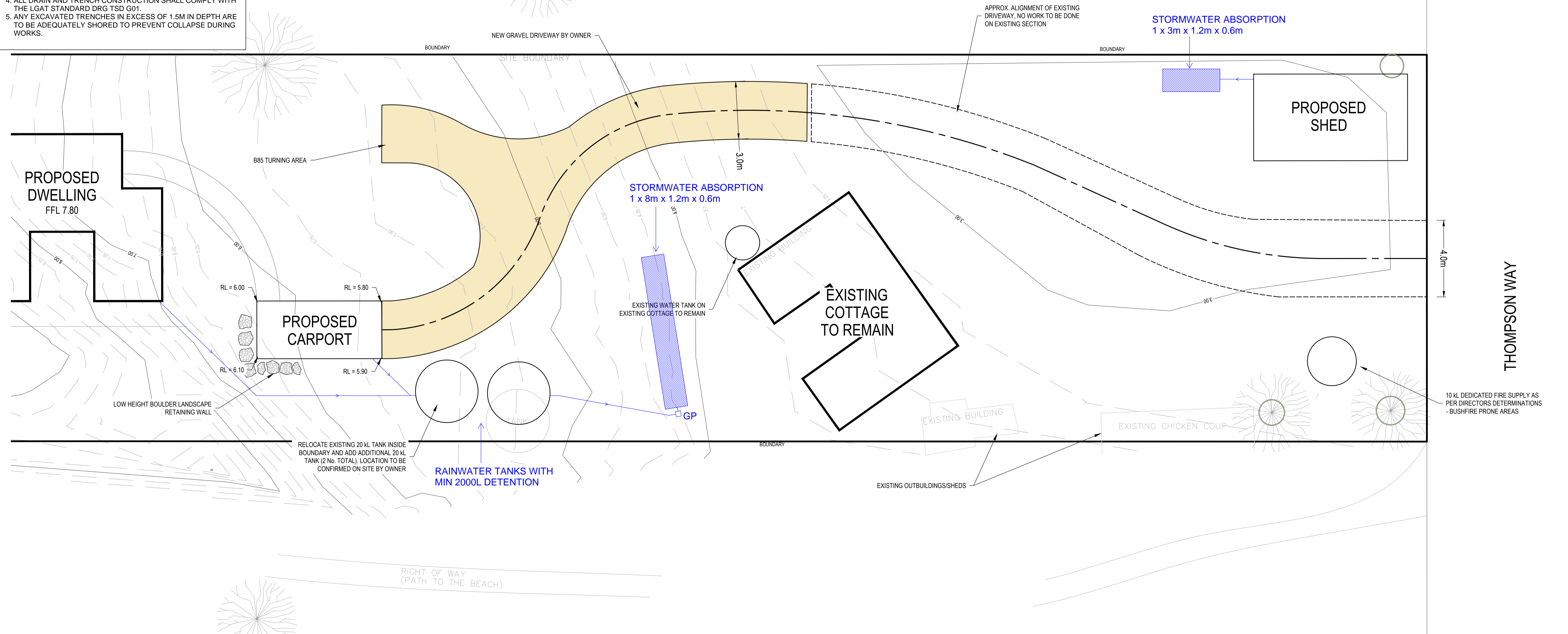
Performance Solution Compliance Notes:
 AS 3500.3 - CL 7.10
 • 7.10.1 - OVERFLOW IS SAFE AND DOES NOT COMPROMISE FREEBOARD TO HABITABLE SPACES.
GENERAL
 • AS/NZS 3500.3: PART 3 STORMWATER DRAINAGE AUSTRALIAN RAINFALL AND RUN-OFF VOLUME 8: URBAN STORMWATER MANAGEMENT
 • AUSTRALIAN RUNOFF QUALITY - A GUIDE TO WATER SENSITIVE URBAN DESIGN
 • STORM DRAINAGE DESIGN IN SMALL URBAN CATCHMENTS: A HANDBOOK FOR AUSTRALIAN PRACTICE
 • WATER SENSITIVE URBAN DESIGN (WSUD) ENGINEERING PROCEDURE: STORMWATER
 • WATER SERVICES ASSOCIATION OF AUSTRALIA CODE (WSAA)

Stormwater Services Notes:
 1. ALL SITE SAFETY & MANAGEMENT PROCEDURES SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF STATE GROWTH SPECIFICATIONS: SECTION 168 OCCUPATIONAL HEALTH AND SAFETY & SECTION 176 ENVIRONMENTAL MANAGEMENT.
 2. ALL PIPES UNDER TRAFFICABLE AREAS ARE TO BE BACKFILLED FULL DEPTH WITH 20 F.C.R. AND FULLY COMPACTED.
 3. ALL STORMWATER PIPES TO BE PVC-U-SWJ CLASS "SN8" TO AS1254 UNO.
 4. ALL DRAIN AND TRENCH CONSTRUCTION SHALL COMPLY WITH THE LGAT STANDARD DRG TSD G01.
 5. ANY EXCAVATED TRENCHES IN EXCESS OF 1.5M IN DEPTH ARE TO BE ADEQUATELY SHORED TO PREVENT COLLAPSE DURING WORKS.

SITE & EXISTING SERVICES LEGEND	
— 26.0 —	DESIGN SURFACE CONTOUR (MAJ/MIN)
- - - 26.0 - - -	EXISTING SURFACE CONTOUR (MAJ/MIN)
— — — — —	BOUNDARY
— — — — —	EASEMENT
— — — — —	EXISTING FENCE
— — — — —	EXISTING OVERHEAD POWER
— — — — —	EXISTING UNDERGROUND POWER
— — — — —	EXISTING TELSTRA
— — — — —	EXISTING NBN
— — — — —	EXISTING GAS

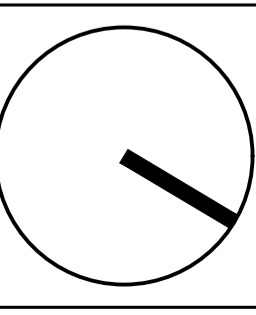
STORMWATER LEGEND	
— SWD —	PVC STORMWATER DN150 SN8 U.N.O.
— SSD —	SLOTTED PVC AG DRAIN
— — — — —	TABLE DRAIN
— EX SWD —	EXISTING STORMWATER
⊙	STORMWATER MANHOLE
⊞	SIDE ENTRY PIT TYPE 3, AS PER TSD-SW09-v3
⊞	SIDE ENTRY PIT TYPE 5, AS PER TSD-SW12-v3
⊞	SIDE ENTRY PIT TYPE 6, AS PER TSD-SW16-v3
⊙	INSPECTION OPENING
⊞	GRATED PIT
⊞	GRATED TRENCH WITH PIT

NOTES
 THESE DRAWINGS SHALL BE APPROVED BY RELEVANT AUTHORITIES (INCL. COUNCIL & TASWATER) PRIOR TO CONSTRUCTION.
 THIS DRAWING MUST ONLY BE DISTRIBUTED IN FULL COLOUR. ALDANMARK CONSULTING ENGINEERS ACCEPTS NO LIABILITY ARISING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
 BEWARE OF UNDERGROUND SERVICES: THE LOCATION OF UNDER GROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT LOCATION SHOULD BE PROVEN ON SITE BY THE RELEVANT AUTHORITIES. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN.



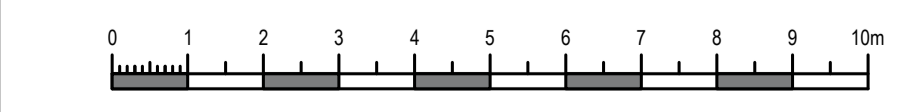
ROAD AND STORMWATER PLAN
 SCALE 1:100 (A1)

REV	ISSUE	DATE	APPROVAL
B	PRELIMINARY FOR COMMENT	8/05/2025	CHECKED: TW
A	PRELIMINARY FOR COMMENT	29/04/2025	VERIFIED:



Lower Ground
 199 Macquarie Street
 Hobart TAS 7000
 03 6234 8666
 mail@aldanmark.com.au
 www.aldanmark.com.au

PROJECT:	CLIFTON HOUSE
ADDRESS:	30 THOMPSON WAY CLIFTON BEACH
CLIENT:	CHRIS TANNER



SHEET:	ROAD AND STORMWATER PLAN
SCALE:	1:100
PROJECT No:	25 E 75 - 2

TOTAL SHEETS:	3	SIZE:	A1
SHEET:	C102	REV:	B

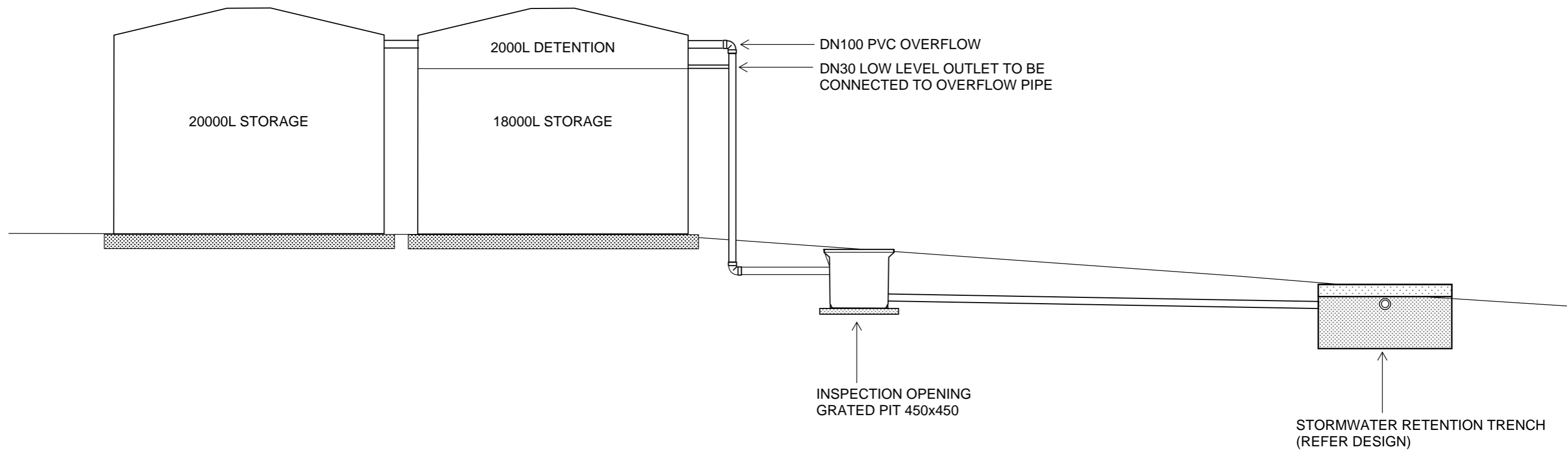




GEO-ENVIRONMENTAL

SOLUTIONS

29 Kirksway Place, Battery Point
T| 62231839 E| office@geosolutions.net.au



Do not scale from these drawings.
Dimensions to take precedence
over scale.

STORMWATER DETENTION
SCHEMATIC CROSS-SECTION

RAINWATER TANK
WITH 2000L DETENTION

Sheet 1 of 1
Drawn by: SR

Design notes:

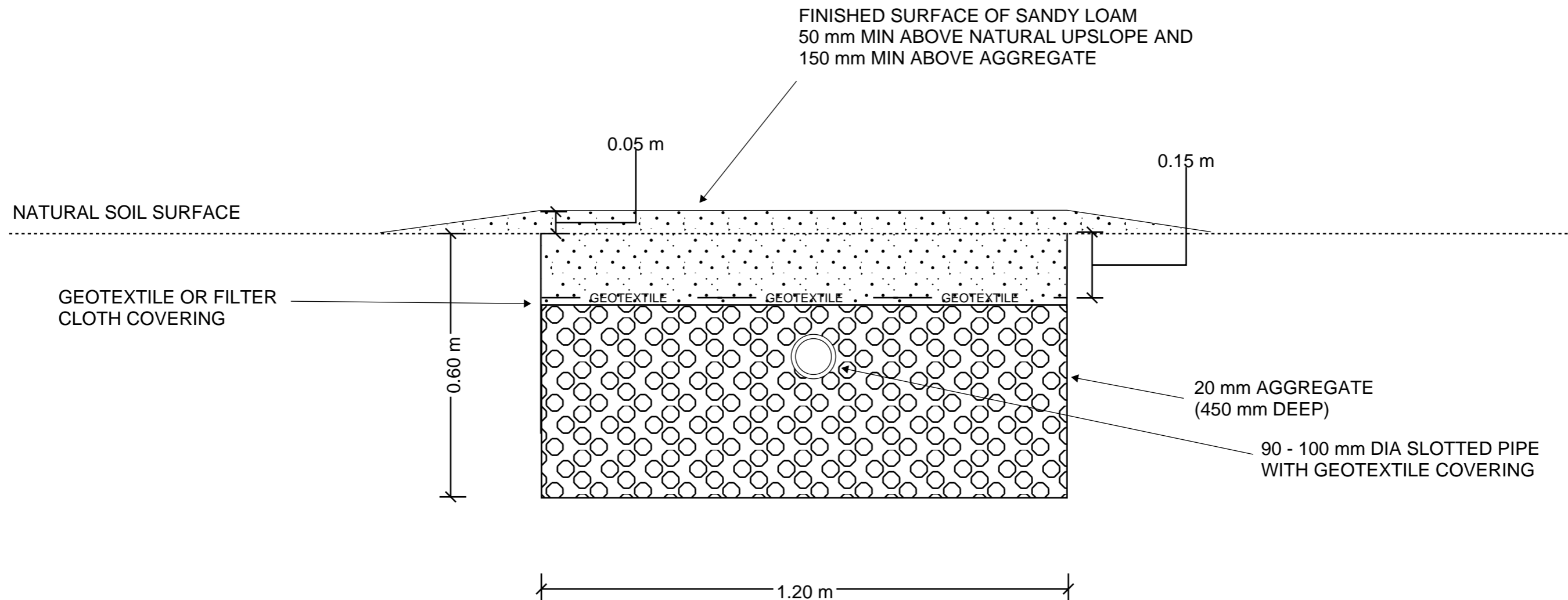
1. Absorption trench dimensions of up to 20m long by 0.60m deep by 1.2m wide
– total storage volume calculated at average 35% porosity.
2. Base of trenches to be excavated level and smearing and compaction avoided.
3. 90-100mm slotted pipe should be placed in the top 100mm of the 20mm aggregate
4. Geotextile or filter cloth to be placed over the pipe to prevent clogging of the pipes and aggregate
5. All works on site to comply with AS3500 and Tasmanian Plumbing code.



GEO-ENVIRONMENTAL

SOLUTIONS

29 Kirksway Place, Battery Point
T| 62231839 E| office@geosolutions.net.au



Do not scale from these drawings.
Dimensions to take precedence
over scale.

Geo-Environmental Solutions

Stormwater Trench Detail

Sheet 1 of 1

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Owner name
 Address
 Suburb/postcode

Designer details:

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

Details of the proposed work:

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

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

Description of work:

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

Description of the Design Work (Scope, limitations or exclusions): (X all applicable certificates)

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

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

Other details:

Onsite stormwater retention

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Geo-Environmental Solutions	Date: Jun-25
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Geo-Environmental Solutions	Date: Jun-25
Computations:	Prepared by:	Date:
Performance solution proposals: Onsite stormwater retention	Prepared by: Geo-Environmental Solutions	Date: Jun-25
Test reports:	Prepared by: Geo-Environmental Solutions	Date: Jun-25

Standards, codes or guidelines relied on in design process:	
AS3500 (Parts 0-5)-2013 Plumbing and drainage set.	


Any other relevant documentation:	
Stormwater Assessment - 30 Thompson Way Clifton Beach - Jun-25	

Attribution as designer:	
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I Vinamra Gupta, am responsible for the design of that part of the work as described in this certificate;

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

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

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Vinamra Gupta		12/06/2025
Licence No:	685982720		

Assessment of Certifiable Works: (TasWater)

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


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

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

Certification:

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

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

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Vinamra Gupta		12/06/2025