



DEVELOPMENT APPLICATION

PDPLANPMTD-2023/036874

PROPOSAL: Retrospective Earthworks & Proposed Dwelling & Outbuilding

LOCATION: 1C Kadina Road, Cambridge (with access over 1B Kadina Road, Cambridge)

RELEVANT PLANNING SCHEME: Tasmanian Planning Scheme - Clarence

ADVERTISING EXPIRY DATE: 07 May 2024

The relevant plans and documents can be inspected at the Council offices, 38 Bligh Street, Rosny Park, during normal office hours until 07 May 2024. 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 07 May 2024.

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.

Clarence City Council



APPLICATION FOR DEVELOPMENT / USE OR SUBDIVISION

The personal information on this form is required by Council for the development of land under the Land Use Planning and Approvals Act 1993. We will only use your personal information for this and other related purposes. If this information is not provided, we may not be able to deal with this matter. You may access and/or amend your personal information at any time. How we use this information is explained in our **Privacy Policy**, which is available at www.ccc.tas.gov.au or at Council offices.

Proposal:

NEW DWELLING AND OUTBUILDING

Location:

Address IC KADINA ROAD

Suburb/Town CAMBRIDGE TAS Postcode 7170

Current Owners/s:

Applicant:

Personal Information Removed

Tax Invoice for application fees to be in the name of: (if different from applicant)

Estimated cost of development

\$ 600,000

Is the property on the Tasmanian Heritage Register?

Yes

No

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

If you had pre-application discussions with a Council Officer, please give their name

NATALIE WATERS

Current Use of Site:

VACANT LAND

Does the proposal involve land administered or owned by the Crown or Council?

Yes

No

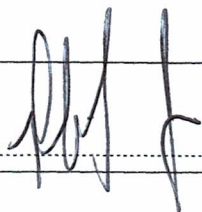
Declaration:

- I have read the Certificate of Title and Schedule of Easements for the land and am satisfied that this application is not prevented by any restrictions, easements or covenants.
- I authorise the provision of a copy of any documents relating to this application to any person for the purposes of assessment or public consultation. I agree to arrange for the permission of the copyright owner of any part of this application to be obtained. I have arranged permission for Council's representatives to enter the land to assess this application
- I declare that, in accordance with Section 52 of the Land Use Planning and Approvals Act 1993, that I have notified the owner of the intention to make this application. Where the subject property is owned or controlled by Council or the Crown, their signed consent is attached. Where the application is submitted under Section 43A, the owner's 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.

Applicant's Signature:

Signature  Date 06.11.2023

PLEASE REFER TO THE DEVELOPMENT/USE AND SUBDIVISION CHECKLIST ON THE FOLLOWING PAGES TO DETERMINE WHAT DOCUMENTATION MUST BE SUBMITTED WITH YOUR APPLICATION.

SEARCH OF TORRENS TITLE

VOLUME 181046	FOLIO 2
EDITION 2	DATE OF ISSUE 29-Apr-2022

SEARCH DATE : 10-Jul-2023

SEARCH TIME : 10.58 AM

DESCRIPTION OF LAND

City of CLARENCE
 Lot 2 on Sealed Plan 181046
 Derivation : Part of 518 Acres Located to John Petchey & Part
 of 30 Acres Located to R. Cooper
 Prior CT 151707/1

SCHEDULE 1

M942275 TRANSFER to PHILLIP ANDREW JONES Registered
 29-Apr-2022 at 12.01 PM

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
 SP181046 EASEMENTS in Schedule of Easements
 SP181046 COVENANTS in Schedule of Easements
 SP181046 FENCING COVENANT in Schedule of Easements
 SP181046 WATER SUPPLY RESTRICTION
 SP181046 SEWERAGE AND/OR DRAINAGE RESTRICTION
 SP 28641 COVENANTS in Schedule of Easements
 SP28641 & SP33403 FENCING COVENANT in Schedule of Easements
 SP114088 & SP151358 WATER SUPPLY RESTRICTION
 SP114088 & SP151358 SEWERAGE AND/OR DRAINAGE RESTRICTION
 SP28641 & SP33403 COUNCIL NOTIFICATION under Section 468(12)
 of the Local Government Act 1962
 C413202 INSTRUMENT creating Restrictive Covenants pursuant to
 section 34 Nature Conservation Act 2002 (affecting
 part of the said land within described) Registered
 11-Mar-2004 at noon
 C413203 INSTRUMENT creating Restrictive Covenants pursuant to
 section 34 Nature Conservation Act 2002 affecting
 part of the said land within described Registered
 11-Mar-2004 at 12.01 PM
 E300674 MORTGAGE to Commonwealth Bank of Australia
 Registered 29-Apr-2022 at 12.02 PM

UNREGISTERED DEALINGS AND NOTATIONS

SEARCH OF TORRENS TITLE

VOLUME 181046	FOLIO 1
EDITION 1	DATE OF ISSUE 23-Jul-2021

SEARCH DATE : 12-Apr-2024

SEARCH TIME : 12.38 PM

DESCRIPTION OF LAND

City of CLARENCE
 Lot 1 on Sealed Plan 181046
 Derivation : Part of 518 Acres Located to John Petchey & Part
 of 30 Acres Located to R. Cooper
 Prior CT 151707/1

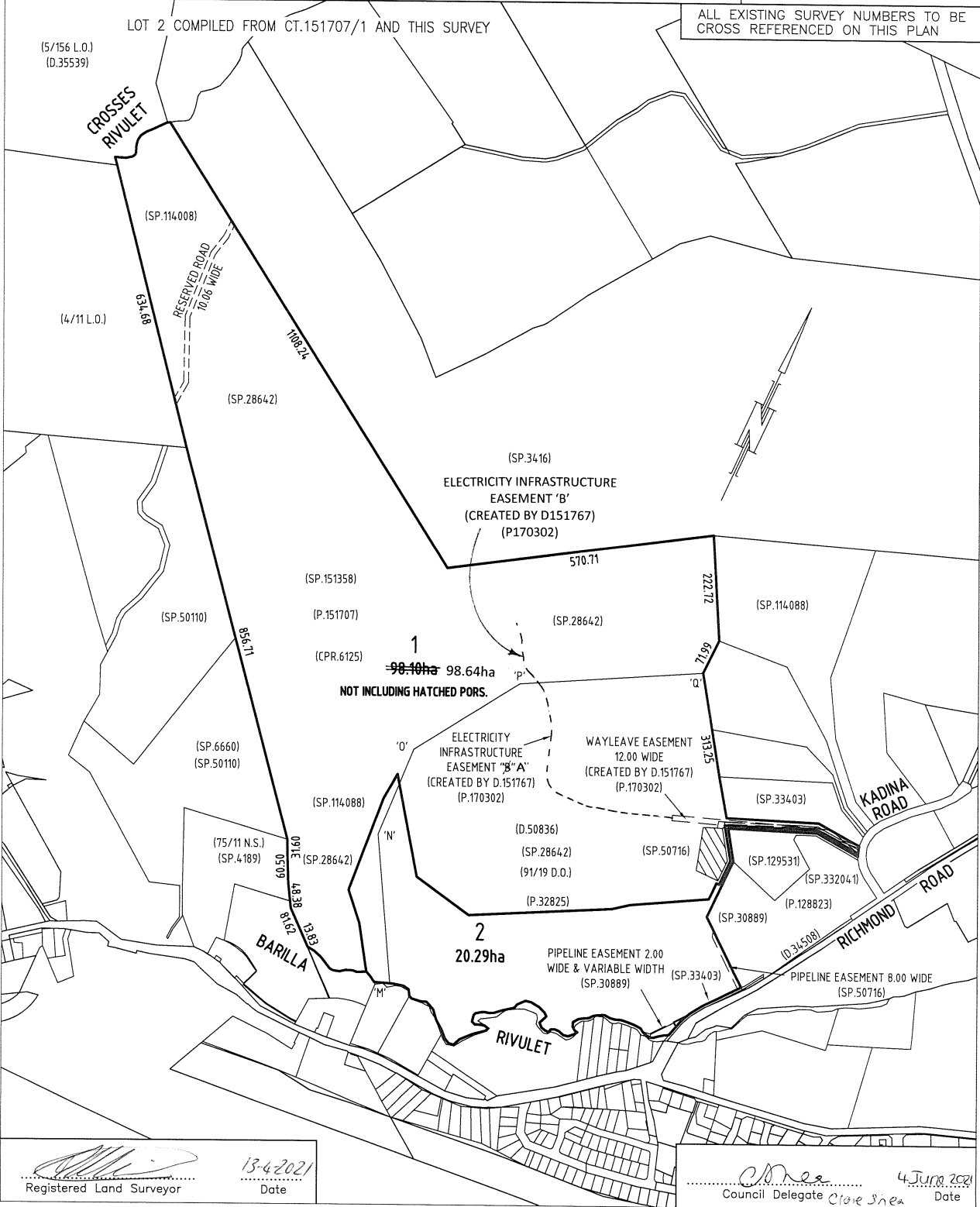
SCHEDULE 1

C533916 TRANSFER to PHILIP CHARLES JOHN BARKER and ALLISON
 ELLA MARGARET WOOLLEY Registered 11-Mar-2004 at 12.
 02 PM

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
 SP181046 EASEMENTS in Schedule of Easements
 SP181046 COVENANTS in Schedule of Easements
 SP181046 FENCING COVENANT in Schedule of Easements
 SP181046 WATER SUPPLY RESTRICTION
 SP181046 SEWERAGE AND/OR DRAINAGE RESTRICTION
 SP 28641 COVENANTS in Schedule of Easements
 SP28641 & SP33403 FENCING COVENANT in Schedule of Easements
 SP114088 & SP151358 WATER SUPPLY RESTRICTION
 SP114088 & SP151358 SEWERAGE AND/OR DRAINAGE RESTRICTION
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 part of the said land within described) Registered
 11-Mar-2004 at noon
 C413203 INSTRUMENT creating Restrictive Covenants pursuant to
 section 34 Nature Conservation Act 2002 affecting
 part of the said land within described Registered
 11-Mar-2004 at 12.01 PM
 C533917 MORTGAGE to Commonwealth Bank of Australia
 Registered 11-Mar-2004 at 12.03 PM

OWNER PHILIP CHARLES JOHN BARKER ALLISON ELLA MARGARET WOOLLEY	PLAN OF SURVEY	REGISTERED NUMBER SP181046
FOLIO REFERENCE C.T.151707/1		
GRANTEE PART OF 518 ACRES ACRES LOCATED TO JOHN PETCHHEY, AND PART OF 30 ACRES LOCATED TO R. COOPER	CITY OF CLARENCE	APPROVED EFFECTIVE FROM 23 JUL 2021
	SCALE 1: 7,500 LENGTHS IN METRES	<i>Renan</i> Recorder of Titles

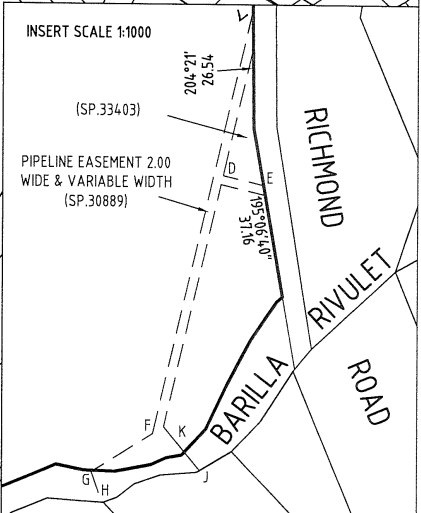
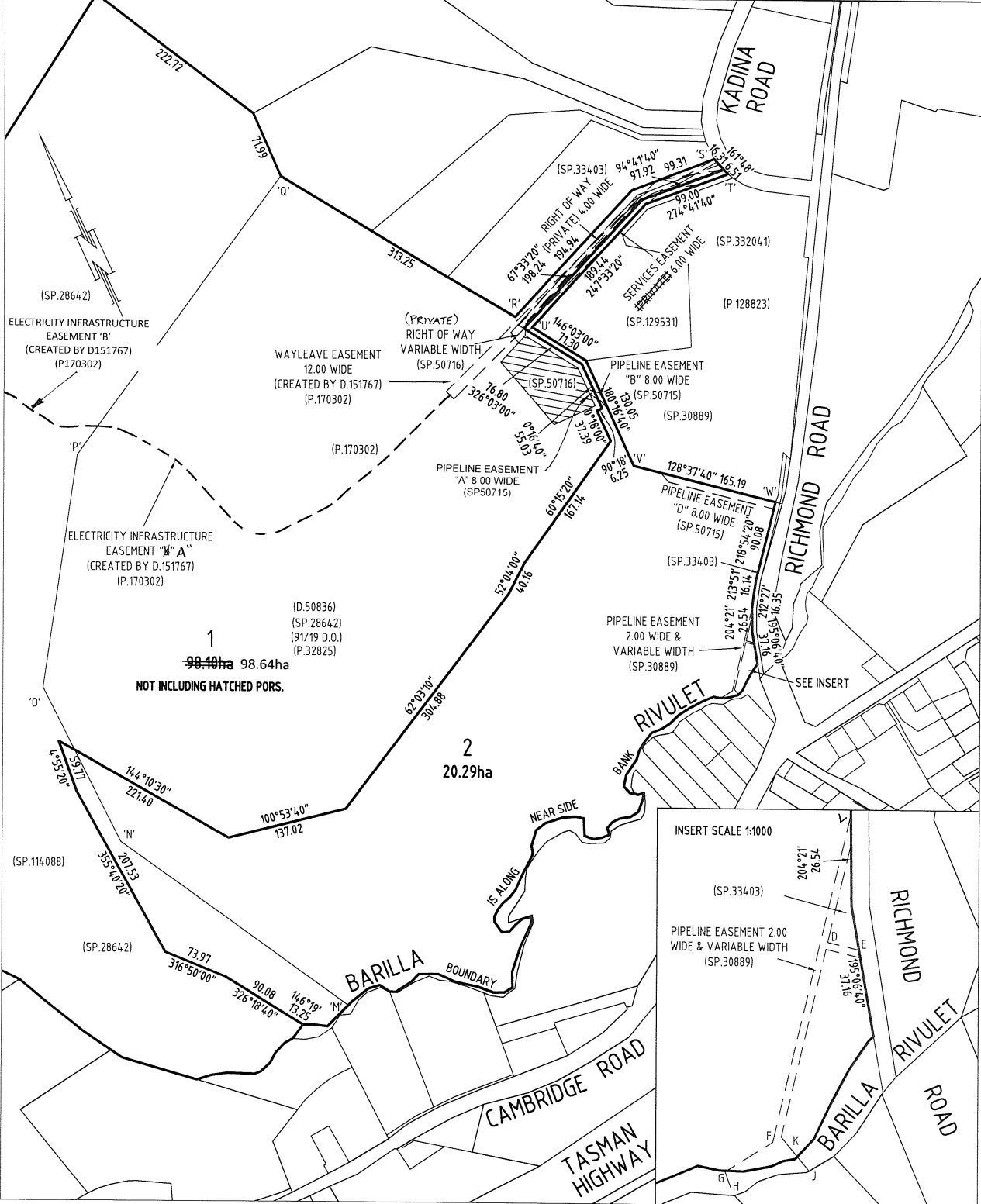


ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

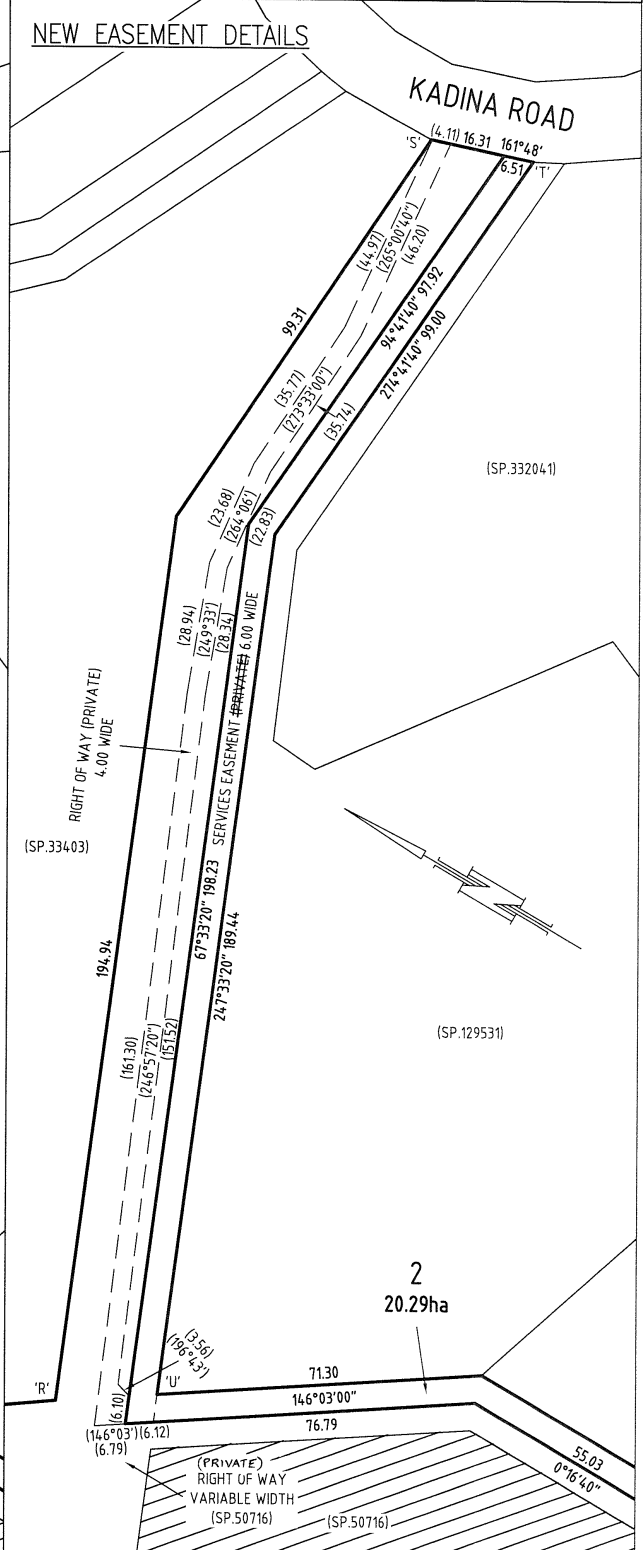
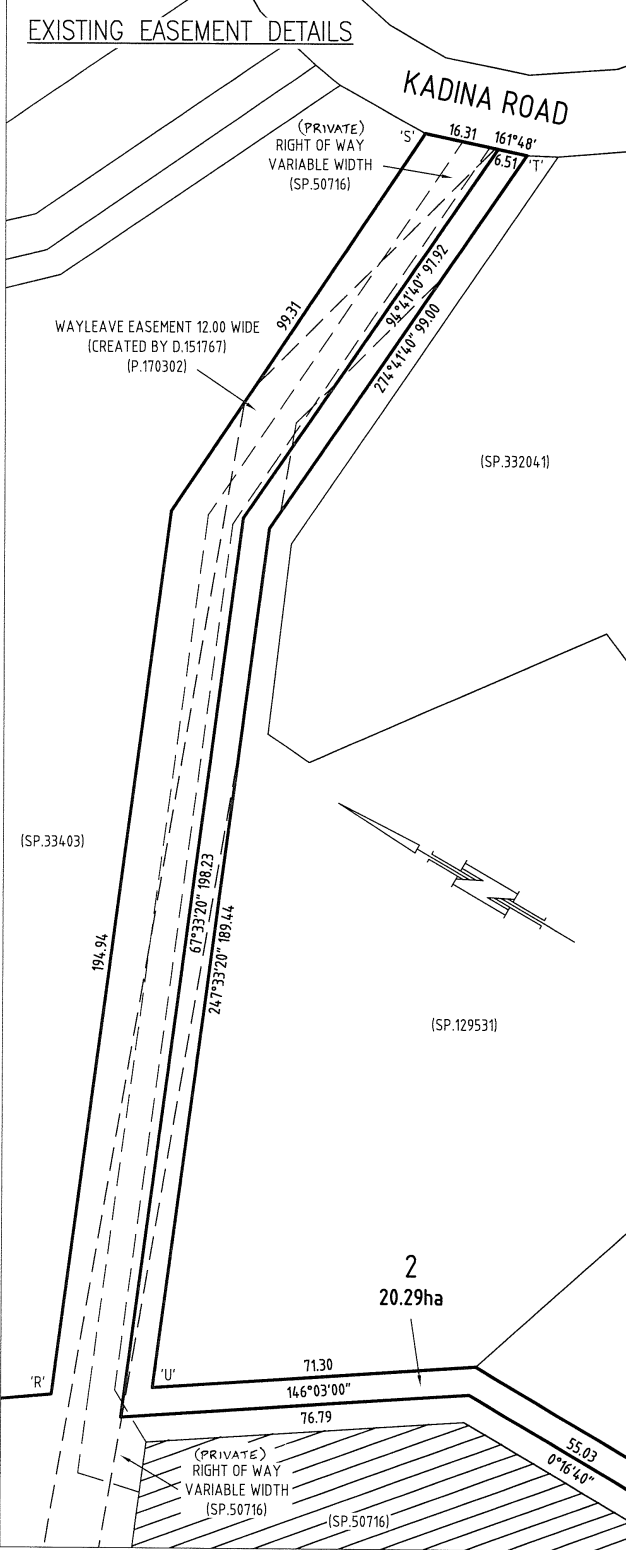
AS
Registered Land Surveyor
13-4-2021
Date

C. Shea
Council Delegate
4 June 2021
Date

<p>PLAN OF SURVEY ANNEXURE SHEET</p> <p>SHEET 1 OF 2 SHEETS</p>	<p>OWNER: PHILIP CHARLES JOHN BARKER ALLISON ELLA MARGARET WOOLLEY</p> <p>FOLIO REFERENCE: C.T.151707/1</p> <p>SCALE 1:4000 LENGTH IN METRES</p>	<p>Registered Number</p> <p>SP 181046</p>
<p>SIGNED FOR IDENTIFICATION PURPOSES</p> <p><i>C. Mea</i> 4 June 2021 Council Delegate Date</p>	<p>THIS ANNEXURE SHEET FORMS PART OF THE ATTACHED INDEX PLAN.</p> <p><i>[Signature]</i> 13-4-2021 Registered Land Surveyor Date</p>	<p>APPROVED EFFECTIVE FROM 23 JUL 2021</p> <p><i>[Signature]</i> Recorder of Titles</p>

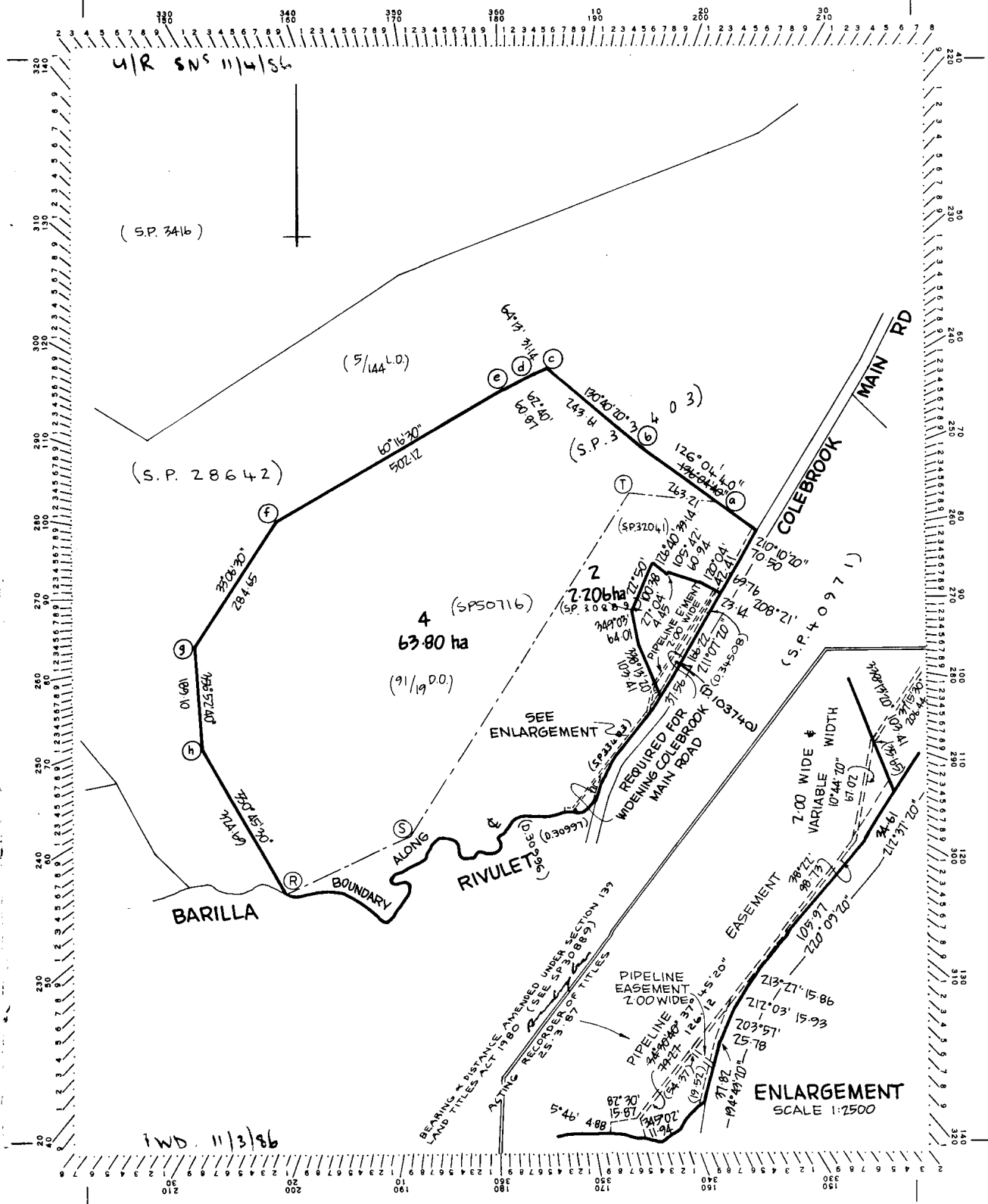


<p>PLAN OF SURVEY ANNEXURE SHEET</p> <p>SHEET 2 OF 2 SHEETS</p>	<p>OWNER: PHILIP CHARLES JOHN BARKER ALLISON ELLA MARGARET WOOLLEY</p> <p>FOLIO REFERENCE: C.T.151707/1</p> <p>SCALE 1:1000 LENGTH IN METRES</p>	<p>Registered Number</p> <p>SP 181046</p>
<p>SIGNED FOR IDENTIFICATION PURPOSES</p> <p><i>Conna</i> 14 June 2021 Council Delegate Date</p>	<p>THIS ANNEXURE SHEET FORMS PART OF THE ATTACHED INDEX PLAN.</p> <p><i>[Signature]</i> 13-4-2021 Registered Land Surveyor Date</p>	<p>APPROVED EFFECTIVE FROM 23 JUL 2021</p> <p><i>[Signature]</i> Recorder of Titles</p>



507 S.P. 28641

Owner: ESTATE OF E. C. M'KAY	PLAN OF SURVEY JOHN L. CERUTTY by Surveyor of land situated in the	Registered Number:
Title Reference: CONV 13/5016		S.P. 28641
Grantee: PART OF 518.0.0 LOC TO JOHN PETCHEY PART OF 30.0.0 LOC TO ROBERT COOPER PART OF 40.0.0 LOC TO GEORGE RICHARDSON PART OF 50.0.0 LOC TO JOHN PETCHEY	LAND DISTRICT OF MONMOUTH PARISH OF CAMBRIDGE	Approved: 27 AUG 1986 Effective from:
SCALE 1:7500 MEASUREMENTS IN METRES		Acting Recorder of Titles





SCHEDULE OF EASEMENTS

PLAN NO.

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

S.P28641

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

EASEMENTS AND PROFITS

THIS COPY SCHEDULE CONSISTS OF 4 PAGE/S

Each lot on the plan is together with:—

- (1) such rights of drainage over the drainage easements shewn on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
- (2) any easements or profits à prendre described hereunder.

Each lot on the plan is subject to:—

- (1) such rights of drainage over the drainage easements shewn on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
- (2) any easements or profits à prendre described hereunder.

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

1.0 PROFITS A PRENDRE

1.1 No profits a prendre are created to benefit or burden any Lot on the Plan.

2.0 COVENANTS

2.1 The owner of each of the Lots on the Plan covenants with the Vendors Joan Amy McKay, Peter Charles McKay and Jan Elizabeth Sadler ("the Vendors") that the Vendors shall not be required to fence.

2.2 The owner of each of the lots on the Plan covenants with the Vendors to the intent that the burden of these covenants may run with and bind the covenantor's lot and each and every part of it and that the benefit of the covenants shall be annexed to and devolved with each and every part of every other lot on the Plan to observe the following stipulations:-

Not without the prior written consent of the Council to:

SCHEDULE OF EASEMENTS	Registered Number
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	SP 181046

PAGE 1 OF 3 PAGE
3

EASEMENTS AND PROFITS

Each lot on the plan is together with:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
- (2) any easements or profits a prendre described hereunder.

Each lot on the plan is subject to:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
- (2) any easements or profits a prendre described hereunder.

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

EASEMENTS

Right of Carriageway

Lot 1 is subject to a right of carriageway in favour of Lot 2 over the Right of Way (Private) 4.00 wide shown on the plan.

Lot 2 is together with a right of carriageway over the Right of Way (Private) 4.00 wide shown on the plan.

Services Easement

Lot 2 is subject to a Service Easement appurtenant to Lot 1 over the Services Easement (~~Private~~) 6.00 wide shown on the plan.

Lot 1 is together with a Service Easement over the Services Easement (~~Private~~) 6.00 wide shown on the plan.

EASEMENTS CONTINUED ON PAGE 3

COVENANTS

PCJ Barker & AEM Woolley

The owner of each lot shown on the plan covenants with the Vendor that the Vendor shall not be required to fence.

Each lot on the plan which formerly comprises part of Lot 1 on Sealed Plan No. 151707 are each affected by the ~~easements and restrictive covenants created by and more fully set forth in Sealed Plan No. 151707, 151358, 114088, 33403, 28641, 50716, 413202, 151767 & 30889.~~

INPERPETATION

“Service Easement (~~Private~~)” means the full and free right and liberty for the owners for the time being of the benefiting Lots shown on the plan to enter up the strip of land shown on the plan and marked ‘Services Easement (~~Private~~) 6.00 wide’ and lay, repair, replace, cleanse and maintain water mains, pipes, drains, mains, channels, gutters,

(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: PHILLIP CHARLES JOHN BARKER & ALLISON ELLA MARGATE WOOLLEY FOLIO REF: CT 151707/1 SOLICITOR & REFERENCE: Abetz Curtis - 200697	PLAN SEALED BY: CLARENCE CITY COUNCIL DATE: 4 June 2021 SD: 2019/005066 REF NO.
..... Council Delegate Clare Shea	
<p>NOTE: The Council Delegate must sign the Certificate for the purposes of identification.</p>	

**ANNEXURE TO
SCHEDULE OF EASEMENTS**

PAGE 2 OF 3 PAGES
3

SP181046

SUBDIVIDER: - PHILLIP CHARLES JOHN BARKER & ALLISON ELLA MARGATE WOOLLEY
FOLIO REFERENCE: - C/T 151707/1

sewers, wires, cables and other conducting media of such size and number as shall from time to time be required. The said benefiting owners should make good any damage to the surface occasioned thereby.

~~“Right of Way (Private)” means the full and free right of the owner of Lot 2 from time to time and at all times hereafter to enter into and upon the said strip of land or any part thereof.~~

SIGNED by PHILLIP CHARLES JOHN BARKER)
the registered proprietor of the land contained in)
Certificate of Title Volume 151707 Folio 1 in the)
presence of:-)



Witness sign

Witness full name

Witness occupation

Witness address

Anton Tuomainen
ANALYST
20/39 JOHNSTON ST
CARINA 4152

SIGNED by ALLISON ELLA MARGATE WOOLLEY)
the registered proprietor of the land contained in)
Certificate of Title Volume 203959 Folio 1 and in the)
presence of:-)



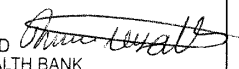
Witness sign

Witness full name

Witness occupation

Witness address

Anton Tuomainen
ANALYST
20/39 JOHNSTON ST
CARINA 4152

SIGNED SEALED AND DELIVERED 
for and on behalf of COMMONWEALTH BANK
OF AUSTRALIA by its Attorney **Shireen Musallam**
under Registration Power of Attorney No. 726177
who certifies that he/she is Senior Conveyancing officer
of the COMMONWEALTH BANK OF AUSTRALIA
and declares that he/she has received no notice
of revocation of the said Power of Attorney and
in the presence of:

.....**Edward Vedra**.....
Bank Officer, Sydney
Level 4, 5-7 Central Avenue
South Eveleigh, NSW. 2015

Commonwealth Bank of Australia as Mortgagee by
Mortgage Number C533917 hereby consent to this dealing

OD

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

<p>ANNEXURE TO SCHEDULE OF EASEMENTS</p> <p>PAGE 3 OF 3 PAGES</p>	<p>SP 181046</p>
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SUBDIVIDER: -PHILLP CHARLES JOHN BARKER & ALLISON ELLA MARGARET WOOLLEY
 FOLIO REFERENCE: - C/T 151707/1

Easements continued

D151767

Lot 1 on the Plan is subject to an existing Burdening Electricity Infrastructure Easement created by ~~D-151707~~ in favour of Tasmanian Networks Pty Ltd over the lands marked Electricity Infrastructure Easement 'A' and Electricity Infrastructure Easement 'B' on the Plan.

Lot 1 on the Plan is subject to Pipeline Easement (for The Hobart Regional Water Board and appurtenant to Lot 1 on Sealed Plan No. 50716) shown on the Plan as Pipeline Easement "A" 8.00 Wide (SP50715) as more fully defined in Sealed Plan 50716.

Lot 1 on the Plan is subject to a Right of Carriageway (for The Hobart Regional Water Board and appurtenant to Lot 1 on Sealed Plan No. 50716) shown on the Plan as Right of Way Variable Width (~~SP-151707~~) as more fully defined in Sealed Plan 50716.

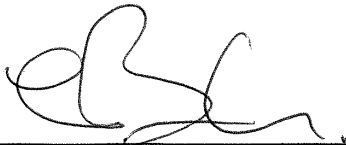
in favour of Tasmanian Networks Pty Ltd

Lot 1 and Lot 2 on the Plan are subject to a Burdening Wayleave Easement over the land marked Wayleave Easement 12.00 wide on Plan as more fully defined in ~~Sealed Plan 151707~~ D151767

Lot 1 and Lot 2 on the Plan are together with a Benefiting Easement appurtenant to the land marked MNOPQRSTUVWXYZ a Pipeline Easement over Pipeline Easement ABC on the Plan, as more fully defined in Sealed Plan 151707. 2.00 wide & variable width 151707

Lot 2 on the Plan is subject to a pipeline easement (appurtenant to Lots 1 & 2 on Sealed Plan 30889) over the lands marked Pipeline Easement 2.00 wide & variable width (SP30889) LFGHJK & DE on the Plan as more fully defined in Sealed Plan 30889.

Lot 2 on the Plan is subject to Pipeline Easement (for The Hobart Regional Water Board and appurtenant to Lot 1 on Sealed Plan No. 50716) shown on the plan as Pipeline Easement "B" 8.00 Wide (SP.50715) and Pipeline Easement "D" 8.00 Wide (SP50715) as more fully defined in Sealed Plan 50716




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

21641

2.2.1 Erect or permit to be erected henceforth on such lot any dwelling or other building closer than one sixth of the minimum depth of the lot from any public road or recreation area.

2.2.2 Erect or permit to be erected henceforth on such lot any dwelling or other building constructed in whole or in part of unpainted galvanised iron or any other building materials which will contrast rather than blend with the rural environment nor unless and until:

- (a) the exterior design plan and finish of such building or structure (including colour paint and materials intended to be used therein);
- (b) the location and or placement of such building or structure on such lot and;
- (c) the location and or placement of the septic tank on such lot.

has been approved in writing by the Council.

2.2.3 Erect on such lot more than one (1) residence together with such outbuildings as may be permitted by the Council.

3.0 PIPELINE EASEMENT

3.1 LOT 2 IS TOGETHER WITH a pipeline easement over the strips of land marked "Pipeline Easement 2.00 wide and of variable width" and Pipeline Easement 2.00 wide width"/passing through Lot 4.

3.2 LOT 2 IS SUBJECT TO a pipeline easement over the strip of land marked "Pipeline Easement 2.00 wide and of variable width" appurtenant to Lot 4 ~~and the land comprised in Conveyance 45/1972.~~

2024
Pin or Staple here.
Do not gem this
form to the instru-
ment.

OS 5 64

ANNEXURE REFERRED TO (Page 1) 28641

Annexure to Memorandum of dated

from to

3.3 LOT 4 IS TOGETHER WITH a pipeline easement over the strip of
 ✓ land marked "Pipeline Easement 2.00 wide and of variable
 width" passing through Lot 2.

3.4 ✓ LOT 4 IS SUBJECT TO a pipeline easement over the strips of
 land marked "Pipeline Easement 2.00 wide and of variable
 width" and Pipeline Easement 2.00 wide" appurtenant to Lot
 2 ~~and the land comprised in Conveyance 45/1972.~~

3.5 ~~THE LAND COMPRISED IN CONVEYANCE 45/1972 IS TOGETHER WITH a
 "Pipeline Easement over the strip marked "Pipeline Easement
 2.00 wide and of variable width" passing through Lots 2 and
 4.~~

4.0 INTERPRETATION

4.1 "The Council" shall mean the Warden Councillors and
 Electors of the Municipality of Clarence.

4.2 "Pipeline Easement" shall mean:

4.2.1 The right to lay and construct a water pipe under
 the surface of the strips of land shown on the Plan
 as pipeline easements and to reticulate water
 through the pipes.

4.2.2 The right to erect and maintain a pump house within
 the strip of land marked "Pipeline Easement 2.00
 wide and of variable width" for the purpose of
 reticulating water under the surface of the said
 strip of land.

NOTE: — Every
 annexed sheet shall
 be signed by the
 parties to the deal-
 ing, or where the
 party is a corporate
 body, be signed by
 the persons who
 have attested the
 affixing of the seal
 of that body to the
 dealing.

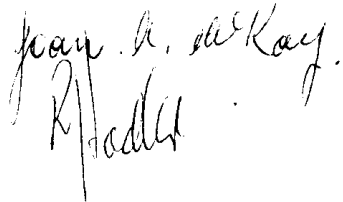
28641

4.2.3 The right to convey through the said pump house and pipeline such amounts of water as the owner or owners for the time being of Lot 2/^{and Lot 4}~~and the land comprised in Conveyance 45/1972~~ may require.

4.2.4 The right at all times to enter upon the said strips of land and inspect cleanse repair and maintain the said pipeline and pump house and when and where necessary to lay new pipes and for the purpose of full enjoyment of the aforesaid rights the owners or owners shall have full and free uninterrupted right and liberty at all times and from time to time to enter upon and to go pass and repass over and along the said strips of land with or without inspectors, workmen or other persons and to open and break up the soil to bring and place upon and remove from the said strips of land any materials vehicles machinery tools or other equipment as may be necessary for the proper construction laying and maintenance of the said pipe PROVIDED THAT the rights and privileges hereby granted shall be exercised in a proper and workmanlike manner so as to cause as little inconvenience as possible and to do as little damage as practicable on the said strips of land.

4.2.5 The right to lay and maintain an electric cable in through or under the said strip of land to the pump house site for the purpose of transmitting electric power to the pump.

SIGNED by the said JOAN AMY MCKAY)
~~as a Trustee~~ the life tenant and)
 as a Registered Proprietor of the)
 land described in Mortgage)
 No. 55/0095 in the presence of:)



SIGNED by the said ²⁸⁶⁴¹ ~~PETER CHARLES MCKAY~~ as a ~~Trustee~~ and a Registered Proprietor of the land described in Mortgage No. 55/0095 in the presence of:

Peter McKay
Jan A. McKay

SIGNED by the said ~~JAN ELIZABETH SADLER~~ as a ~~Trustee~~ and Remainderman in the land described in Mortgage No. 55/0095 in the presence of:

Jan Sadler
J. Sadler

Executed in Tasmania by AUSTRALIA & NEW ZEALAND BANKING GROUP LIMITED By being signed sealed and delivered by its Attorney DAVID KEITH DIMSEY (who hereby certifies that he has received no notice of revocation of POWER OF ATTORNEY No. 54/8529 under which this instrument is signed) in the presence of:
Bank Officer Hobart.

AUSTRALIA & NEW ZEALAND BANKING GROUP LIMITED
By its Attorney
[Signature]
Area Manager

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

Sealed by MUNICIPALITY OF CLARENCE on 7 APRIL 1996
Solicitor's Reference
[Signature]
Council Clerk/Town Clerk

05 K 3134

THE REFERRED FACT SHEETS LISTED BELOW SHOULD BE READ IN CONJUNCTION WITH AND FORM PART OF THE SOIL & WATER MANAGEMENT PLAN

The SWMP has been prepared in accordance with the Soil and Water Management on Building and Construction Sites fact sheets (Derwent Estuary Program, 2008).

Note: Copies of the Fact sheets referred to in the soil & water management plan can also be accessed by visiting the Tasmanian EPA website below

<https://epa.tas.gov.au/epa/water/stormwater/soil-and-water-management-on-building-sites>

Install erosion and sediment control measures in sequence:

- 1) Choose a single, stabilised site access point (see Fact Sheet 12).
- 2) Install sediment fences or fibre rolls at the low end of the site to trap sediment (see Fact Sheet 14).
- 3) Divert up-slope catchment runoff around the site by installing a diversion drain and level spreader (see Fact Sheet 7).
- 4) Keep as much vegetation as possible to minimise soil erosion and reduce rainwater running across the site (see Fact Sheet 6).
- 5) Designate a location where topsoil and other excavation material will be stockpiled during building and construction. Provide suitable controls to prevent erosion (see Fact Sheet 9).
- 6) Stabilise areas of exposed soil with vegetation or erosion control blankets and mats (see Fact Sheet 8).
- 7) Protect the nearby stormwater system including any stormwater pits on and below the site from blocking up with sediment (see Fact Sheet 15).
- 8) Designate an appropriate location within the site where sediment generating activities can be managed (e.g. wheel wash, brick cutting) (see Fact Sheet 16).

Once site works have commenced:

- 1) Monitor sediment and erosion control measures at least once a week and after each rainfall event.
- 2) Construct service trenches away from where water is likely to concentrate. Try not to have service trenches open any longer than necessary (see Fact Sheet 9).
- 3) Prevent clean rainwater running across the site by connecting downpipes to the stormwater system as soon as the roof is on the building frame (see Fact Sheet 10).

List of fact sheets

1. Soil & Water Management on Large Building & Construction Sites
2. Soil & Water Management on Standard Building & Construction Sites
3. Soil & Water Management Plans
4. Dispersive Soils – High Risk of Tunnel Erosion
5. Minimise Soil Disturbance
6. Preserve Vegetation
7. Divert Up-slope Water
8. Erosion Control Mats & Blankets
9. Protect Service Trenches & Stockpiles
10. Early Roof Drainage Connection
11. Scour Protection – Stormwater Pipe Outfalls & Check Dams
12. Stabilised Site Access
13. Wheel Wash
14. Sediment Fences & Fibre Rolls
15. Protection of Stormwater Pits
16. Manage Concrete, Brick & Tile Cutting
17. Sediment Basins
18. Dust Control
19. Site Revegetation

MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES:
BUILDER TO MONITOR ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER MAJOR RAINFALL EVENTS AND REPAIR ANY DAMAGE AND REMOVE ANY BUILTUP SEDIMENT FROM THESE STRUCTURES.

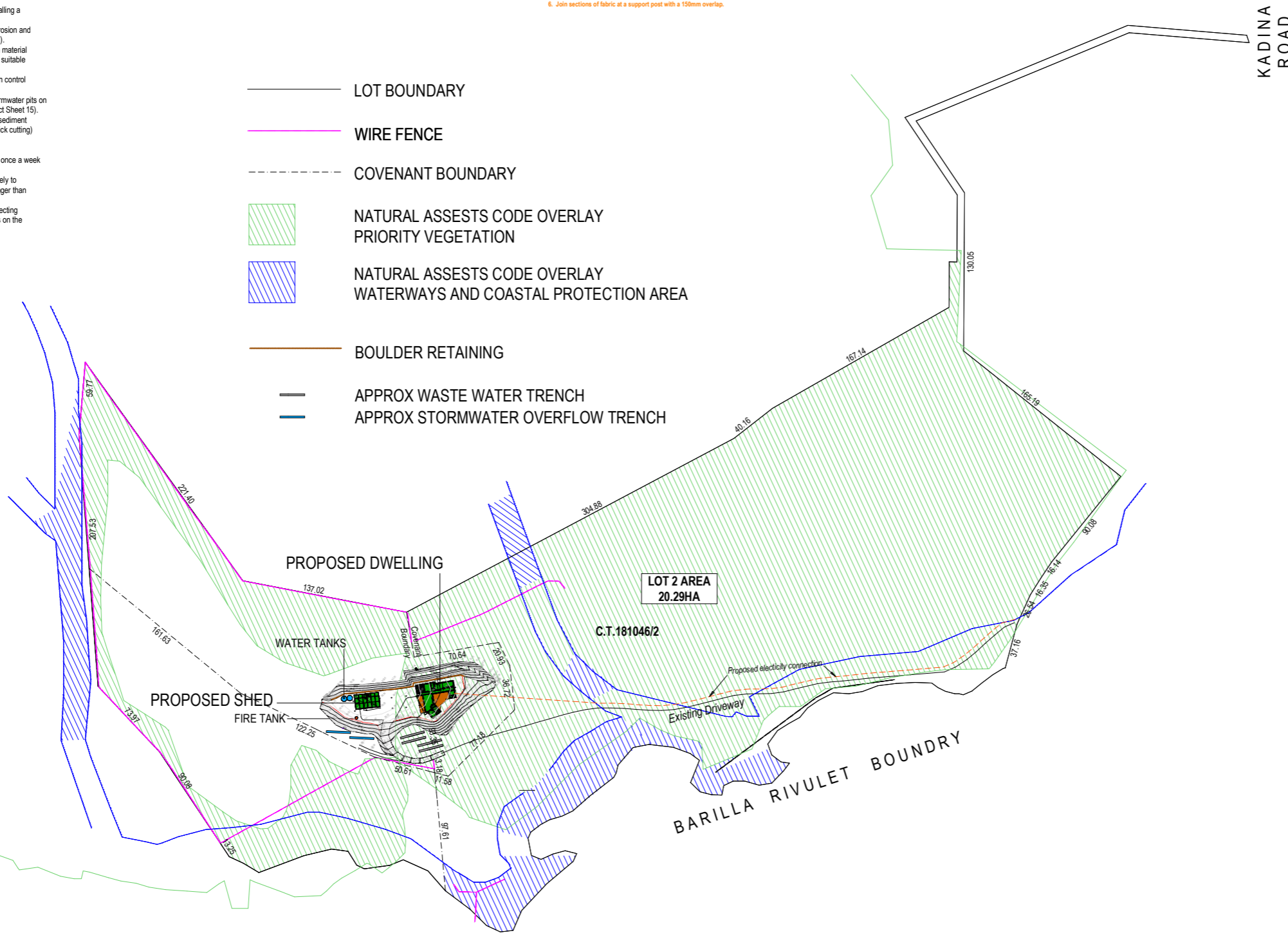
Stabilised site entry / exit point:-

1. Strip topsoil and level.
2. Compact subgrade.
3. Cover area with needle-punched geotextile.
4. Construct 200mm thick pad over geotextile using roadbase or 40mm aggregate. Minimum length 5 metres or to building alignment. Minimum width 3 metres.
5. Construct hump immediately within boundary to divert water to a sediment fence or other sediment trap.

Sediment fence:-

1. To be constructed as close as possible to parallel to the contours of the site.
2. Drive 1.5 metre long star pickets into ground, 3 metres apart.
3. Dig a 150mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
4. Backfill trench over base of fabric.
5. Fix self-supporting geotextile to up slope side of posts with wire ties or as recommended by geotextile manufacturer.
6. Join sections of fabric at a support post with a 150mm overlap.

- LOT BOUNDARY
- WIRE FENCE
- - - COVENANT BOUNDARY
- ▨ NATURAL ASSESTS CODE OVERLAY PRIORITY VEGETATION
- ▨ NATURAL ASSESTS CODE OVERLAY WATERWAYS AND COASTAL PROTECTION AREA
- BOULDER RETAINING
- APPROX WASTE WATER TRENCH
- APPROX STORMWATER OVERFLOW TRENCH



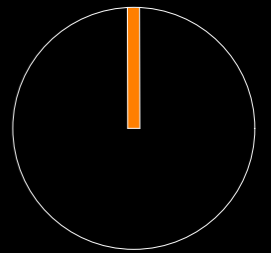
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duodesign@bigpond.com



REV :
1. : 14/12/23 WW&SW Trenches

JOB : PROPOSED DWELLING &
SHED

AT : 1C KADINA ROAD
CAMBRIDGE

FOR : PHIL JONES

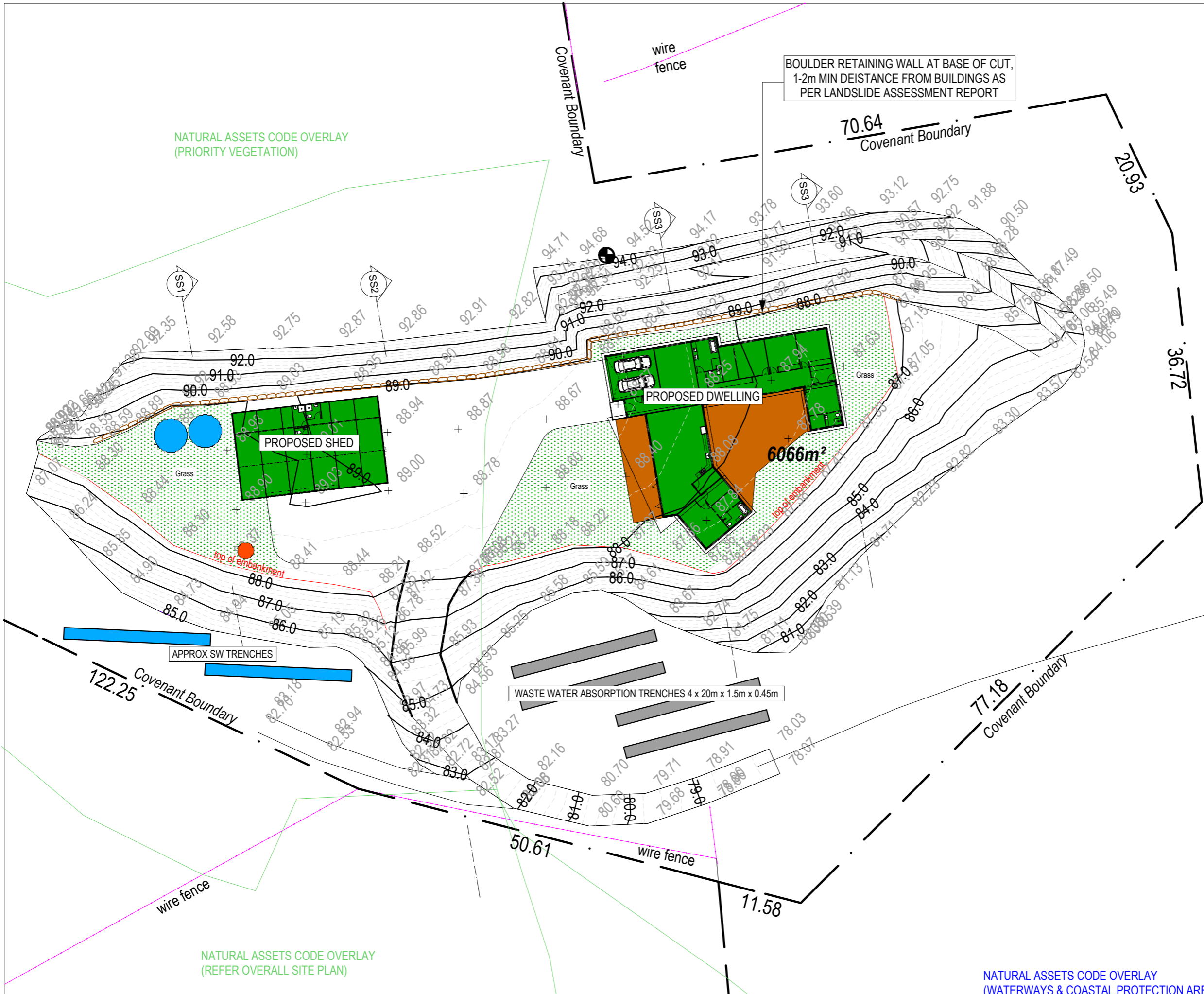
DRAWING TITLE :

**OVERALL
SITE PLAN**

DRAWN:	DATE:	DWG NO. :
MJD	3.11.2023	01
SCALE:A3	ISSUE:	
1:4000	DA	



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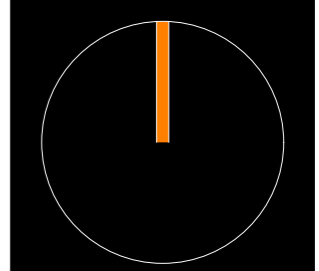
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REV :
1. : 14/12/23 WW&SW Trenches

JOB : PROPOSED
DWELLING & SHED

AT : 1C KADINA ROAD
CAMBRIDGE

FOR : PHIL JONES

DRAWING TITLE :
SITE PLAN

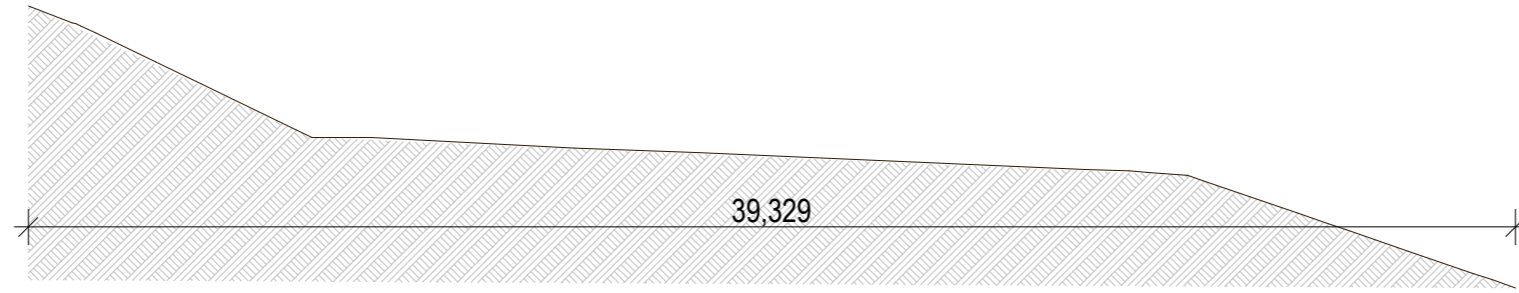
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MJD	3.11.2023	02
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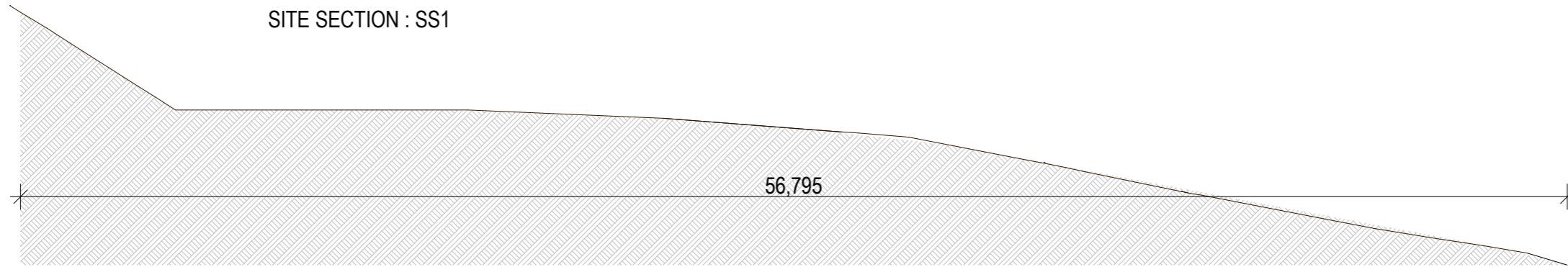
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NATURAL ASSETS CODE OVERLAY
(WATERWAYS & COASTAL PROTECTION AREA)

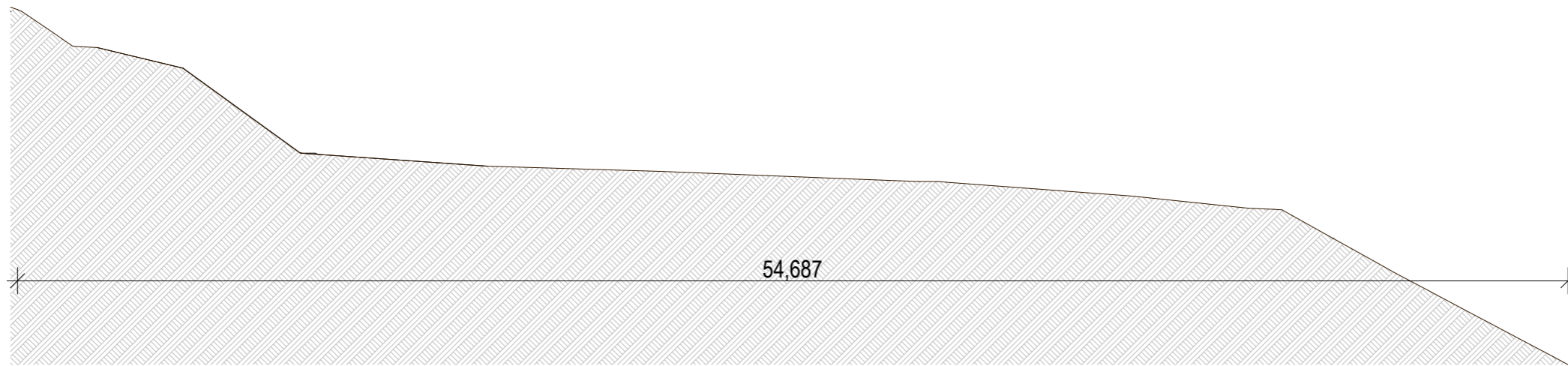
REFER SITE PLAN



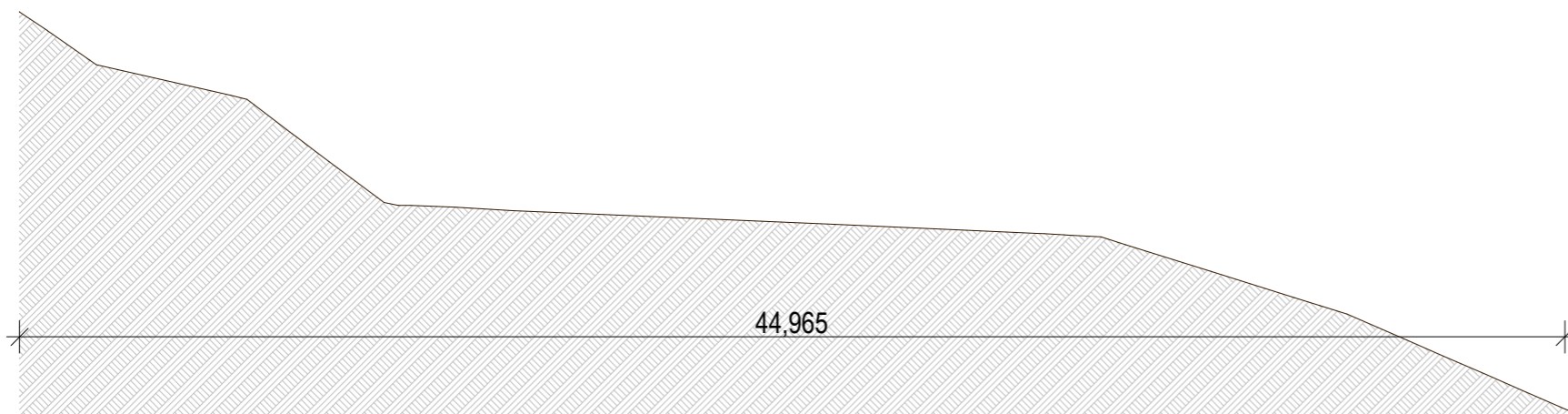
SITE SECTION : SS1



SITE SECTION : SS2



SITE SECTION : SS3



SITE SECTION : SS4

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JOB : PROPOSED
DWELLING & SHED

AT : 1C KADINA ROAD
CAMBRIDGE

FOR : PHIL JONES

DRAWING TITLE :

SITE SECTIONS

DRAWN: MJD	DATE: 3.11.2023	DWG NO. : 03
SCALE:A3 1:200	ISSUE: DA	

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BUILDER MUST VERIFY ALL DIMENSIONS AND LEVELS
PRIOR TO COMMENCING CONSTRUCTION

USE WRITTEN DIMENSIONS-DO NOT SCALE

ALL CONSTRUCTION WORK SHALL BE CARRIED OUT IN
ACCORDANCE WITH THE STATE BUILDING REGULATIONS
LOCAL COUNCIL BY-LAWS AND CURRENT NCC



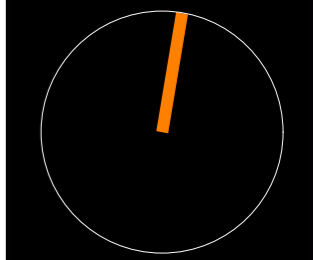
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JOB : PROPOSED
DWELLING & SHED

AT : 1C KADINA ROAD
CAMBRIDGE

FOR : PHIL JONES

DRAWING TITLE :

**PROPOSED
FLOOR PLAN**

DRAWN:	DATE:	DWG NO. :
MJD	3.11.2023	
SCALE:A3	ISSUE:	04
1:200	DA	



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BUILDER MUST VERIFY ALL DIMENSIONS AND LEVELS
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USE WRITTEN DIMENSIONS-DO NOT SCALE

ALL CONSTRUCTION WORK SHALL BE CARRIED OUT IN
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LOCAL COUNCIL BY-LAWS AND CURRENT NCC

PRELIMINARY COLOUR SELECTION

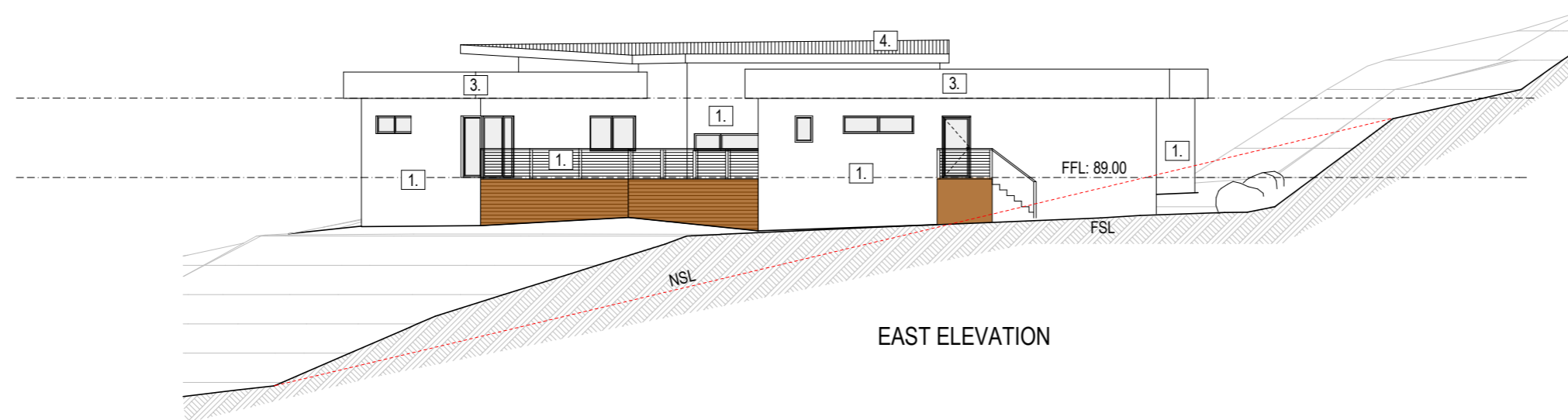
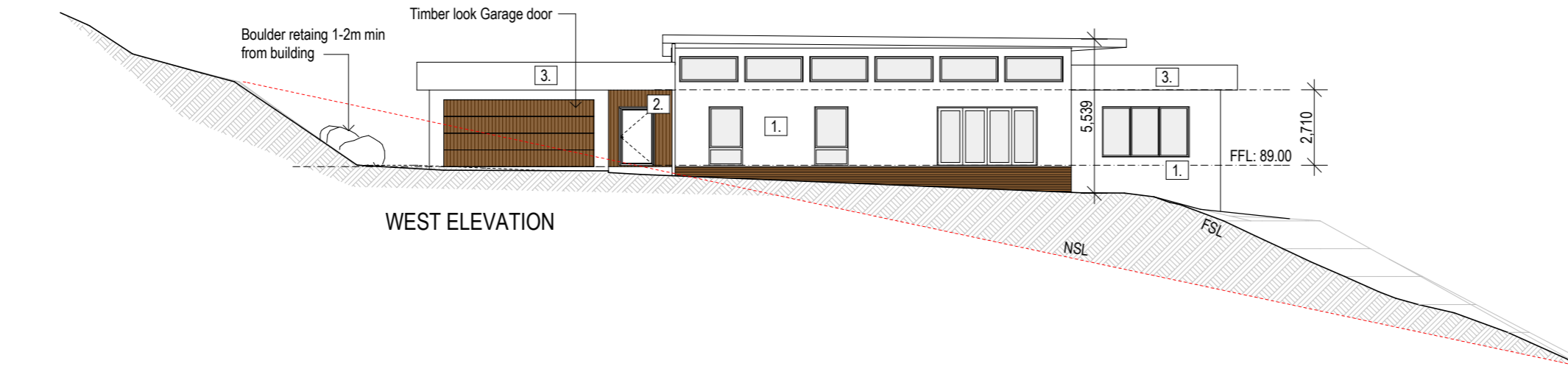
WALLS - 1. RENDERED AIRATED BLOCK. CB MONUMENT OR CB BASALT

2. SELECTED VERTICAL TIMBER (BAL 19)

PARAPET - 3. CB NIGHT SKY

ROOF - SHEET CB NIGHT SKY

Exterior building surfaces shall be coloured using colours with a light
reflectance value not greater than 40 percent.



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JOB : PROPOSED
DWELLING & SHED

AT : 1C KADINA ROAD
CAMBRIDGE

FOR : PHIL JONES

DRAWING TITLE :

**PROPOSED
ELEVATIONS**

DRAWN: MJD	DATE: 3.11.2023	DWG NO. : 05
SCALE:A3 1:200	ISSUE: DA	



BUILDER MUST VERIFY ALL DIMENSIONS AND LEVELS
PRIOR TO COMMENCING CONSTRUCTION

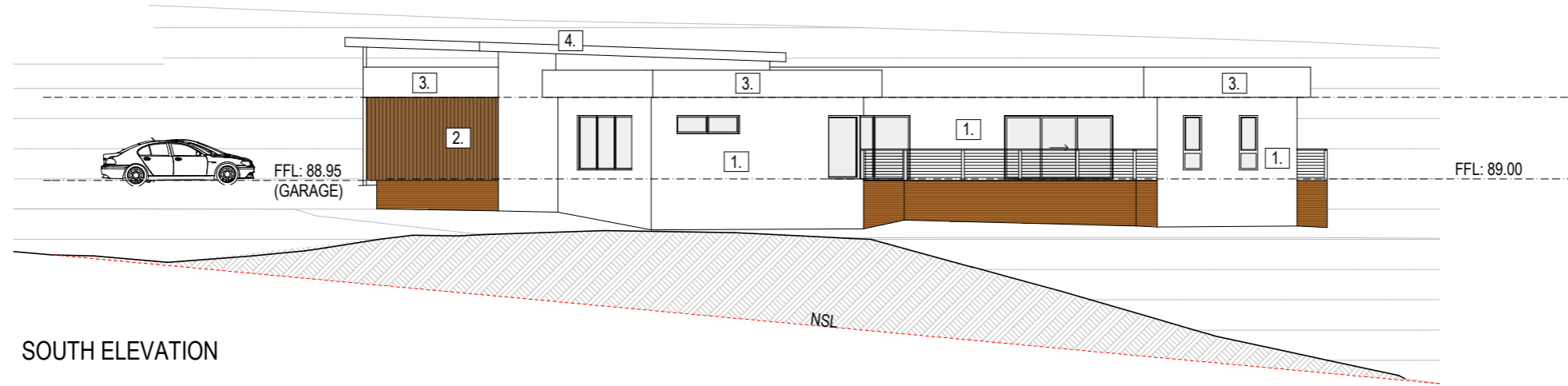
USE WRITTEN DIMENSIONS-DO NOT SCALE

ALL CONSTRUCTION WORK SHALL BE CARRIED OUT IN
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LOCAL COUNCIL BY-LAWS AND CURRENT NCC

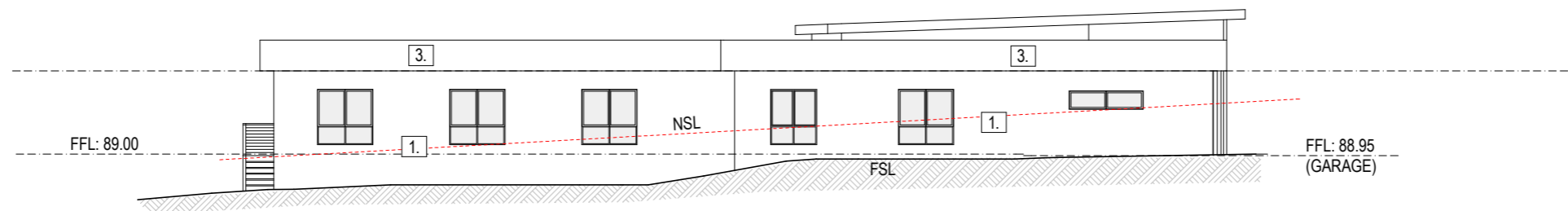
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- 2. SELECTED VERTICAL TIMBER (BAL 19)
- 3. PARAPET - RENDERED OR PAINTED SHEET CB NIGHT SKY
- 4. ROOF - SHEET CB NIGHT SKY

Exterior building surfaces shall be coloured using colours with a light
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SOUTH ELEVATION



NORTH ELEVATION

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JOB : PROPOSED
DWELLING & SHED

AT : 1C KADINA ROAD
CAMBRIDGE

FOR : PHIL JONES

DRAWING TITLE :

**PROPOSED
ELEVATIONS**

DRAWN: MJD	DATE: 3.11.2023	DWG NO. :
SCALE:A3 1:200	ISSUE: DA	06



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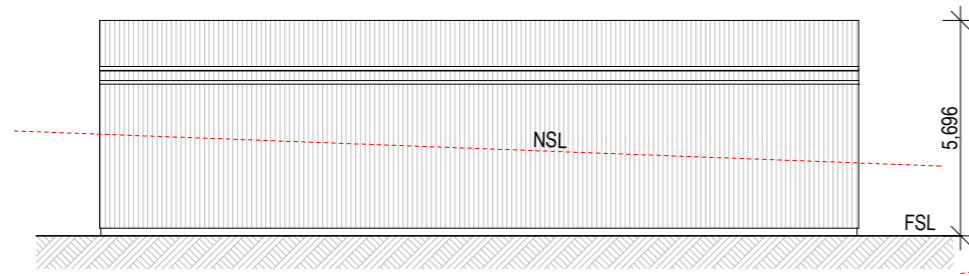
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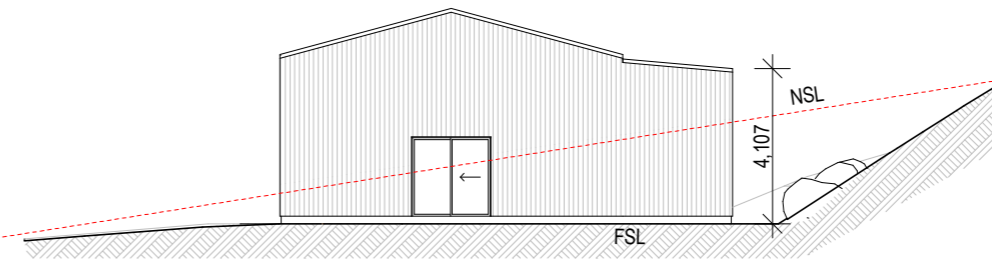
BUILDER MUST VERIFY ALL DIMENSIONS AND LEVELS
PRIOR TO COMMENCING CONSTRUCTION

USE WRITTEN DIMENSIONS-DO NOT SCALE

ALL CONSTRUCTION WORK SHALL BE CARRIED OUT IN
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LOCAL COUNCIL BY-LAWS AND CURRENT NCC



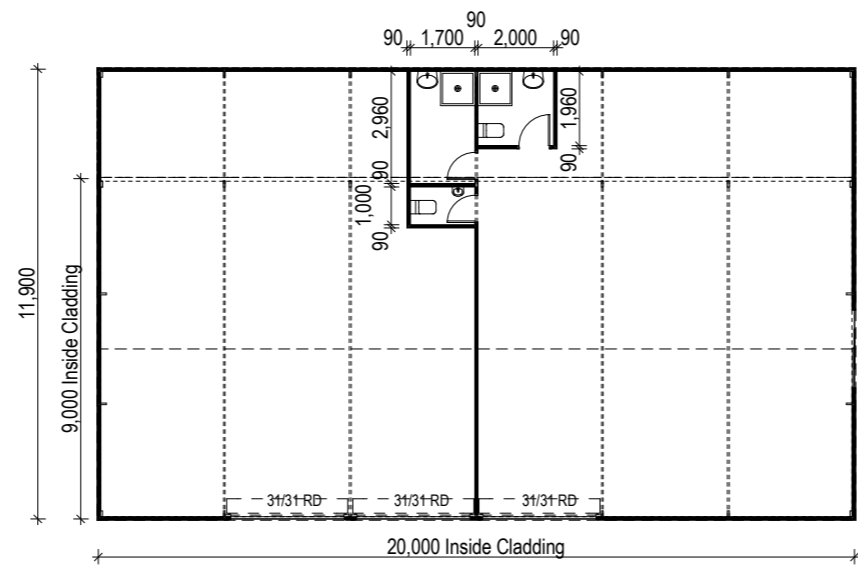
NORTH ELEVATION



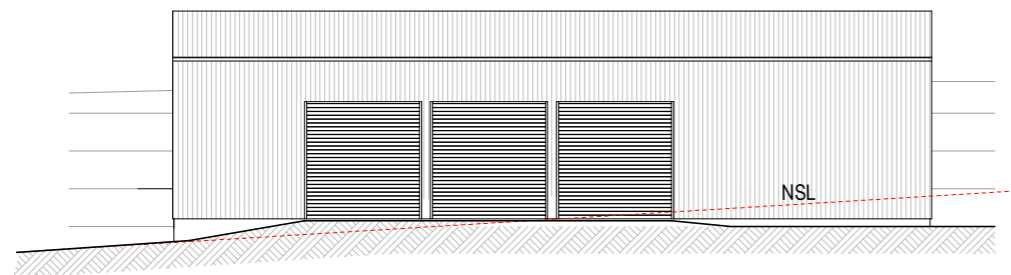
EAST ELEVATION

PRELIMINARY COLOUR SELECTION
WALLS - CB MONUMENT OR CB BASALT
ROOF - SHEET CB NIGHT SKY

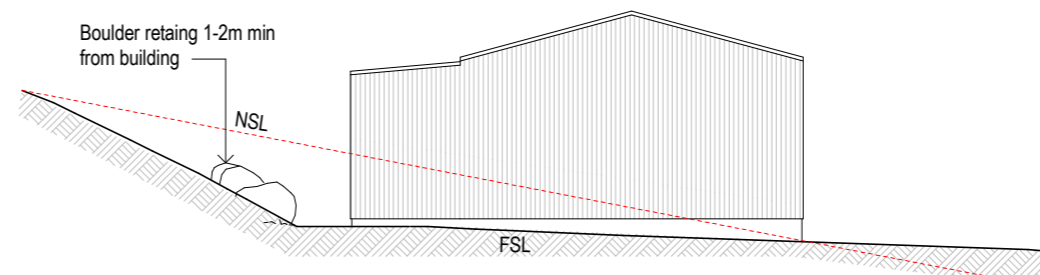
Exterior building surfaces shall be coloured using colours with a light
reflectance value not greater than 40 percent.



SHED PLAN
1.200



SOUTH ELEVATION



WEST ELEVATION

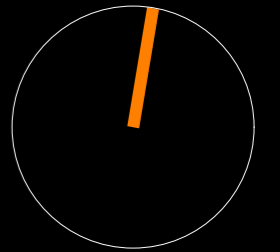
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JOB : PROPOSED
DWELLING & SHED

AT : 1C KADINA ROAD
CAMBRIDGE

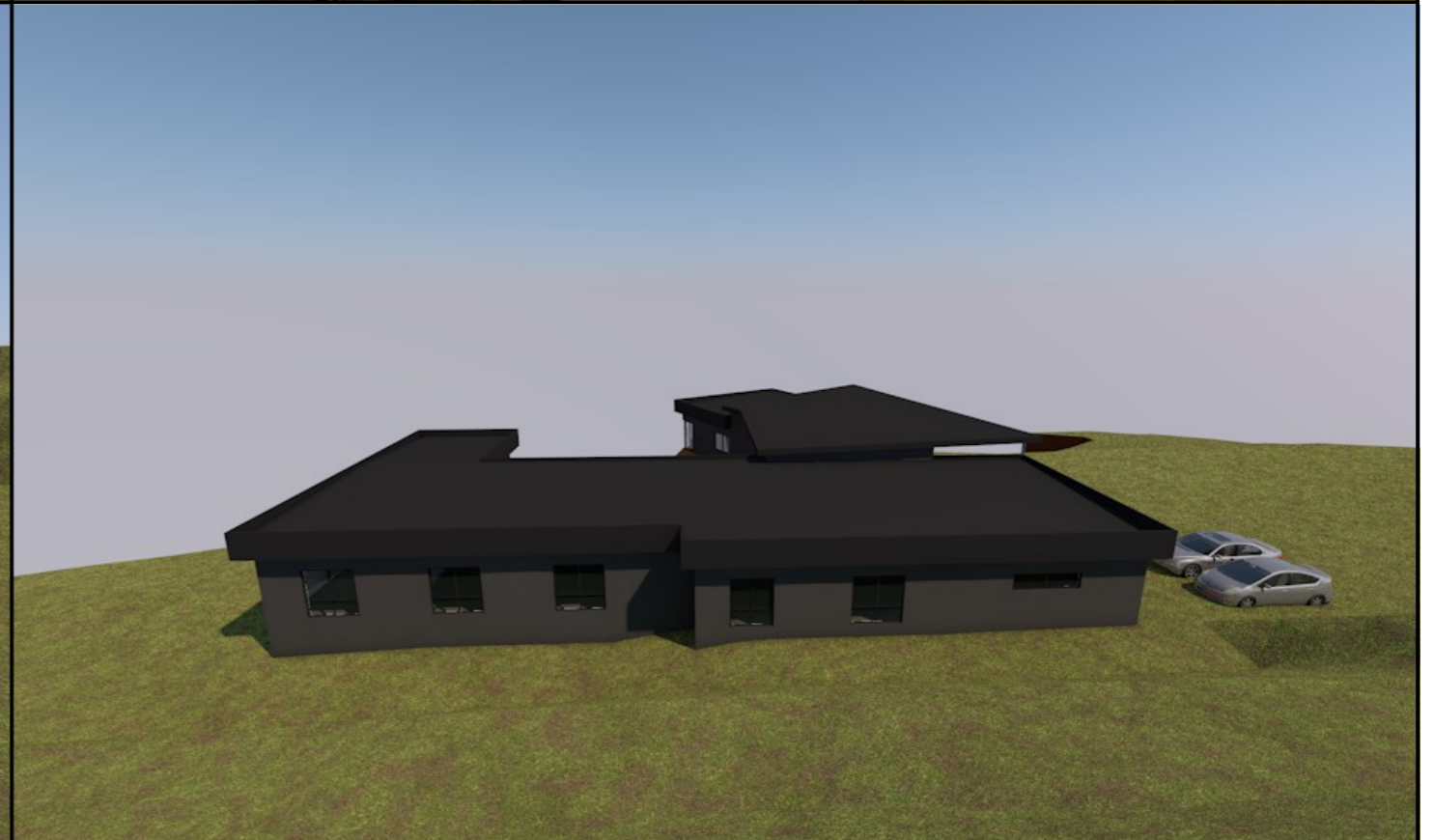
FOR : PHIL JONES

DRAWING TITLE :

PROPOSED SHED

DRAWN: MJD	DATE: 3.11.2023	DWG NO. : 07
SCALE:A3 1:200	ISSUE: DA	





JOB: PROPOSED NEW DWELLING & SHED
ADDRESS: 1C KADINA ROAD CAMBRIDGE
DRAWING TITLE: PROPOSED 3D PERSPECTIVES
CLIENT : PHIL JONES
TITLE REF:

Belinda Weston
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PROPOSED DWELLING 1C KADINA ROAD CAMBRIDGE

DRAWING INDEX

C001	DRAWING INDEX
C002	GENERAL NOTES 1
C003	GENERAL NOTES 2
C004	SAFETY IN DESIGN
C100	OVERALL SITE PLAN
C101	SITWORKS PLAN 1
C102	SITWORKS PLAN 2
C103	SITWORKS PLAN 3
C104	LONGITUDINAL SECTION - PLAN1
C105	LONGITUDINAL SECTION - PLAN2
C106	LONGITUDINAL SECTION - PLAN3
C107	CROSS SECTIONS PLAN 1
C108	CROSS SECTIONS PLAN 2
C109	CROSS SECTIONS PLAN 3
C110	CROSS SECTIONS PLAN 4
C111	CROSS SECTIONS PLAN 5
C112	CROSS SECTIONS PLAN 6
C113	CROSS SECTIONS PLAN 7
C114	CROSS SECTIONS PLAN 8
C115	CROSS SECTIONS PLAN 9
C116	CROSS SECTIONS PLAN 10
C117	DETAILS

LEGEND

• 9.60	Existing surface level (surveyed)
• 9.60 EX	Existing surface level (interpolated)
• 9.80	Proposed bulk earthworks level
• 9.80	Proposed finished surface level
— EX W — EX W — EX W —	Existing water supply external to building
— W — W — W —	Proposed water supply external to building
— EX FS — EX FS — EX FS —	Existing fire supply
— FS — FS — FS —	Proposed fire supply
— EX S — EX S — EX S —	Existing sewer drain
— S — S — S —	Proposed sewer drain
— GW — GW — GW —	Proposed sewer drain (greasy waste)
— TW — TW — TW —	Proposed sewer drain (trade waste)
— EX SW — EX SW — EX SW —	Existing stormwater drain
— SW — SW — SW —	Proposed stormwater drain

REV	DESCRIPTION	DATE	CLIENT:	SHEET:	DRAWN:	DESIGNED:	VERIFIED:	DATE:
0	BUILDING APPROVAL	7/04/24	JONES	DRAWING INDEX	NE	NE	-	7/04/24
			ADDRESS:	PROJECT NAME:	SCALE:	N.T.S	SIZE:	A3
			1C KADINA ROAD CAMBRIDGE	NEW DWELLING	S&E REF:	24098	DRAWING:	C001
				BUILDING APPROVAL	ISSUE:		REVISION:	0

Saltmarsh & Escobar Consulting Engineers
S & E
 Leigh 0400 024 463
 Noe 0416 074 935
 info@sandne.com

GENERAL

1. These drawings shall be read in conjunction with all other contract drawings and specifications. Any discrepancies shall be referred to S&E for clarification.
2. Setting out dimensions and levels shown on the drawings shall be verified by the Contractor prior to commencement.
3. Dimensions shall not be obtained by scaling these drawings.
4. During construction the Contractor shall maintain excavations and structures in a stable condition and ensure that no part is overstressed under construction activities.
5. The contractor is responsible for the creation and maintenance of temporary site accesses. Strengthening of design pavements to carry construction vehicles (in excess of the design allowance) shall be at the contractor's expense.
6. Location and verification of existing services is the contractor's responsibility. Refer any services discovered onsite which are not shown on the drawings, or are in a different location to that shown to S&E. Seek confirmation from S&E that redundant services are able to be sealed and abandoned prior to doing so.
7. Protect all existing services and other infrastructure from damage during construction. Should damage occur, advise S&E immediately along with details of proposed remedial action. The cost of remedial work (including redesign if required) shall be borne by the contractor.
8. The contractor is responsible for undertaking whatever dilapidation surveys of existing buildings/infrastructure they consider necessary prior to construction commencing, and consultation with adjoining land owners to minimise disruption to services/access etc. during construction.
9. All surplus construction materials (including excess cut and fill material) shall be removed from the site (unless instructed otherwise) at completion.
10. Survey information has been supplied by Leary & Cox Surveyors for the purposes of preparing the design drawings. All other survey required to setout and construct the works shall be provided by the contractor.
11. All works are to be undertaken by the contractor and his subcontractors unless noted otherwise on the drawings.
12. Proposed changes to the design of any part of the works shall be submitted to S&E for review. The contractor shall bear all costs associated with the design change.
13. On completion, the contractor is to supply as-constructed drawings (prepared by a licensed surveyor in accordance with AS1100.401) and full service manual in both hard copy (3 sets) and electronic (.pdf and .dwg) formats.
14. The contractor is to allow for all testing of raw materials and constructed works that is required to demonstrate compliance with the nominated Australian Standards, specifications, and standard drawings.

EARTHWORKS

- E1. All earthworks shall be in accordance with AS3798 "Guidelines on earthworks for commercial and residential developments" with testing methods in accordance with AS1289 "Methods of testing soils for engineering purposes".
- E2. All existing topsoil, vegetation and debris under the building and paved areas shall be stripped to a minimum of 300mm unless noted otherwise. Top soil to be stockpiled as directed, and vegetation and debris removed from site unless noted otherwise. Tree stumps shall be grubbed and holes filled with approved compacted fill.
- E3. For excavation purposes, rock is defined as hard or strongly cemented beds or masses which cannot be ripped at a production rate exceeding 3 m³ per hour using a standard 20 tonne excavator attached with a rock breaker.
- E4. Any interface between cut and fill shall be no steeper than 1V:3H. Cut horizontal benches for any fill placed on ground steeper than 1V:3H.
- E5. All excavations shall be inspected by the Engineer and/or the Local Authority before proceeding any further. Inspection and testing shall occur after each lift during filling. Testing (in accordance with Table 8.1 of AS3798.1) shall be arranged by the contractor such that results are available at time of inspection.
- E6. Subgrade shall be compacted to achieve 98% standard density ratio for cohesive soil, and 75% density index for cohesionless soil. Prior to filling, subgrade is to be proof roll tested. All proof roll testing is to be witnessed by the Engineer. The test shall consist of witnessing soil deflection from the tyre of a single rear axle truck driven at walking speed with a minimum 8 tonne rear axle load and a tyre pressure of 550 kPa. The allowable deflection of subgrade shall not be more than is just visible to an observer standing still as the test vehicle passes, and no visible movement is allowed for sub-base and base tests. Other vehicles that may be allowed by the Engineer are a 12 tonne static roller with 6 tonne/m load, or 20 tonne plant with 450 kPa tyres and greater than 0.035 m² contact area per tyre.
- E7. Fill shall be placed in horizontal layers of 200 to 300 mm deep loose measurement, unless testing can demonstrate to the Engineer that compaction is adequate within larger lifts. Compact each layer of fill within 1% of its optimum moisture content. Maximum particle size is two thirds depth of each lift. Each layer is to be proof roll tested, using nuclear density testing as directed to achieve 98% standard density ratio. For material 60 mm and courser, in-lieu of density testing a test by deflection to done using spot level difference at representative locations before and after rolling three times with 12 tonne roller, with acceptable differences being less than 2 mm.
- E8. Cohesionless (granular) fill to be used unless otherwise approved by the Engineer. Cohesionless (granular) fill to have less than 15% passing the 75 micron sieve, with grading curves submitted for approval. Cohesionless fill shall be compacted to the requirements of Table 5.1 of AS3798. Cohesive fill shall have a minimum 4 day soaked CBR of 5% and a maximum CBR swell of 1%. Minimum standard density ratios for cohesive material shall be as per Table 5.1 of AS3798. Reactive clay shall have a maximum standard density ratio of 100%. Landscaping zones should be compacted to standard density ratio of 85% unless noted otherwise.

ROADWORKS

- R1. All works to be in accordance with Local Government Association Tasmania - IPWEA standard drawings.
- R2. It is assumed roads accessing the development site are adequate to take the design traffic load during the design life of 40 years.
- R3. Pavement depth shall be as shown on the typical cross section but shall be subject to CBR testing of subgrade or proof rolling, with final depth shall be confirmed by the Engineer.
- R4. Kerb and channel shall be formed on a minimum of 100mm sub-base (see note R7) which shall extend a minimum 150 mm beyond the back of the kerb.
- R5. Subsoil drains shall be formed as shown on the drawings and in accordance with AS/NZS3500.
- R7. All radii are to the back of kerb.
- R8. The road profile and cross-fall shall be finished to the satisfaction of the Engineer and shall be to line and level indicated on the drawings, free of any local high or low areas which may hold water.
- R9. All gravel to comply with the following DIER specifications:
 Base course: R40 class A - 19 mm Fine Crushed Rock (FCR)
 Sub-base course: Sub-base 1 - 40 mm FCR
- R10. Sub-base shall have a minimum modified density ratio of 95% and base to have a minimum modified density ratio of 98%, with nuclear density test results available at proof roll inspection. Tests to be taken at a frequency based on AS3798 (typically the greater of four tests per inspection or one test per 1000 m³).
- R11. Proof roll shall be with a Truck using a single rear axle, tyres at 550 kPa, and the load over rear axle shall be 8 tonnes.
- R12. All landscaped areas affected by the works are to be reinstated to match existing. Refer Landscape Architect for specific requirements.
- R13. Concrete footpaths and driveways are to be constructed to the Municipal Standard drawings unless noted otherwise.

APPROVALS

1. Prior to construction commencing, the Contractor is responsible for ensuring that a valid building and engineering permit is in place for the work & that the relevant authorities are notified and allowed to inspect at the nominated hold points.
2. Unless nominated otherwise, the following inspection regime is to be adopted:
 - Road formations:
Inspection of subgrade, subbase and base lifts, kerbing and seal undertaken by S&E;
 - Stormwater:
Inspection of stormwater infrastructure to be owned by the local council undertaken by the local council;
 - Sewer and water:
Sewer and water infrastructure to be owned by TasWater inspected and self certified by civil contractor or their subcontractor;
 - As-built services surveys
Water, sewer, stormwater surveys undertaken by contractor's licensed surveyor (depth of water reticulation recorded prior to backfilling);
 - Installation of other in-ground services
Power, communications, gas etc. undertaken by the relevant managing authority.
3. A minimum of 24 hours notice is required for S&E to attend the site. Do not rely upon facsimile or email to communicate requests - make contact with our office to confirm attendance.
4. Inspection of road formations may involve proof rolling with a test vehicle. Confirm with S&E and ensure a suitable vehicle is available at the time of inspection.
5. Photographic documentation is not an adequate basis to proceed beyond a hold point unless approved by S&E.

REV	DESCRIPTION	DATE	S & E		CLIENT:	SHEET:	DRAWN:	DESIGNED:	VERIFIED:	DATE:
0	BUILDING APPROVAL	7/04/24	Saltmarsh & Escobar Consulting Engineers Leigh 0400 024 463 Noe 0416 074 935 info@lsandne.com		JONES	GENERAL NOTES 1	NE	NE	-	7/04/24
					ADDRESS:	PROJECT NAME:	N.T.S	A3		
					1C KADINA ROAD CAMBRIDGE	NEW DWELLING	S&E REF:	DRAWING:	REVISION:	
					BUILDING APPROVAL	24098	C002	0		

STORMWATER

- SW1. All works to be in accordance with Local Government Association Tasmania - IPWEA standard drawings.
- SW2. All materials and workmanship shall be in accordance with the local authority's specifications, standard drawings, by-laws and AS/NZS3500.
- SW3. Pipe and channel infrastructure has been designed to convey 20 year average recurrence interval (ARI) storms, with overland flow paths provided for 100 year ARI storms. It is assumed that water flowing onto the development site is contained within Local Authority infrastructure for 20 year ARI storms and the road reserve for 100 year ARI storms. For storms up to 24 hours duration, an allowance of 25% extra rainfall intensity has been made due to protected future climate change in Tasmania (above the 30-years-to-1983 intensities compared to projected ones in approximately 2080).
- SW4. Stormwater trenches, pipe bedding and back filling to comply with the Concrete Pipe Association of Australia installation requirements for type HS2 support.
- SW5. Below ground pipework and fittings to be PVC-U SWHD, joints shall be of solvent cement type or flexible joints made with approved rubber rings.
- SW6. Minimum grade of paved areas and pipework shall be 1 in 100. Paved areas ideally shaped to drain to grated pits and trenches without ponding (acceptable limit is 3 mm under a 2 m straight edge).
- SW7. Surface water drains, catchpits/grated pits, and junction boxes shall be constructed as detailed or as specified by the manufacturer. Grated pits to have 150 mm sumps. Pits and lids to be Class A in non-trafficked areas, and pre-cast concrete Class C elsewhere. Convey trench water into pits/manholes through weep holes on upstream side using 2 m of DN100 ag-drain with filter sock.
- SW8. Install all agricultural drains to the requirements of AS/NZS3500 and part 3.1.2. of the BCA.
- SW9. All hydraulic connections and tapings to be clear of driveways and trafficked areas.
- SW10. Where both stormwater and sewer lines are along rear and side boundaries they shall be located to fit inside a 3.0 m easement unless noted otherwise. A single line shall fit within a 2.0 m easement.
- SW11. All manholes to be located clear of future fencelines.
- SW12. Property connections to be clear of driveways and clear of future fencelines.

SEWER

- S1. All works in accordance with the Sewerage Code of Australia W.S.A. 02-2002-2.3 M.R.W.A. Edition - Version 1 and TasWater's Supplement (Draft 05 issued May 2013).
- S2. Property connections to be DN100 PVC-U with a minimum grade of 1 in 60. (Refer above code WSAA SEW-1106). To be located clear of trafficked areas, driveways and fences.
- S3. Where both stormwater and sewer lines are along a rear or side boundary they shall be located in an easement that wholly contains both services. Refer TasWaters Supplement Clause 4.2.5. and Clause 4.4.5.2 for clearances to other services.
- S4. All manholes to be located clear of future fence lines with end of lines to be 1.2 m past the boundary for any future extension. Refer Clause 4.3.6.

WATER

- W1. All works in accordance with the Water Supply Code of Australia W.S.A. 03-2011-3.1 M.R.W.A. Edition - Version 2 and TasWater's Supplement (Draft 03 issued May 2013)
- W2. Single house connections to be DN25 HDPE class 16 to TasWater's standard drawing TW-SD-W-20 series with meter, backflow device and box to each lot. Located 500 mm inside boundary and 500 mm from edge of driveway on middle side of lot.
- W3. All water mains to be tested and witnessed by the relevant water corporation inspector to static pressure plus 50% prior to backfilling.
- W4. All hydraulic connections and taping to be clear of driveways and trafficked areas.
- W5. For minimum cover over pipes refer to Clause 7.4.2 of the above Supplement.
- W6. All trenches under trafficked areas to be back filled with approved compacted FCR including future driveway extensions.
- W7. Flushing of mains to be carried out in accordance with the manufacturer's recommendations.
- W8. Electromagnetic tracker tape to be placed in all water main trenches above the pipe.
- W9. Taping and takeoffs to be separated by at least 1000 mm.
- W10. Water mains to be bedded on 80 mm approved 7 mm clean metal.
- W11. Concrete anchor blocks to be provided at all sudden changes of direction, both vertically and horizontally at tees and end of lines. Refer to above code drawings MRWA-W-205B and MRWA-W-205C.
- W12. Road crossings:
DN100 PVC-U conduits for all HDPE.
DICL with PE wrapping sleeve as per City West Water approved products catalogue.
- W13. For valve and hydrant surface box markings refer to Clause 8.10.3 of the above Supplement. Hydrant road markings to comply with the Institute of Municipal Engineering Australia Tasmania Division document titled Fire Hydrant Guidelines - refer section 8. All valves and hydrants to be resilient seated powder coated class 16 and all components to be DN100.

RETAINING WALLS

- RW1. Retaining walls shall be constructed in accordance with AS4678-2002.
- RW2. Backfill to walls shall be an approved granular material (clay shall not be used). A 300mm wide free draining drainage layer shall be provided behind the wall.
- RW3. Provide a suitable waterproofing system to the rear of the wall, unless confirmed otherwise.
- RW4. The wall shall be drained with 100mm slotted PVC pipe installed at 1% fall (minimum) and be connected to the stormwater disposal system (or weepholes installed at the base where appropriate).
- RW5. The Contractor shall maintain excavated batters at a stable slope and provide shoring to steeper excavations until construction and backfilling of the wall is complete.
- RW6. Retaining walls that rely on other structural elements for stability shall be provided with temporary support until after these elements have been constructed.
- RW7. The Contractor shall allow a suitable curing period prior to backfilling. Backfilling shall be performed in a controlled manner which will not impose excessive stress on the wall.

CONCRETE

- C1. All workmanship and materials shall be in accordance with AS3600.
- C2. Concrete grades (UNO on drawings) :

ELEMENT	Grade
General	N25
Footings	N20
Blinding	N15
Pavement	N25
- C3. Concrete shall not be poured when the site temperatures are below 5°C.
- C4. Concrete shall be cured by continuous wetting (water spray, ponding or irrigated hessian) or application of an impermeable membrane (secured plastic or curing compound) for an appropriate period of time (not less than 3 days). In hot dry and windy weather spray the surface with aliphatic alcohol while concrete is plastic, water cure for at least 24 hours then cover with impermeable membrane (or continue to water cure) for a further 2 days.
- C5. Construction joints shall be properly formed and used only where shown or specifically approved by the Engineer. Sawn joints shall be cut one third of the way through a slab, through the top mesh for 100 mm slabs and in thicker slabs the mesh shall be placed to avoid being cut. Unless noted elsewhere, sawn joints shall be at 6 m centres at points of changes in geometry and construction joints at 24 m, with jointed areas to have a plan aspect ratio no slenderer than 1:2.
- C6. Cover to reinforcement shall be 40 mm for slabs and 50 mm for footings.
- C7. Reinforcement shall be deformed, 500 MPa yield strength, normal (N) ductility in accordance with AS/NZS4671 for bars and low (L) ductility for mesh.
- C8. Formwork shall be designed and constructed in accordance with AS3610, and is the responsibility of the contractor.
- C9. All steel items to be cast into the concrete surface shall be hot dip galvanised.

REV	DESCRIPTION	DATE		CLIENT:	SHEET:	DRAWN:	DESIGNED:	VERIFIED:	DATE:
0	BUILDING APPROVAL	7/04/24	Saltmarsh & Escobar Consulting Engineers Leigh 0400 024 463 Noe 0416 074 935 info@lsandne.com	JONES	GENERAL NOTES 2	NE	NE	-	7/04/24
				ADDRESS:	PROJECT NAME:	N.T.S		A3	
				1C KADINA ROAD CAMBRIDGE	NEW DWELLING	S&E REF:		DRAWING: REVISION:	
					BUILDING APPROVAL	24098		C003 0	

CONSTRUCTION RISK ASSESSMENT

THIS CONSTRUCTION RISK ASSESSMENT IS TO HIGHLIGHT TO THE BUILDER, SUB CONTRACTORS AND SUB CONSULTANTS THE MAIN RICK FACTORS IN UNDERTAKING THE CONSTRUCTION OF THE WORKS TO WHICH THESE NOTES FORM PART OF THE WORKING DRAWINGS.

THIS ASSESSMENT IN NOT EXHAUSTIVE AND THE BUILDER IS TO UNDERTAKE THEIR OWN SIMILAR ASSESSMENT AND MAINTAIN APPROPRIATE RISK MANAGEMENT ACTIVITIES FOR THE DURATION OF THE CONSTRUCTION PERIOD.

IT IS THE BUILDER RESPONSIBILITY TO ENSURE ALL PERSONNEL THAT ENTER THE CONSTRUCTION SITE ARE BRIEFED ON THE SPECIFIC SAFETY HAZARDS AND RISKS ASSOCIATED WITH THE DAILY ACTIVITIES.

WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT WORK AND WORK AND HEALTH SAFETY REQUIREMENTS.

THIS SITE SPECIFIC RISK ASSESSMENT ASSIGNS A RISK RATING ACCORDING TO THE FOLLOWING MATRIX. THIS ASSIGNS THE MAIN CONSTRUCTION TASK A LIKELIHOOD (L), SEVERITY (S) AND RESULTING RISK RATING (R).

LSCE HAS TO THE BEST OF THEIR ABILITY, UNDERTAKEN TO IDENTIFY POTENTIAL CONSTRUCTION HAZARDS AND MINIMIZE THE RISK POTENTIAL TO THOSE INVOLVED WITH THE CONSTRUCTION OF THESE WORKS.

		Severity (S)				
		H	Fatality, major injury causing long term disability	M	Injury or illness causing short term disability	L
Likelihood (L)	H	Certain or near certain	3	3	2	1
	M	Reasonably likely	3	2	1	1
	L	Very seldom	2	1	1	1

Risk Rating (R)

- 3 High risk Action required by contractor to mitigate or eliminate risk.
- 2 Medium risk Action required by contractor to reduce risk.
- 1 Low risk No direct action required by the contractor.

Hazard risk register and design safety response						Before control		After control		Controlled Risk Rating	Drawing number(s)
Category	Hazard (factor/event)	Consequence Description	Likelihood	Consequence	Uncontrolled Risk Rating	Control Measure	Control type	Likelihood	Consequence		
DEMOLITION (prior to construction)											
General	Working at heights	Fall leading to serious injury and/or fatality	Possible	Extreme	H	Work in accordance with Safe Work Australia Codes of Practice: Preventing Falls in Housing Construction, Managing the Risk of Falls in the Workplace	Administration	Rare	Extreme	M	
	Plant & equipment	Serious injury and/or fatality to workers, public	Possible	Extreme	H	Work in accordance with Safe Work Australia Code of Practice: Managing Risks of Plant in the Workplace	Engineering	Rare	Extreme	M	
	Contamination / Hazardous substances	Serious injury and/or fatality to workers, public	Unlikely	Extreme	H	Undertake contamination investigation/audit. Work in accordance with Safe Work Australia Code of Practice: Demolition Work	Isolation	Rare	Extreme	M	
	Erosion	Uncontrolled erosion pollutes stormwater systems and/or watercourses downstream	Likely	Minor	M	Install erosion protection and follow Stormwater Management Plan (SWMP)	Engineering	Rare	Minor	L	
Existing Services	Stormwater services	Damage to existing service	Possible	Minor	L	Dial before you dig (1100) & locate existing services on site prior to commencing work. Work in accordance with local authority guidelines & Safe Work Australia Code of Practice: Demolition Work	Isolation	Rare	Minor	L	
	Sewer services	Damage to existing service	Possible	Minor	L	Dial before you dig (1100) & locate existing services on site prior to commencing work. Work in accordance with local authority guidelines & Safe Work Australia Code of Practice: Demolition Work	Isolation	Rare	Minor	L	
	Water supply	Damage to existing service and injury to worker and/or undermining of adjacent structure	Possible	Extreme	H	Dial before you dig (1100) & locate existing services on site prior to commencing work. Work in accordance with local authority guidelines & Safe Work Australia Code of Practice: Demolition Work	Isolation	Extremely Rare	Extreme	L	
	Electrical services	Electrocution and serious injury/fatality	Possible	Extreme	H	Dial before you dig (1100) & locate existing services on site prior to commencing work. Work in accordance with local authority guidelines & Safe Work Australia Code of Practice: Demolition Work	Isolation	Extremely Rare	Extreme	L	
CONSTRUCTION											
General	Working at heights	Fall leading to serious injury and/or fatality	Possible	Extreme	H	Work in accordance with Safe Work Australia Codes of Practice: Preventing Falls in Housing Construction, Managing the Risk of Falls in the Workplace	Administration	Rare	Extreme	M	
	Plant & equipment	Serious injury and/or fatality to workers, public	Possible	Extreme	H	Work in accordance with Safe Work Australia Code of Practice: Managing Risks of Plant in the Workplace	Engineering	Rare	Extreme	M	
	Contamination/hazardous substances	Serious injury and/or fatality to workers, public	Unlikely	Extreme	H	Undertake contamination investigation/audit. Work in accordance with Safe Work Australia Code of Practice: Demolition Work	Isolation	Rare	Extreme	M	
	Construction loading	Construction loads (due to traffic, back propping etc.) on structures exceed design load allowances, collapse, serious injury and/or fatality	Unlikely	Extreme	H	Limit construction loads to the documented design loads. Develop and implement site specific traffic management plan and direct traffic on site	Administration	Rare	Extreme	M	
	Manual handling of heavy materials & equipment	Major injury	Possible	Major	H	Make sure to use proper lifting techniques, Use appropriate lifting equipment and adhere to recognised safe work procedures.	Administration	Rare	Major	L	
	Use of vibrating equipment (jack breaker, vibrating roller etc.) adjacent to existing building/infrastructure	Damage to neighbouring property, possible minor injury	Possible	Major	H	Dilatation survey prior to work starting, use appropriate sized plant and monitor neighbouring property	Administration	Rare	Major	L	
	Construction in confined spaces	Entrapment, suffocation leading to serious injury and/or fatality	Possible	Extreme	H	Entry to confined spaces by permit only and by trained personnel. Work in accordance with Safe Work Australia Code of Practice: Confined Spaces	Administration	Extremely Rare	Extreme	L	
	Construction traffic	Uncontrolled site traffic entering and leaving site causes serious injury/fatality	Unlikely	Extreme	H	Develop and implement site specific traffic management plan and direct traffic on site	Administration	Rare	Extreme	M	
	Working in remote or extreme environment	Unreliable or infrequent access to essential services and supplies in the event of an emergency	Unlikely	Extreme	H	Develop and implement site specific disaster plan, including communication and transport plans	Administration	Extremely Rare	Extreme	L	
Excavation	Extreme weather/natural disaster	High winds, earthquakes, bushfire etc. makes site unsafe. Serious injury/fatality	Unlikely	Extreme	H	Prepare site and monitor weather, and secure site and evacuate in a timely manner as required.	Administration	Extremely Rare	Extreme	L	
	Deep excavations (>1.5m deep)	Collapse of excavation leading to serious injury and/or fatality	Possible	Extreme	H	Work in accordance with Safe Work Australia Code of Practice: Excavation Work. Engage a Temporary Works Engineer to provide specific shoring advice.	Engineering	Extremely Rare	Extreme	L	
	Shallow excavations (<1.5m deep)	Collapse of excavation, serious injury	Possible	Moderate	M	Work in accordance with Safe Work Australia Code of Practice: Excavation Work.	Administration	Extremely Rare	Moderate	L	
	Steep slopes	Collapse of excavation leading to serious injury and/or fatality	Possible	Extreme	H	Work in accordance with Safe Work Australia Code of Practice: Excavation Work. Engage Geotechnical Engineer &/or Temporary Works Engineer to provide specific advice	Administration	Extremely Rare	Extreme	L	
In-ground concrete	High level spread footings	Fall, injury	Possible	Moderate	M	Work in accordance with Safe Work Australia Code of Practice: Excavation Work. Provide reinforcement caps to all starter bars	Administration	Rare	Moderate	L	
	Bored, cast in situ piles/piers	Fall leading to serious injury and/or fatality	Possible	Extreme	H	Work in accordance with Safe Work Australia Code of Practice: Excavation Work. Pour concrete as soon as practical after excavation	Administration	Extremely Rare	Extreme	L	
	Lift overrun shafts	Fall leading to serious injury and/or fatality	Possible	Major	H	Work in accordance with Safe Work Australia Code of Practice: Excavation Work. Provide reinforcement caps to all starter bars or other potential impalement hazards.	Administration	Extremely Rare	Major	L	
Retaining walls	Temporary support until slabs are poured	Collapse leading to serious injury and/or fatality	Almost Certain	Extreme	E	Do not backfill wall prior to completion of supporting structure and adequate curing time. Engage Temporary Works Engineer to provide specific advice if early backfilling is required.	Engineering	Extremely Rare	Extreme	L	
	Temporary support whilst backfilling	Collapse leading to serious injury and/or fatality	Possible	Extreme	H	Do not backfill until concrete footing and grout fill to wall have reached 28 day strength. Alternatively engage a Temporary Works Engineer to provide specific advice.	Engineering	Extremely Rare	Extreme	L	
	Installation of tanking, drainage etc. behind wall	Collapse leading to serious injury and/or fatality	Possible	Extreme	H	Install without accessing rear of wall. Alternatively engage a Temporary Works Engineer to provide specific advice	Administration	Extremely Rare	Extreme	L	
Precast concrete	Transport, handling and erection of precast elements	Collapse leading to serious injury and/or fatality	Likely	Catastrophic	E	Work in accordance with the National Code of Practice for Precast, Tilt-up and Concrete Elements in Buildings. Engage a Temporary Works Engineer to provide specific advice.	Engineering	Extremely Rare	Catastrophic	M	
	Temporary support of precast elements	Collapse leading to serious injury and/or fatality	Likely	Catastrophic	E	Work in accordance with the National Code of Practice for Precast, Tilt-up and Concrete Elements in Buildings. Engage a Temporary Works Engineer to provide specific advice.	Administration	Extremely Rare	Catastrophic	M	
Suspended concrete	Formwork support	Collapse leading to serious injury and/or fatality	Possible	Catastrophic	E	Engage a Temporary Works Engineer to provide specific advice.	Engineering	Extremely Rare	Catastrophic	M	
	Back propping	Collapse leading to serious injury and/or fatality	Unlikely	Catastrophic	E	Engage a Temporary Works Engineer to provide specific advice.	Engineering	Extremely Rare	Catastrophic	M	
	Live edges	Fall leading to serious injury and/or fatality	Possible	Extreme	H	Protect live edges and/or install temporary floors. Work in accordance with Safe Work Australia Codes of Practice: Preventing Falls in Housing Construction, Managing the Risk of Falls in the Workplace	Isolation	Extremely Rare	Extreme	L	
	Openings in formwork	Fall leading to serious injury and/or fatality	Likely	Extreme	E	Protect live edges and/or install temporary floors Work in accordance with Safe Work Australia Codes of Practice: Preventing Falls in Housing Construction, Managing the Risk of Falls in the Workplace	Isolation	Extremely Rare	Extreme	L	
Framing	Transport, handling and erection of steel/timber framing	Collapse of structure or fall from height, leading to serious injury and/or fatality	Possible	Extreme	H	Engage a Temporary Works Engineer to provide specific advice. Work in accordance with Safe Work Australia Codes of Practice: Preventing Falls in Housing Construction, Managing the Risk of Falls in the Workplace	Engineering	Extremely Rare	Extreme	L	
OPERATION (in service)											
Performance	Services/infrastructure is fit for purpose and safe to use	Loss of amenity	Unlikely	Major	M	Services/infrastructure designed by a competent person in accordance with relevant Australian Standards, NCC and recognised engineering principles	Engineering	Extremely Rare	Extreme	L	
	Structure is fit for purpose and safe to use	Collapse leading to serious injury and/or fatality	Unlikely	Catastrophic	E	Structure designed by a competent person in accordance with relevant Australian Standards, NCC and recognised engineering principles	Engineering	Extremely Rare	Catastrophic	M	
Modifications	Alterations and additions affecting structure	Collapse leading to serious injury and/or fatality	Possible	Extreme	H	Engage a Structural Engineer to provide specific advice. All work to be undertaken in accordance with relevant building regulations.	Engineering	Extremely Rare	Extreme	L	
	Alterations affecting civil or hydraulic services	Impaired functionality, reduced safety leading to serious injury and/or fatality	Possible	Extreme	H	Engage a specialist (civil, hydraulic, traffic engineer) to provide specific advice. All work to be undertaken in accordance with relevant building regulations.	Engineering	Extremely Rare	Extreme	L	
Post disaster functions	Natural disaster (earthquake, flood, bushfire etc.)	Building is not operational during or after a natural disaster and cannot deliver essential services	Possible	Catastrophic	E	Design building to relevant Australian Standards, NCC and consult with building operator for specific requirements which exceed these standards.	Engineering	Extremely Rare	Catastrophic	M	

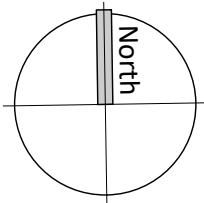
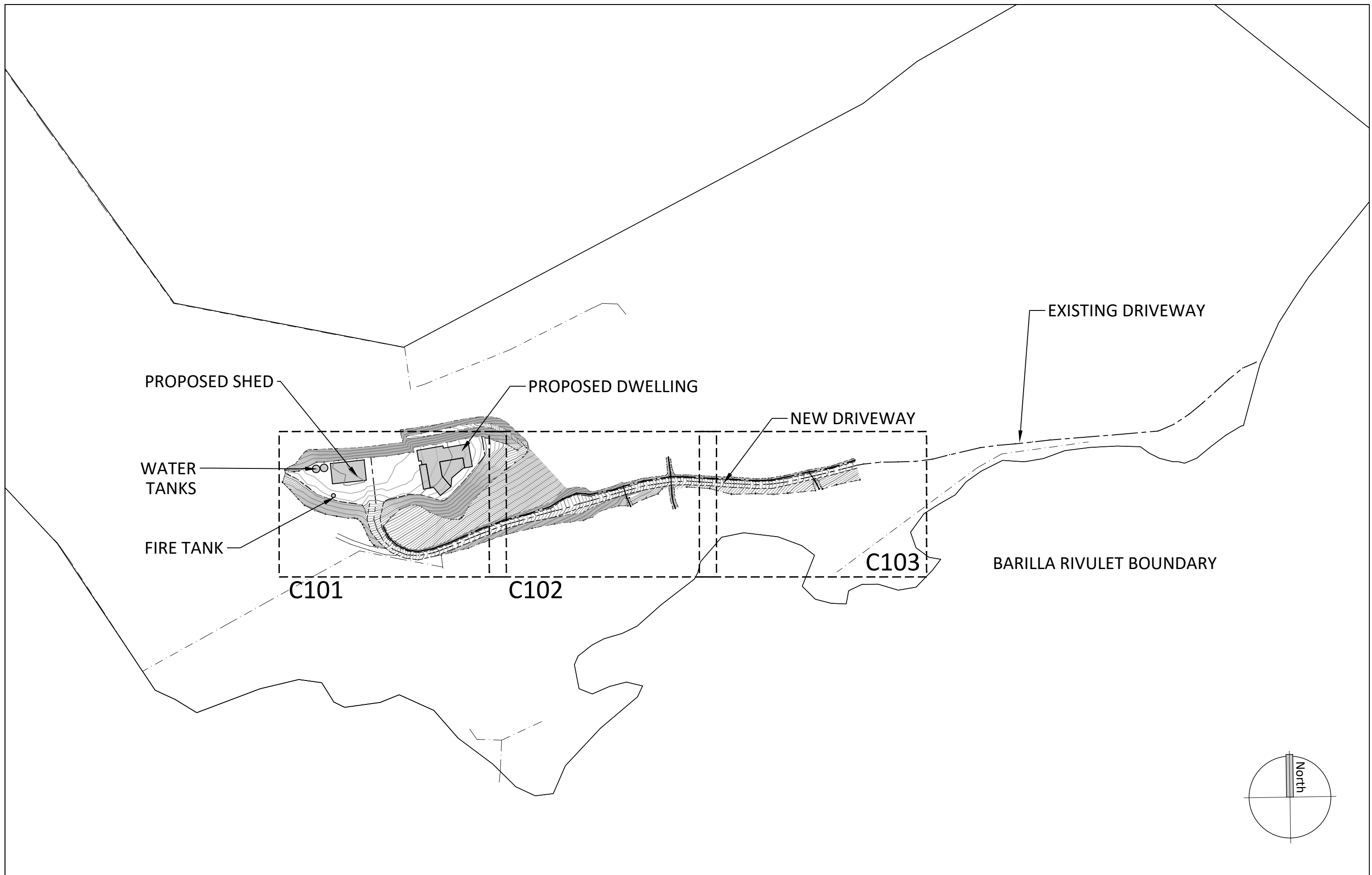
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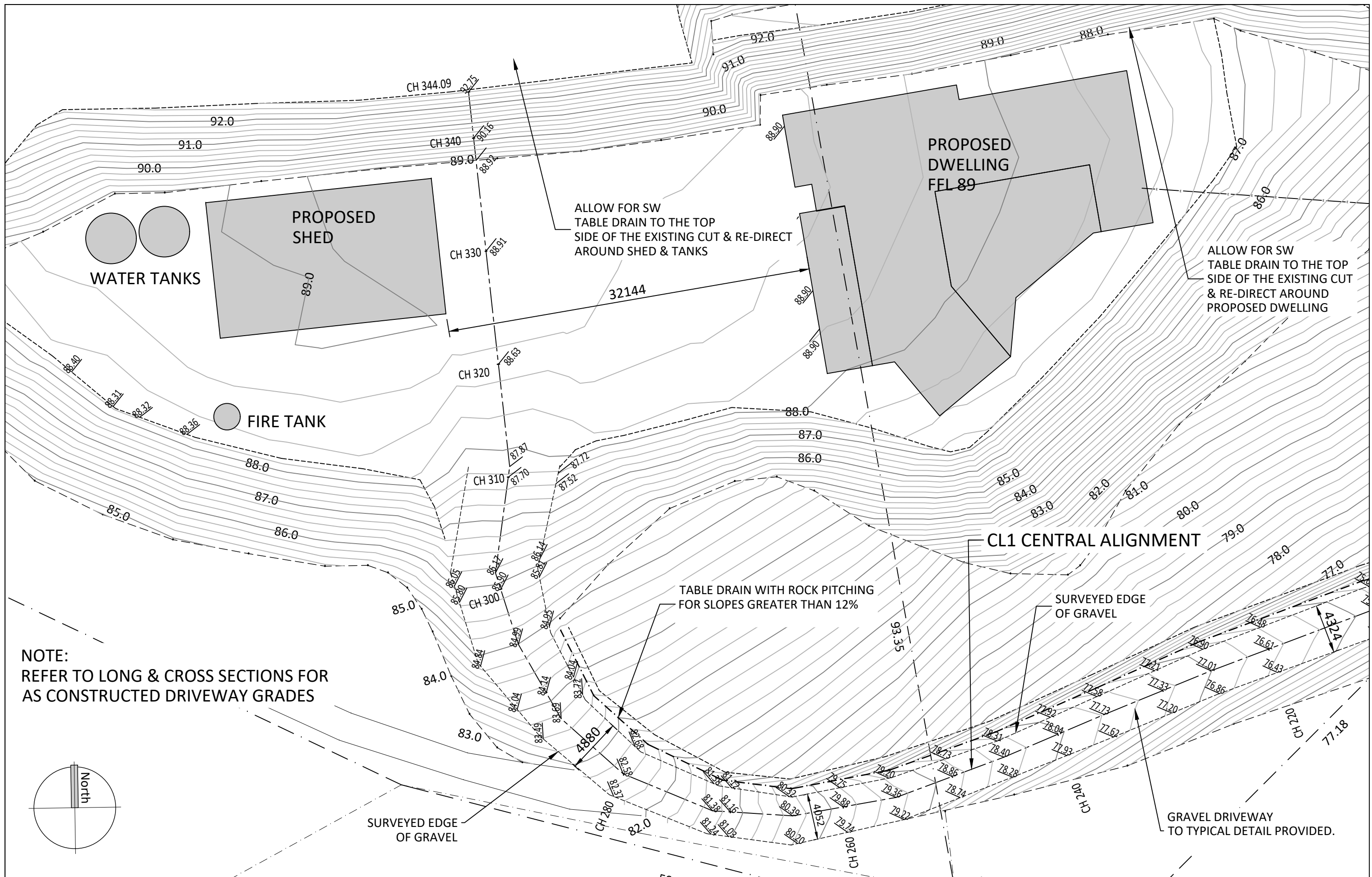
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SHEET: SAFETY IN DESIGN
 PROJECT NAME: NEW DWELLING
 ISSUE: BUILDING APPROVAL

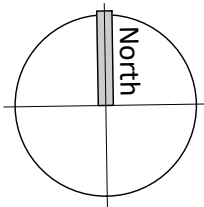
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			S&E Leigh 0400 024 463 Noe 0416 074 935 info@lsandne.com		ISSUE: BUILDING APPROVAL	S&E REF: 24098		DRAWING: C100	REVISION: 0



NOTE:
REFER TO LONG & CROSS SECTIONS FOR
AS CONSTRUCTED DRIVEWAY GRADES



REV	DESCRIPTION	DATE
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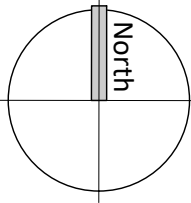
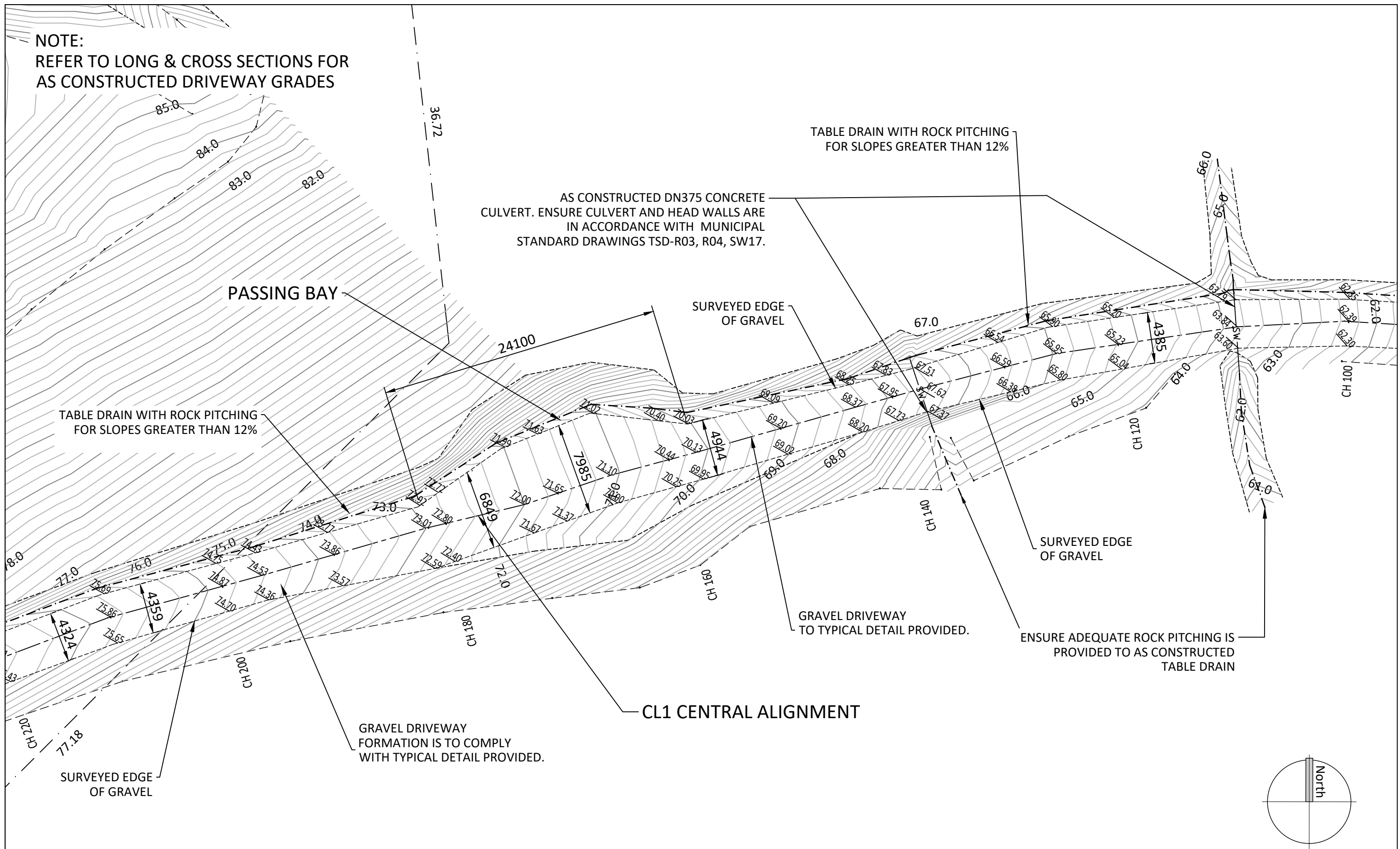
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 Noe 0416 074 935
 info@lsandne.com

CLIENT: JONES
 ADDRESS: 1C KADINA ROAD
 CAMBRIDGE

SHEET: SITeworks PLAN 1
 PROJECT NAME: NEW DWELLING
 ISSUE: BUILDING APPROVAL

DRAWN: NE	DESIGNED: NE	VERIFIED: -	DATE: 7/04/24
SCALE: 1:300		SIZE: A3	
S&E REF: 24098		DRAWING: C101	REVISION: 0

NOTE:
REFER TO LONG & CROSS SECTIONS FOR
AS CONSTRUCTED DRIVEWAY GRADES



REV	DESCRIPTION	DATE
0	BUILDING APPROVAL	7/04/24

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CLIENT: JONES

ADDRESS: 1C KADINA ROAD CAMBRIDGE

SHEET: SITWORKS PLAN 2

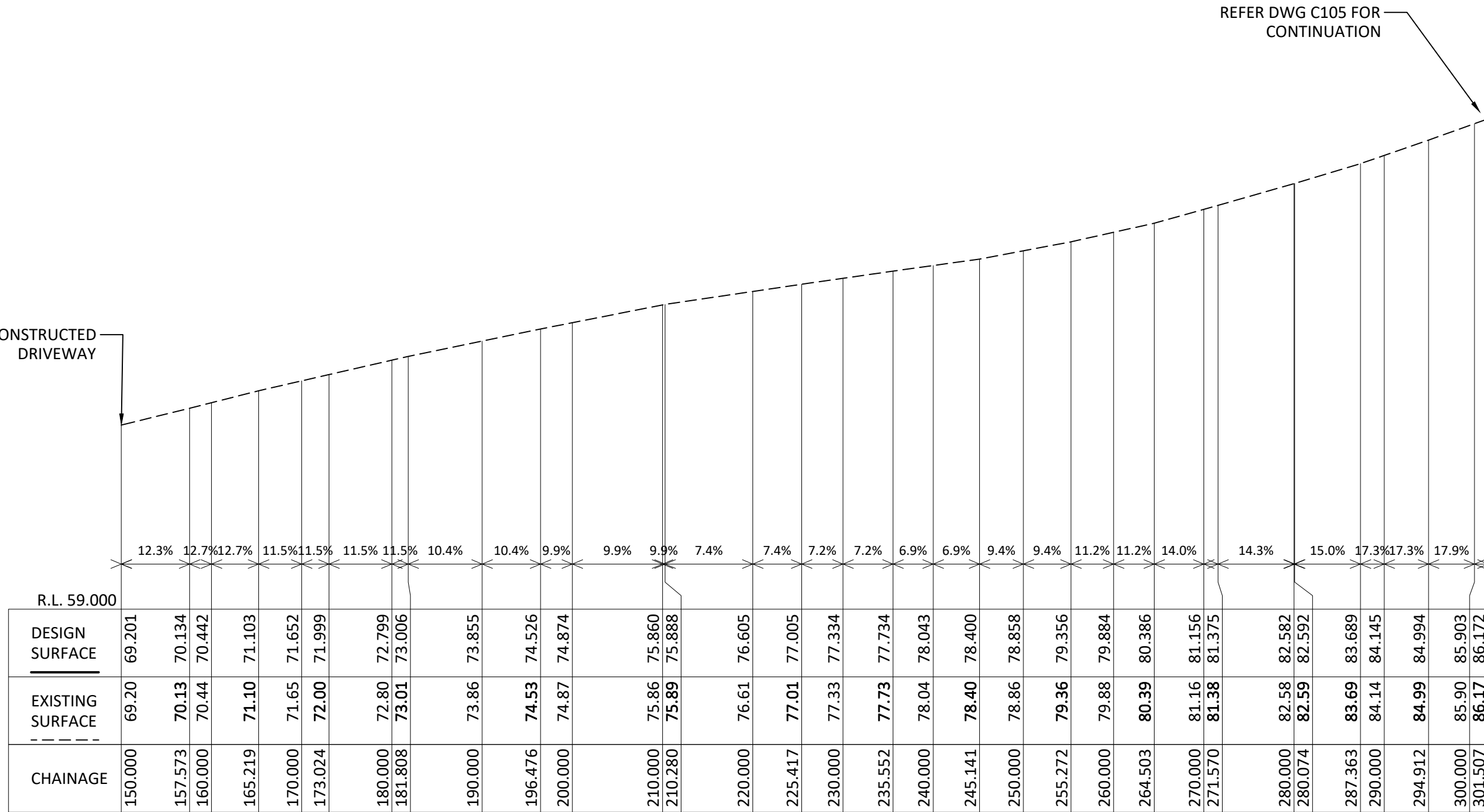
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ISSUE: BUILDING APPROVAL

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S&E REF: 24098	DRAWING: C102	REVISION: 0	

REFER DWG C105 FOR CONTINUATION

START OF AS CONSTRUCTED DRIVEWAY



LONGITUDINAL SECTION - PLAN 1

SCALES: HORIZONTAL 1:500 VERTICAL 1:250

REV	DESCRIPTION	DATE	CLIENT:	SHEET:	DRAWN:	DESIGNED:	VERIFIED:	DATE:
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			ADDRESS:	PROJECT NAME:	SCALE: AS SHOWN		SIZE:	A3
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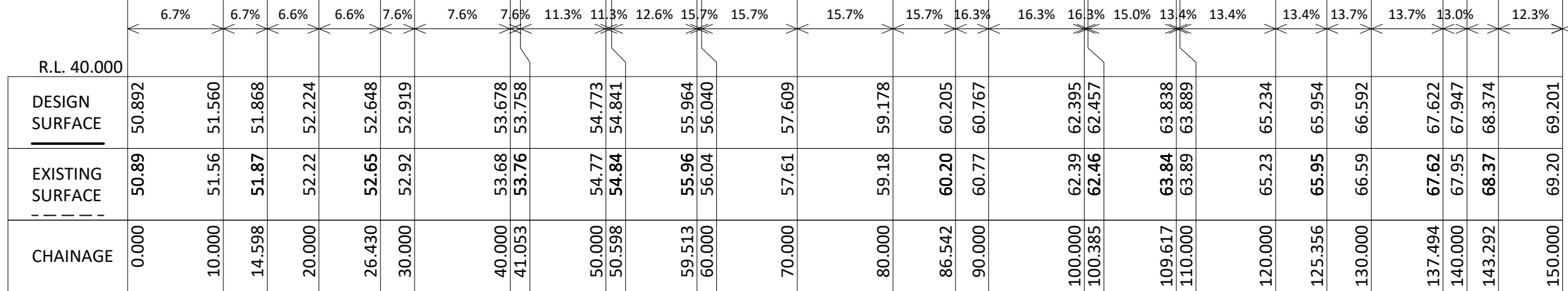
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REFER DWG C106 FOR CONTINUATION

REFER DWG C104 FOR CONTINUATION



LONGITUDINAL SECTION - PLAN 2

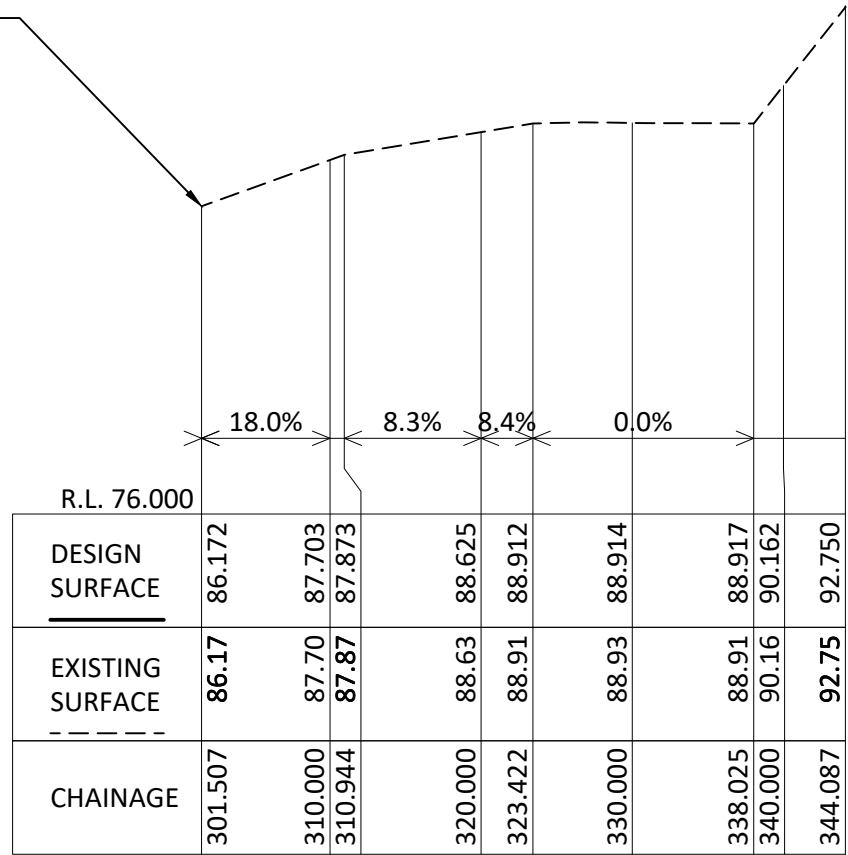
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			ISSUE:		S&E REF:	DRAWING:		REVISION:	
			BUILDING APPROVAL		24098	C105		0	

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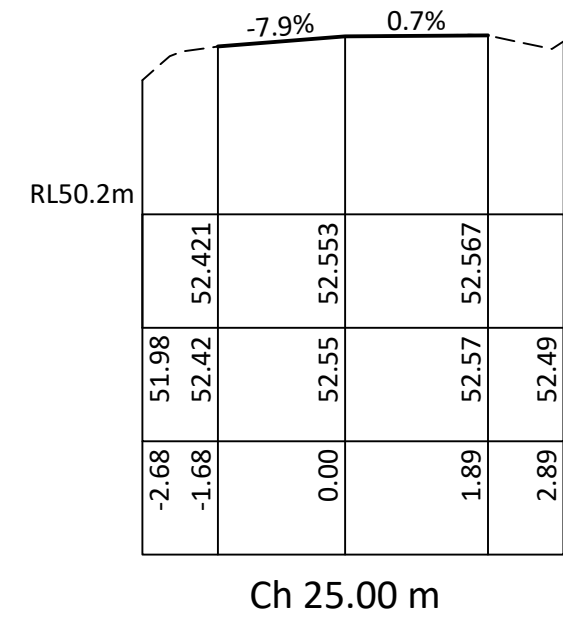
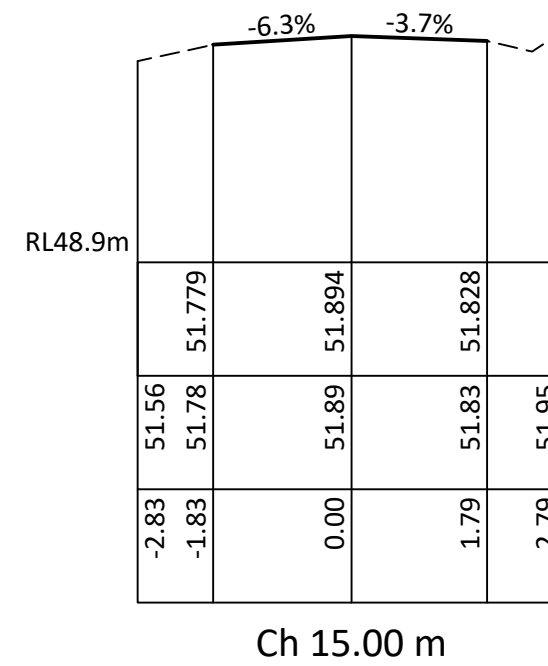
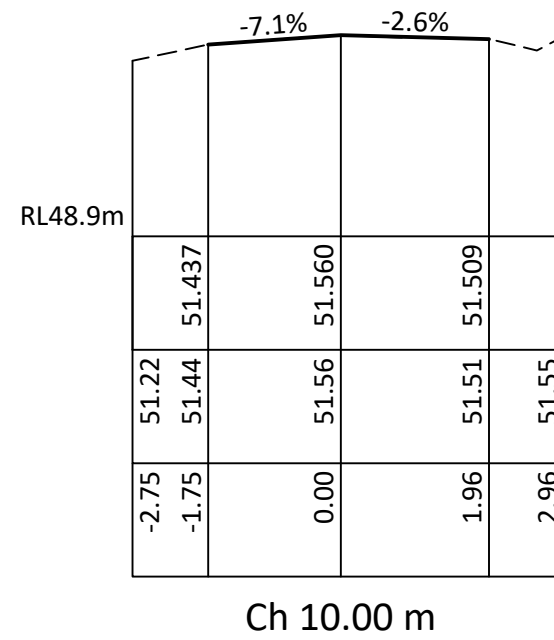
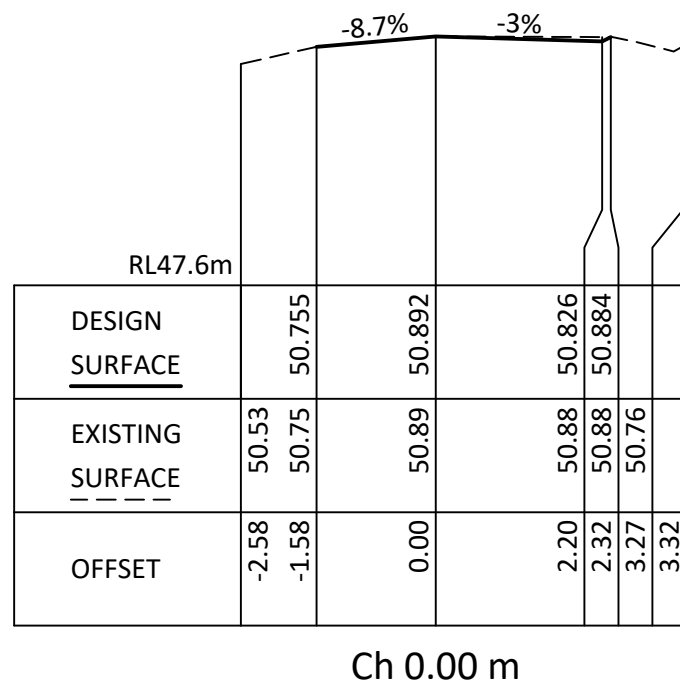
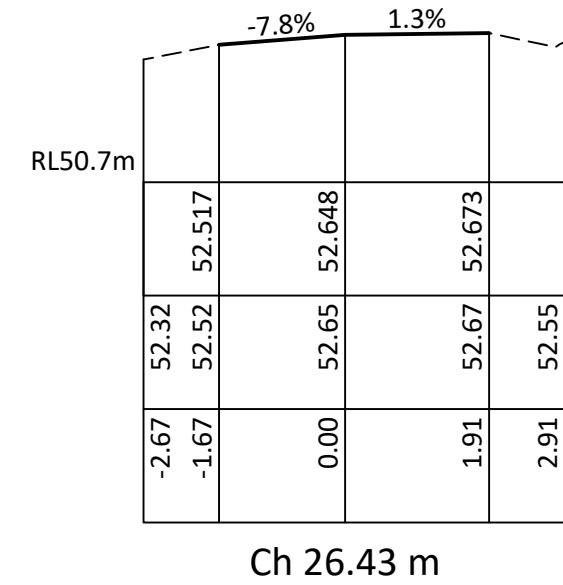
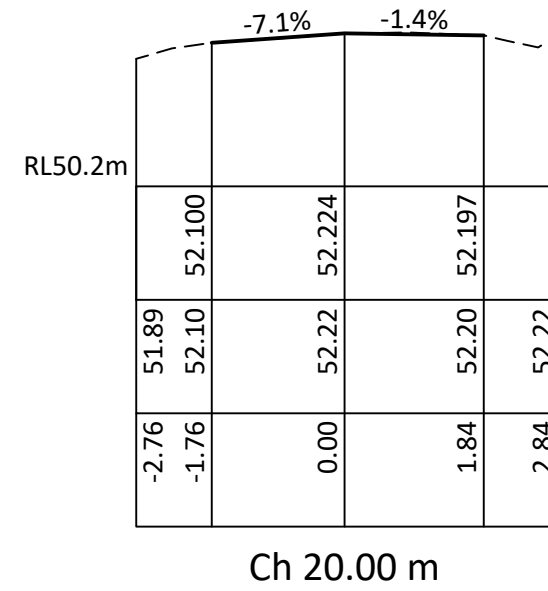
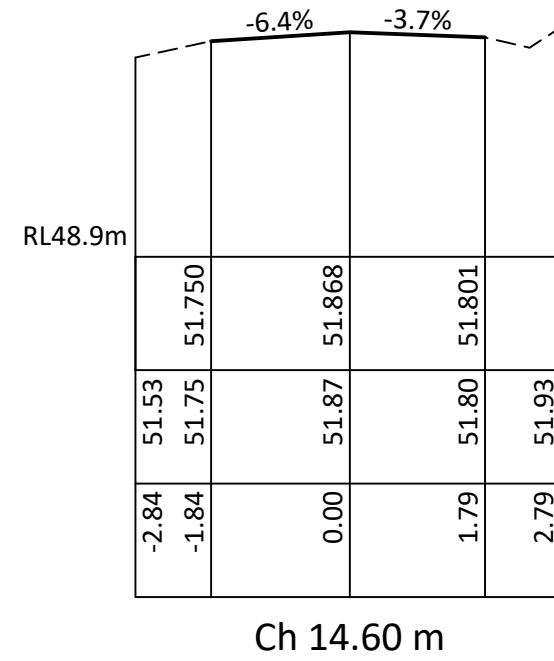
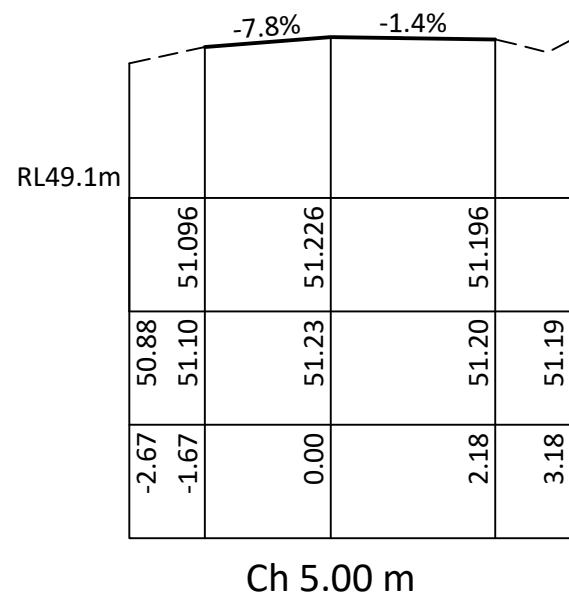
REFER DWG C105 FOR CONTINUATION



LONGITUDINAL SECTION - PLAN 3

SCALES: HORIZONTAL 1:500 VERTICAL 1:250

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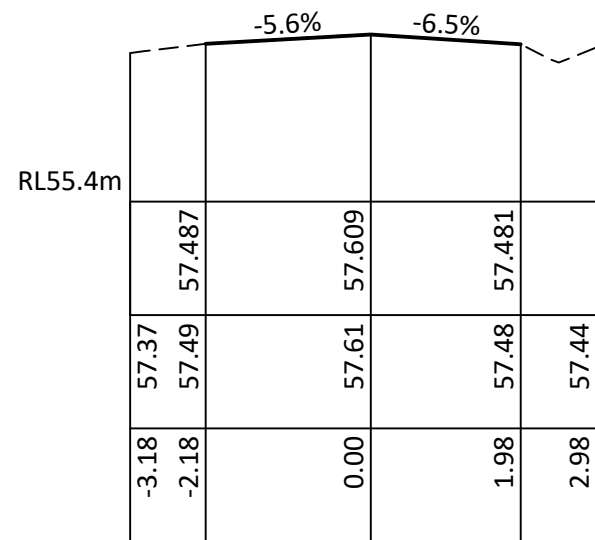
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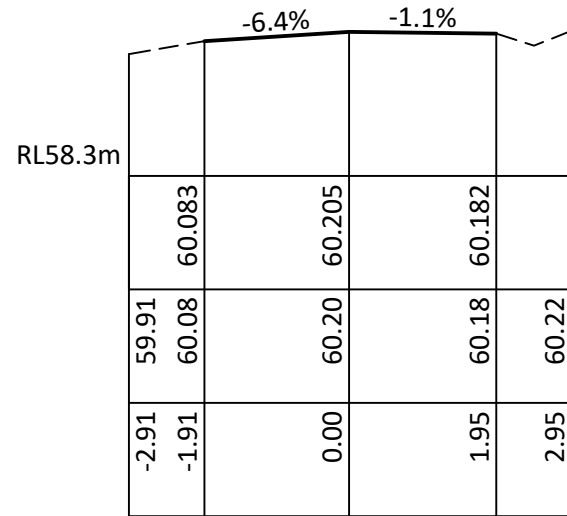
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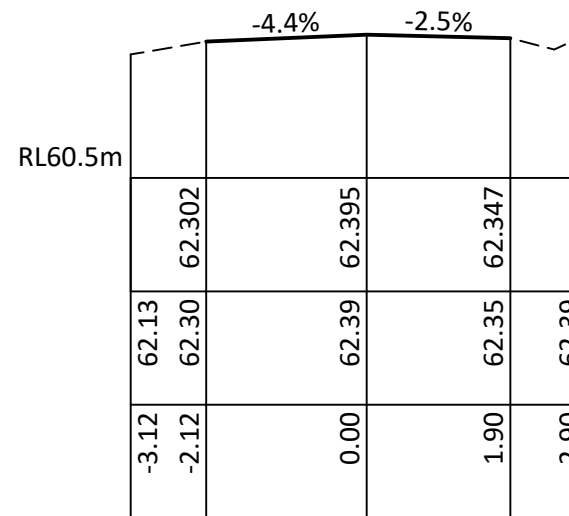
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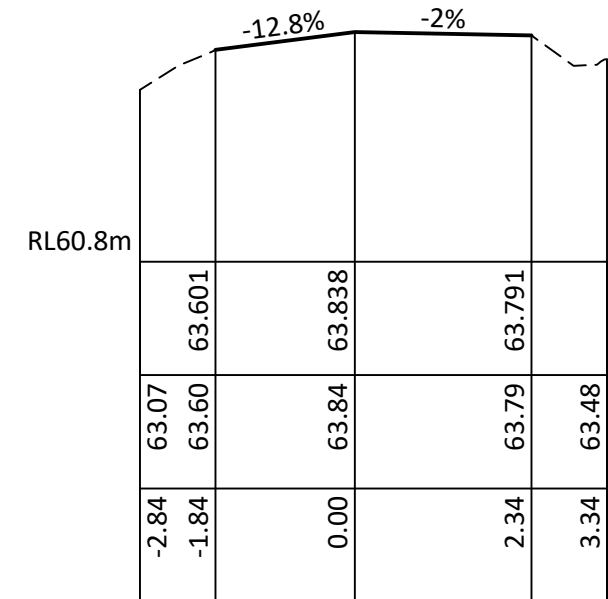
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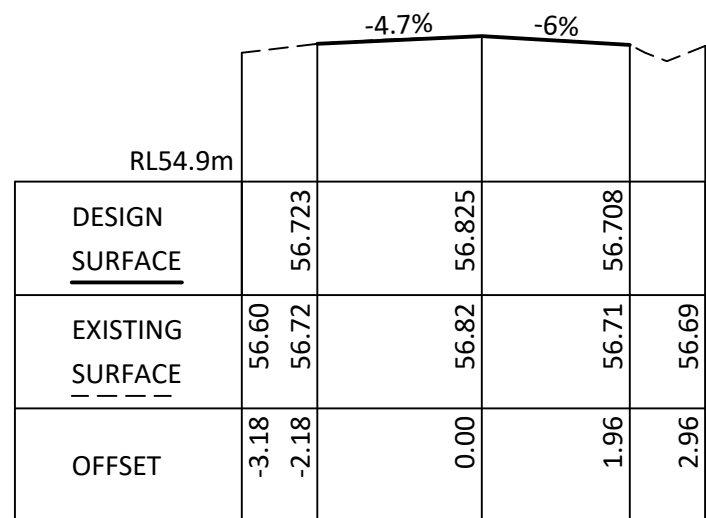
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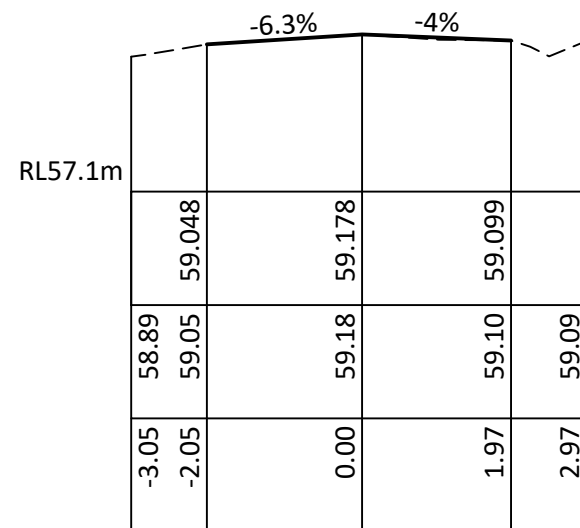
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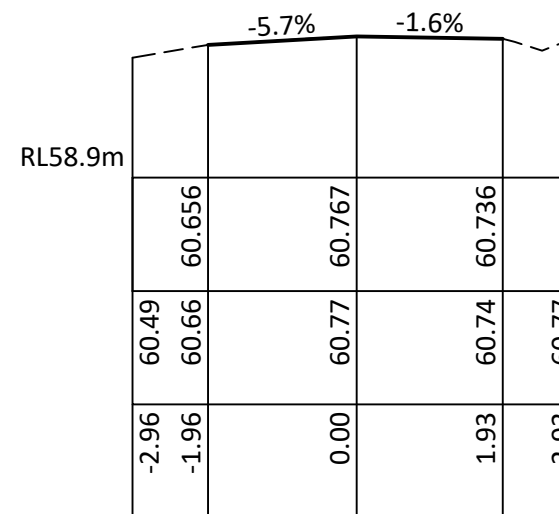
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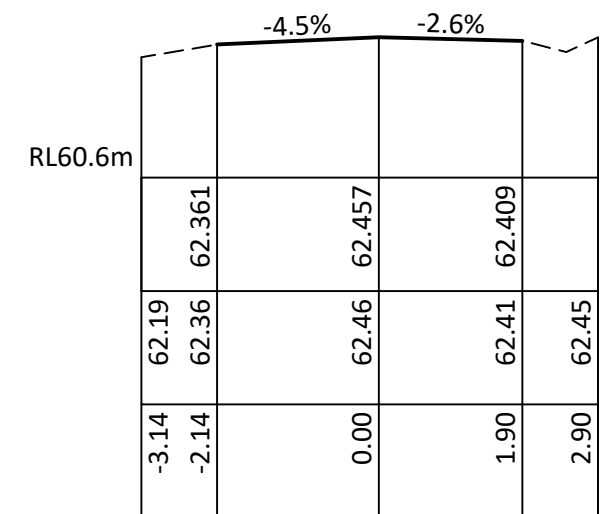
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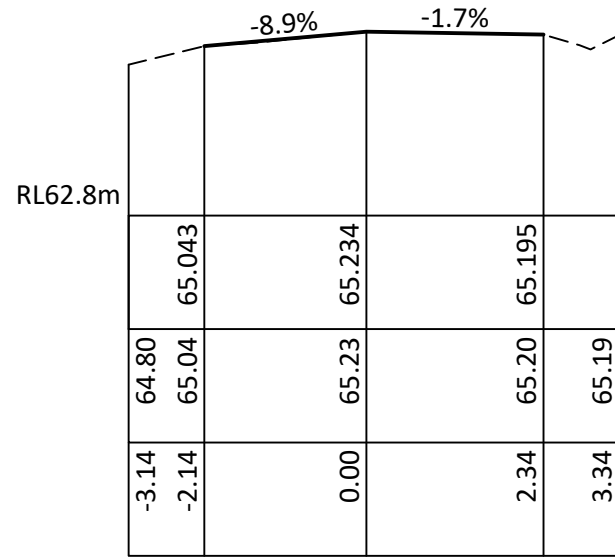
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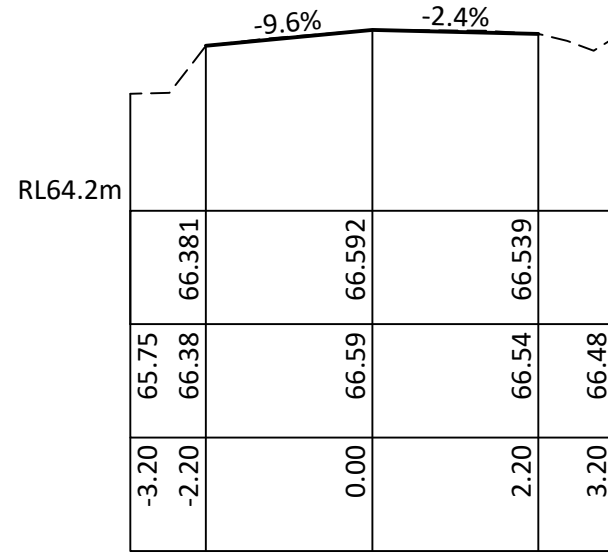
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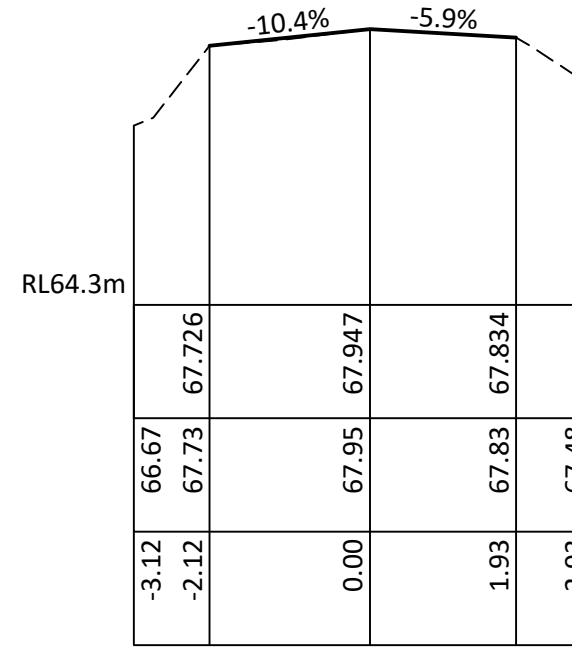
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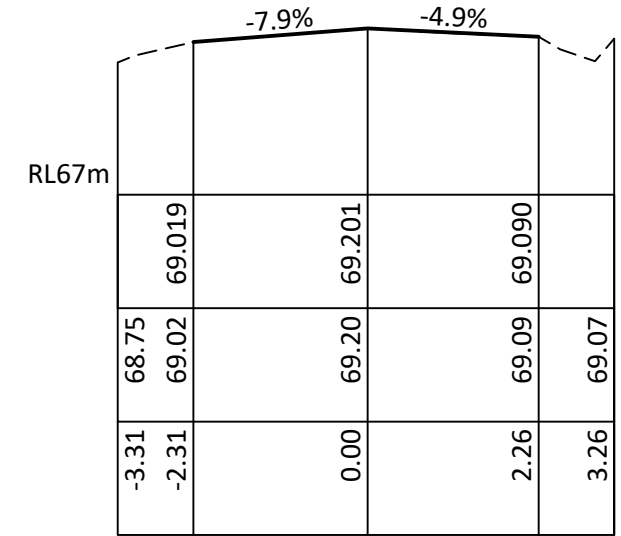
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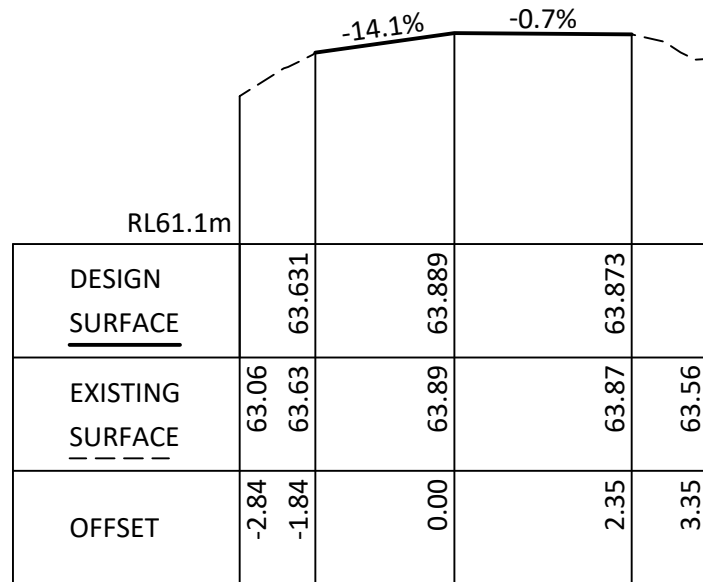
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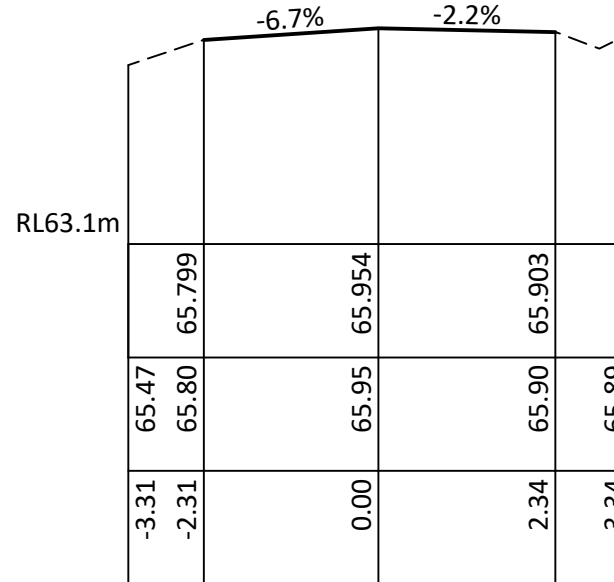
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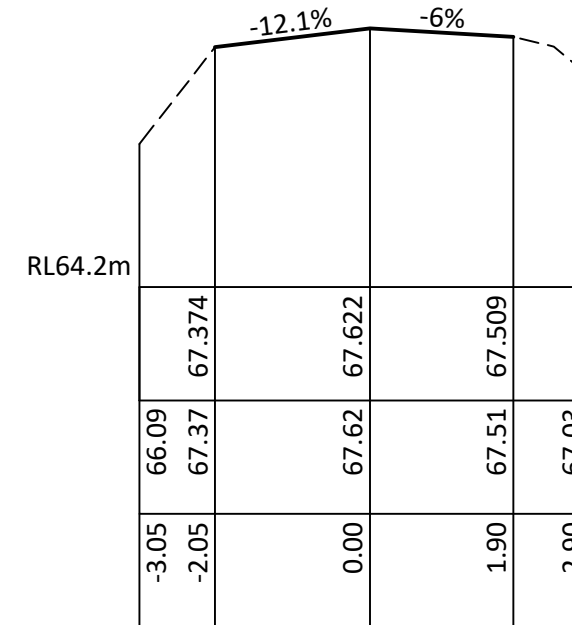
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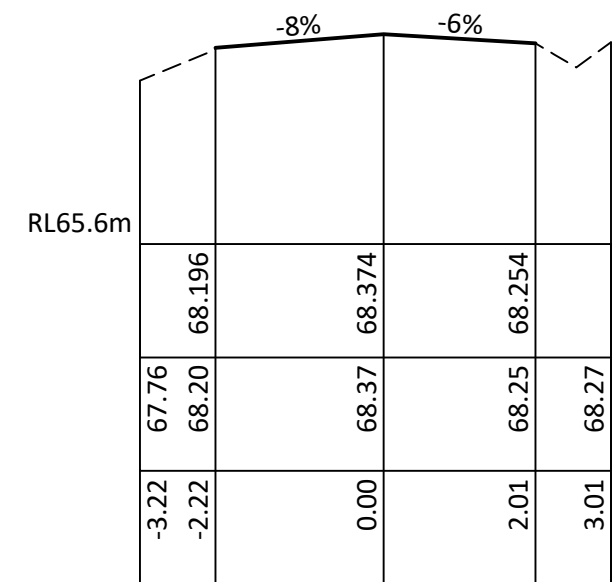
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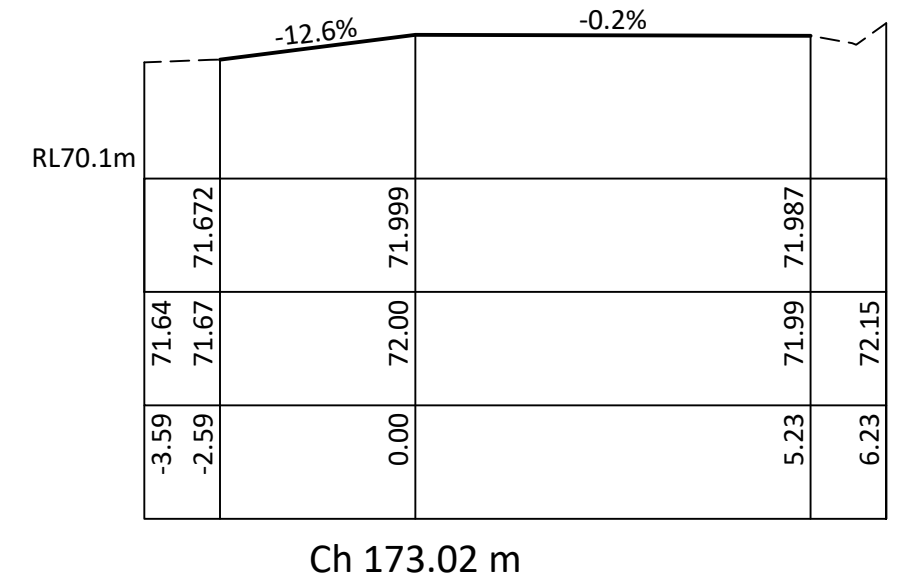
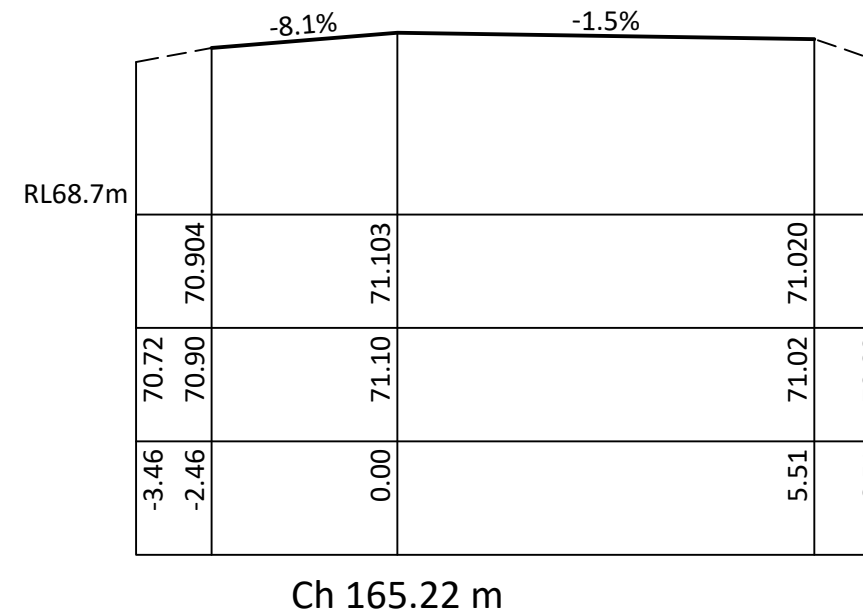
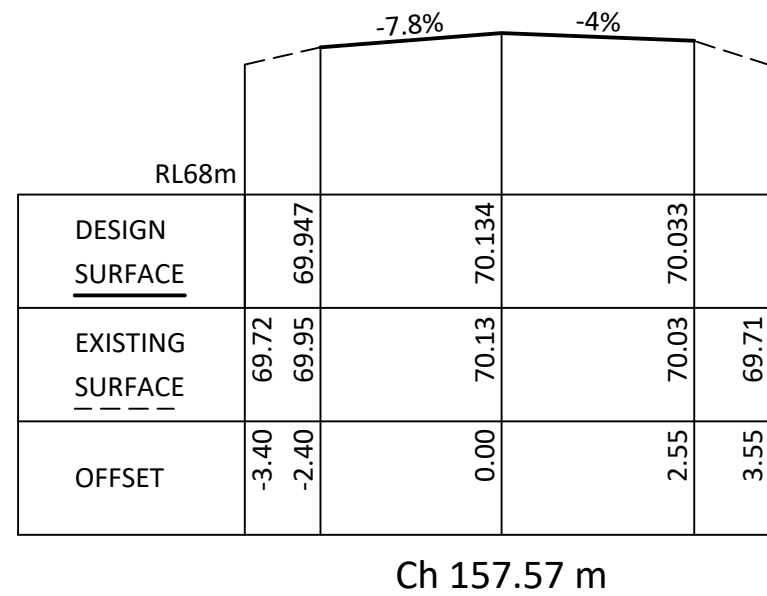
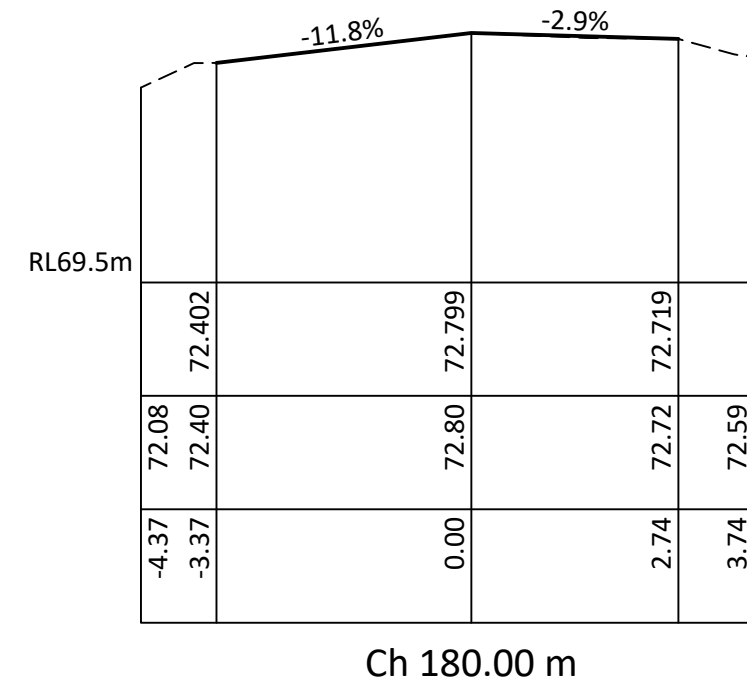
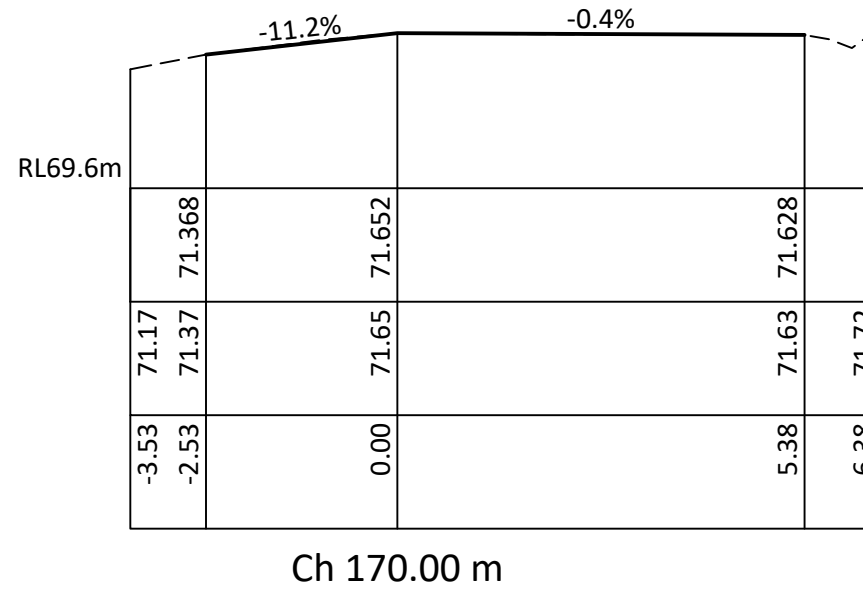
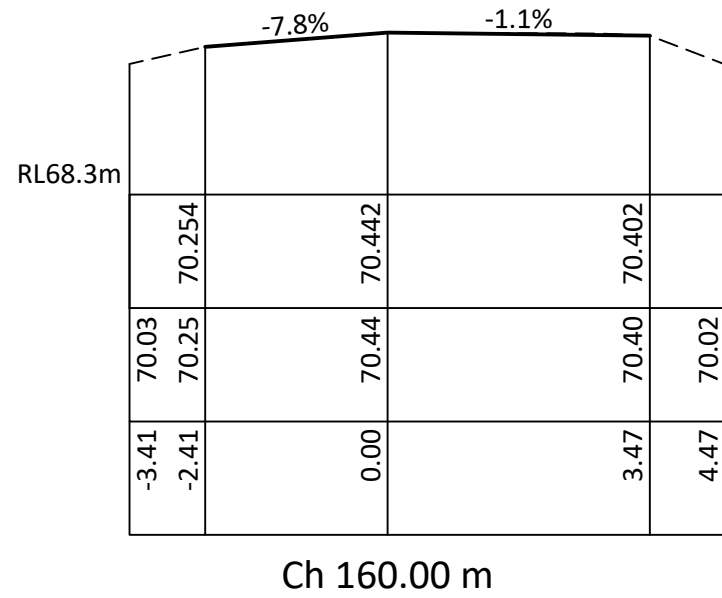
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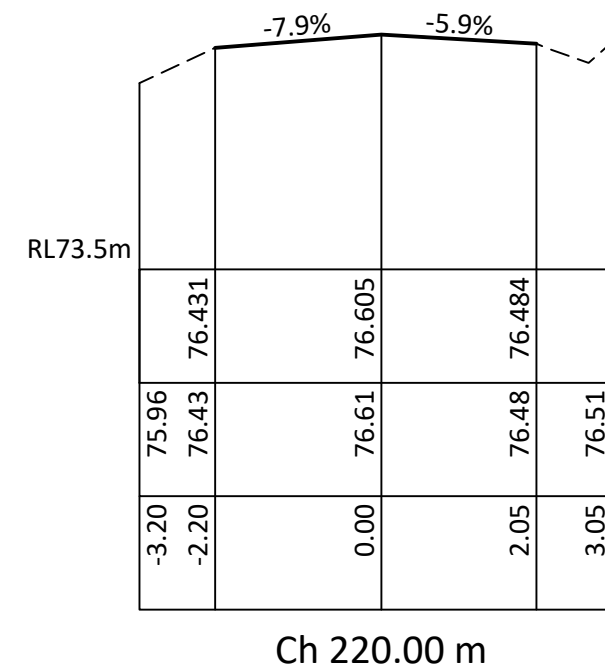
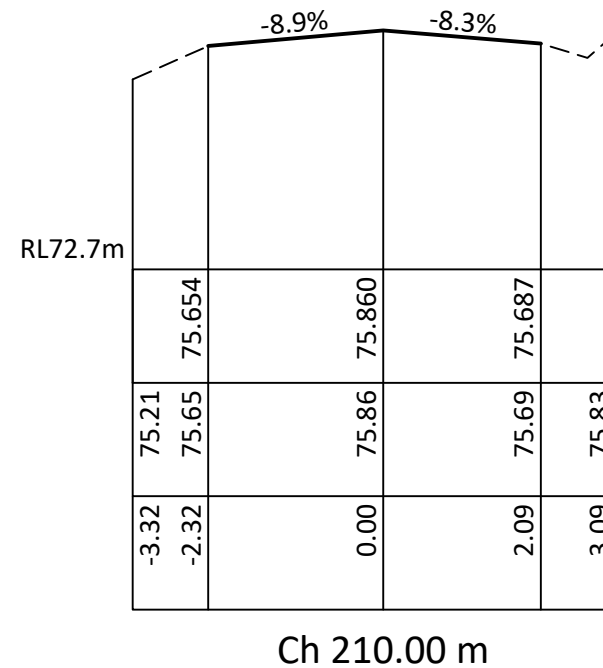
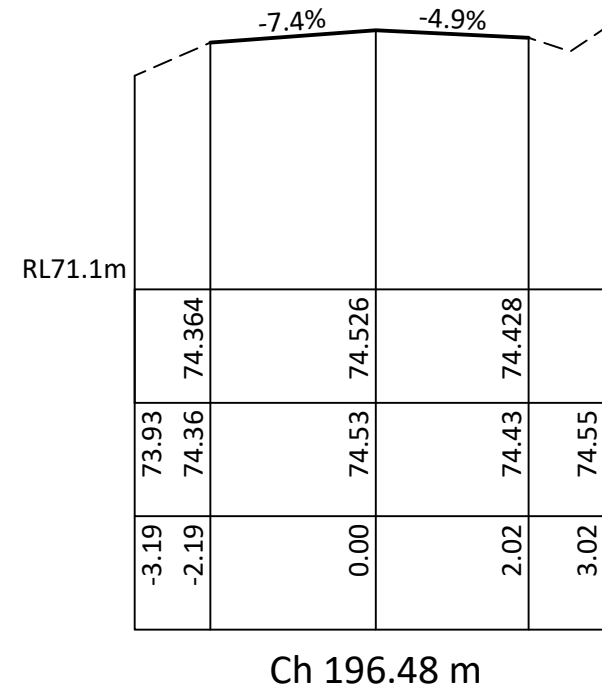
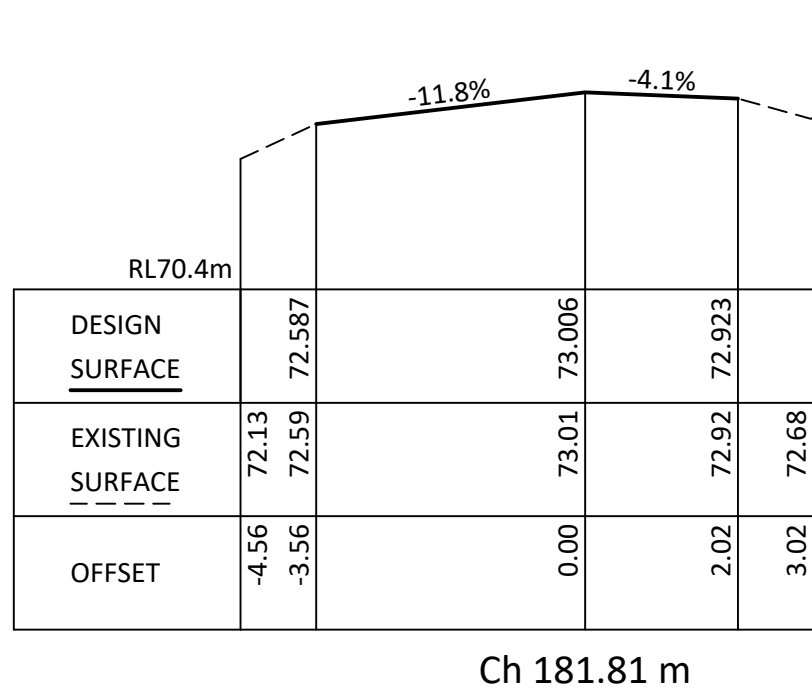
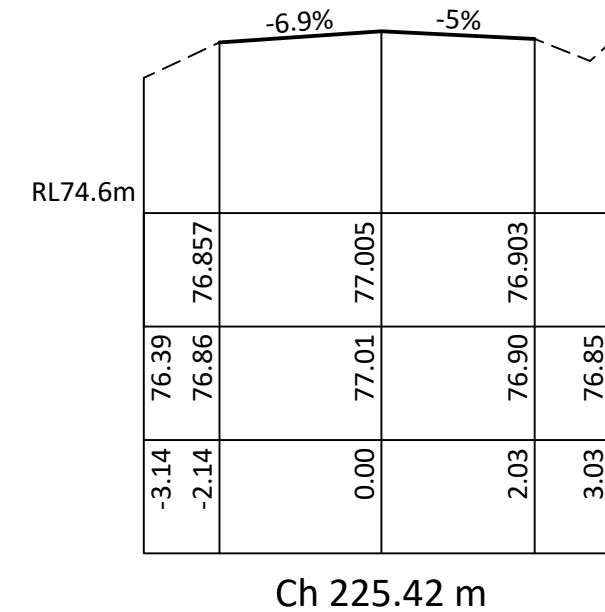
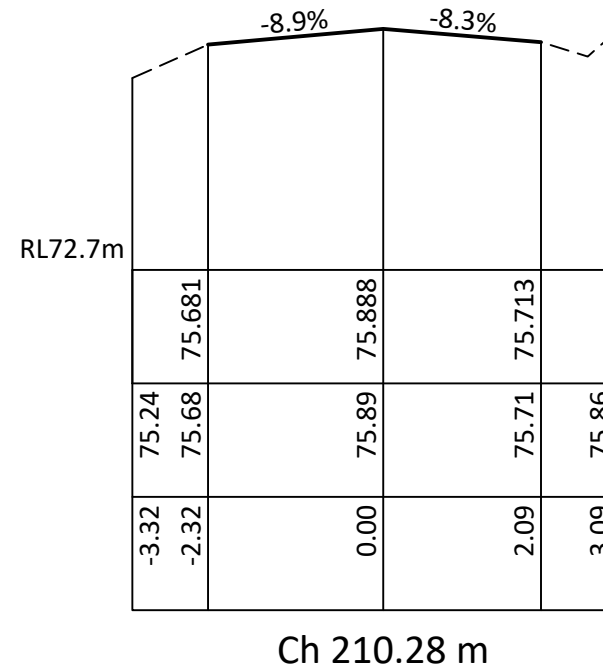
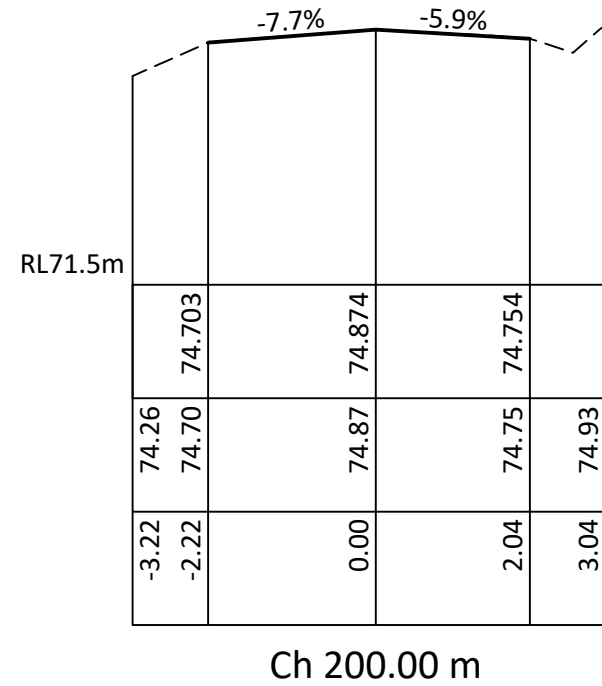
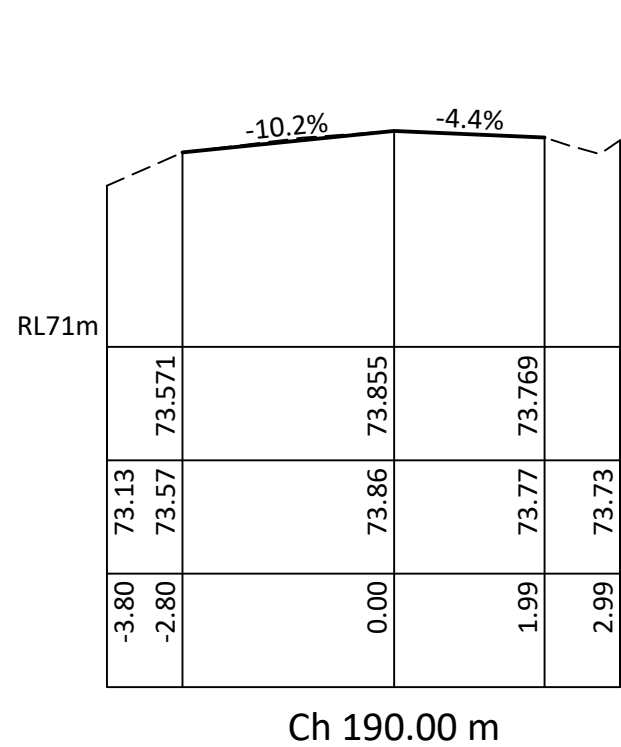
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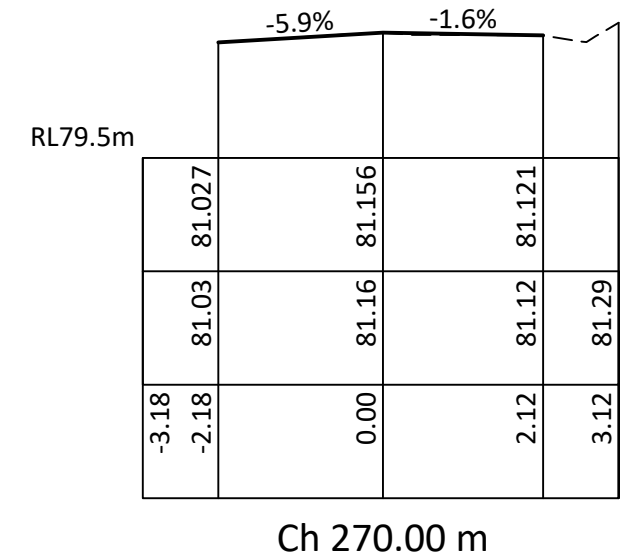
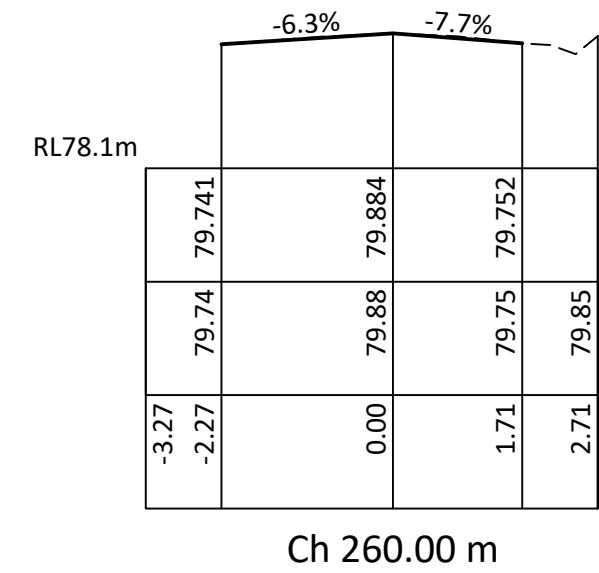
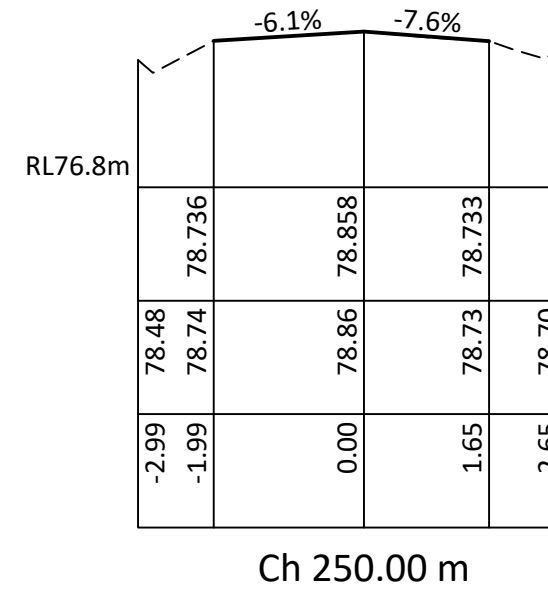
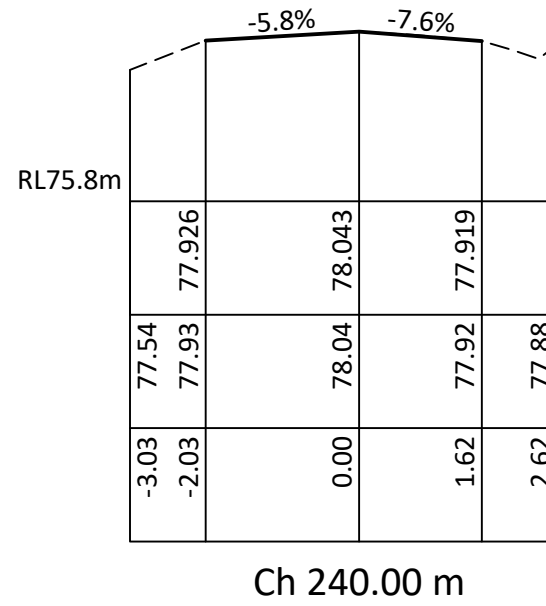
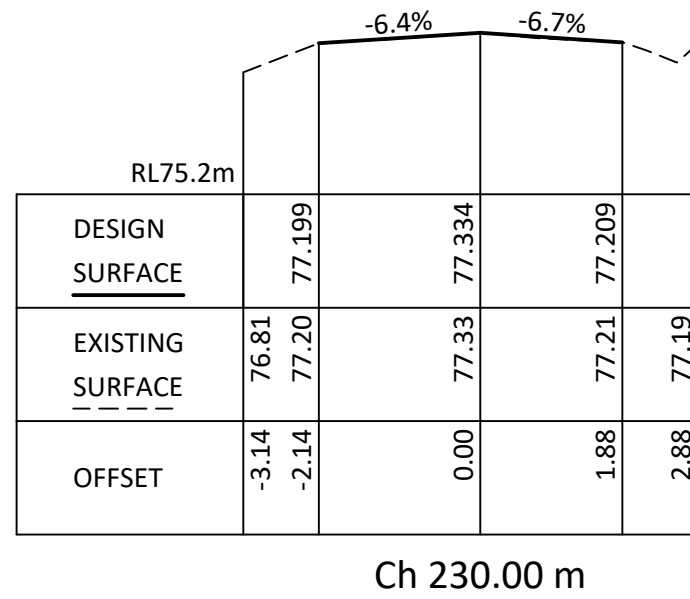
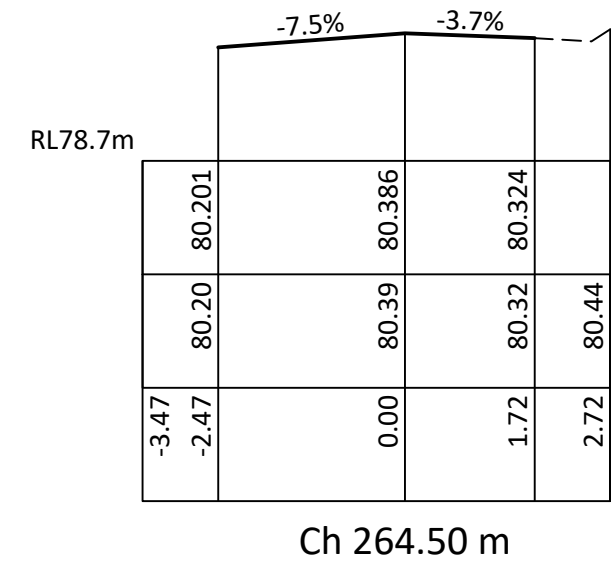
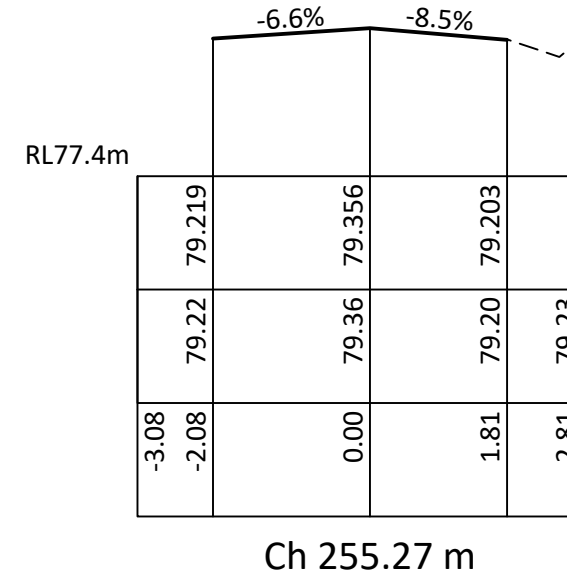
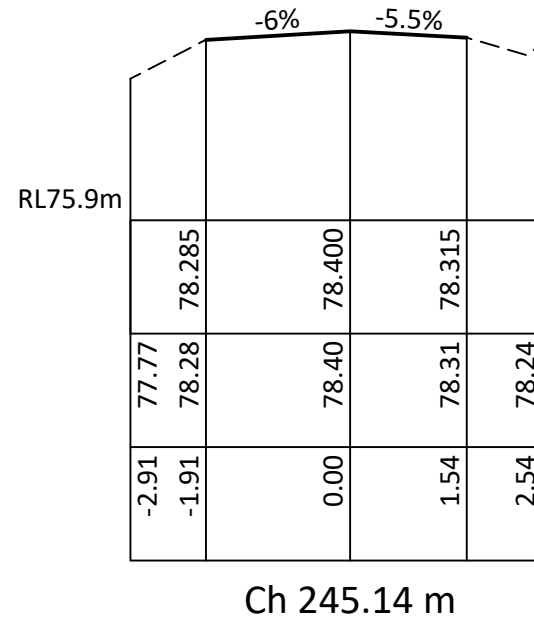
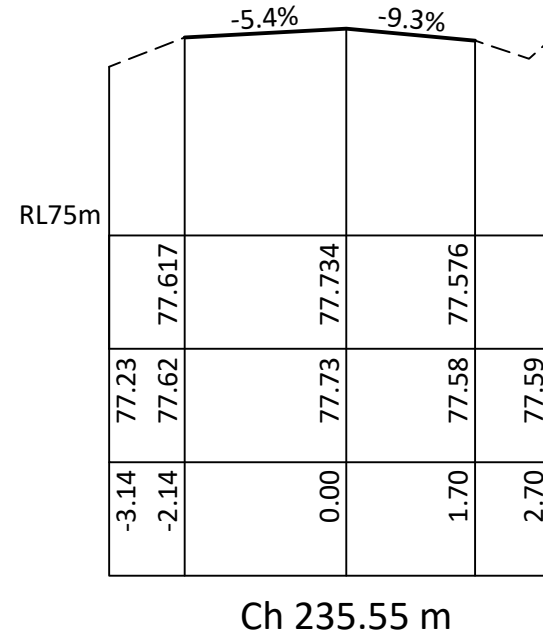
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CLIENT:	JONES
ADDRESS:	1C KADINA ROAD CAMBRIDGE

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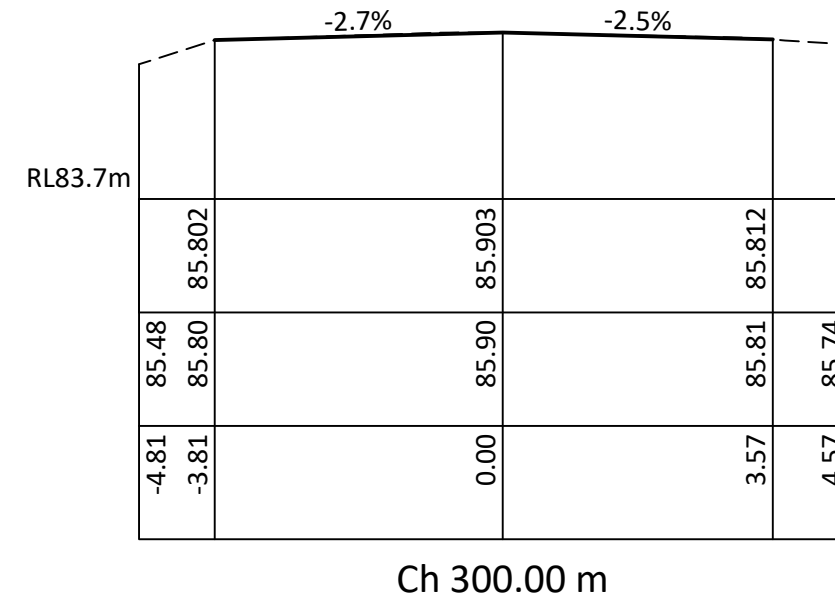
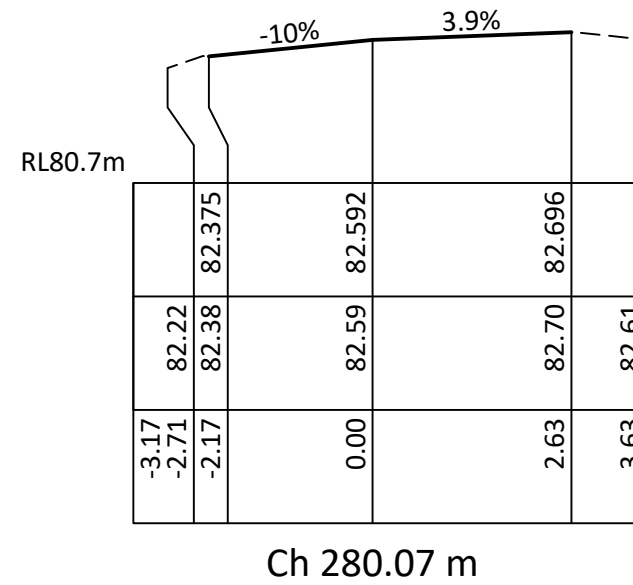
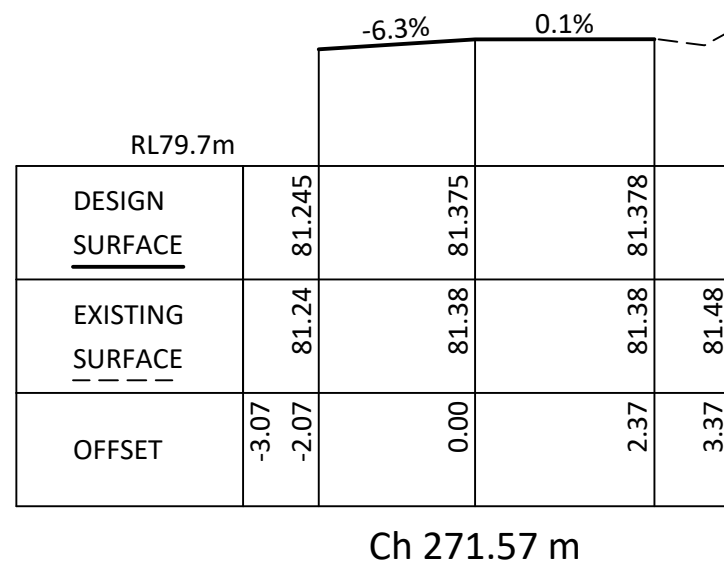
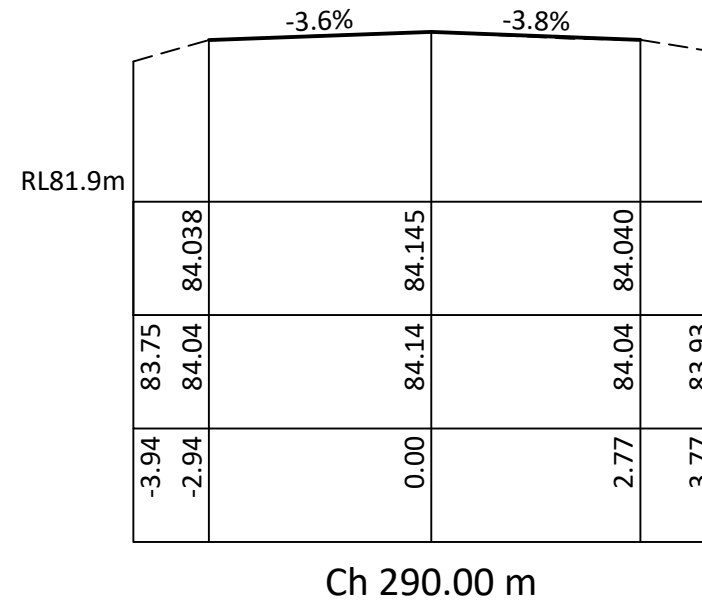
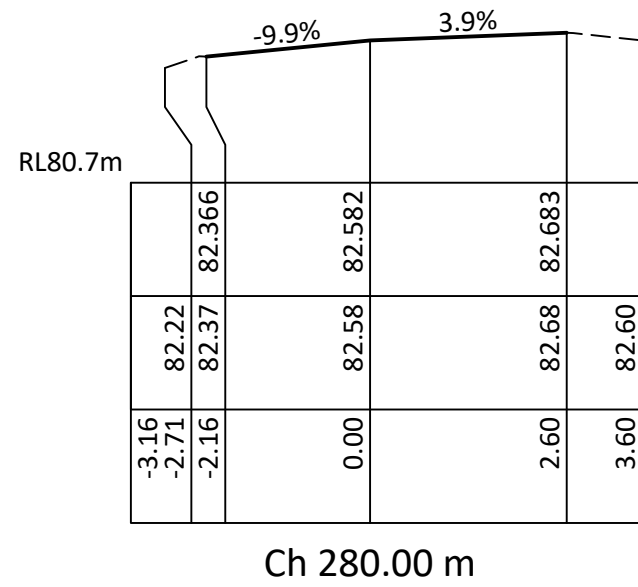
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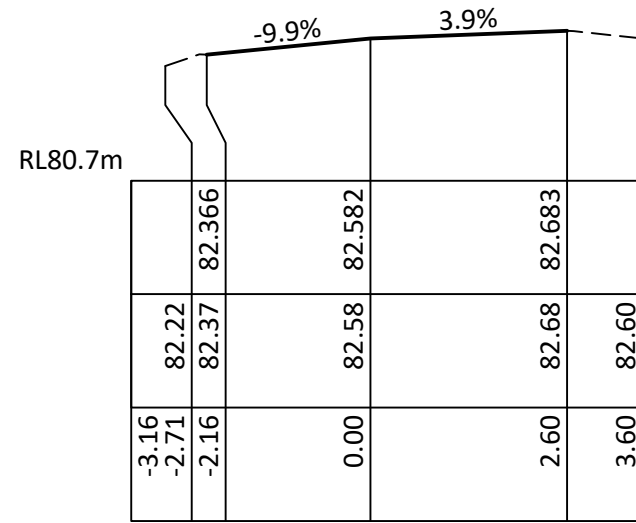
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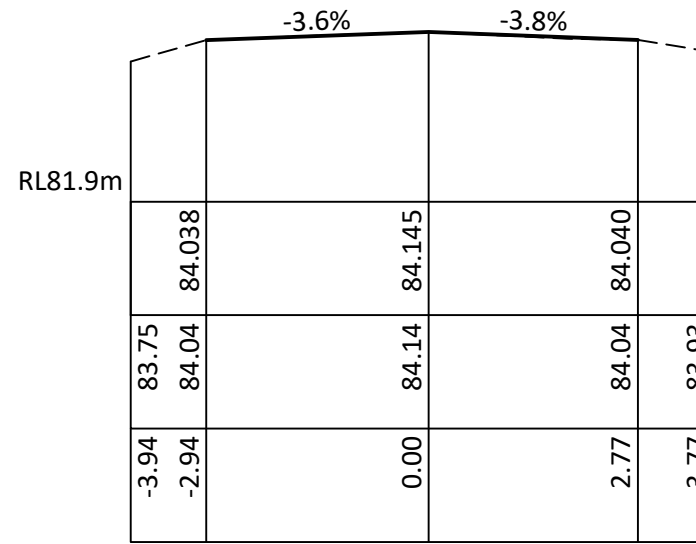
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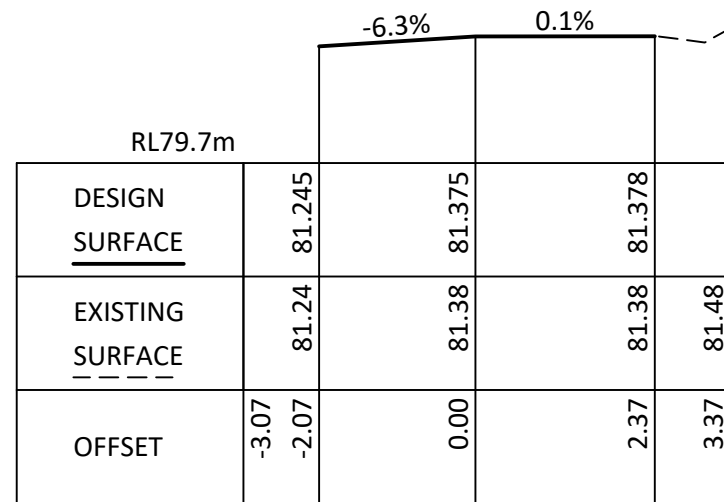
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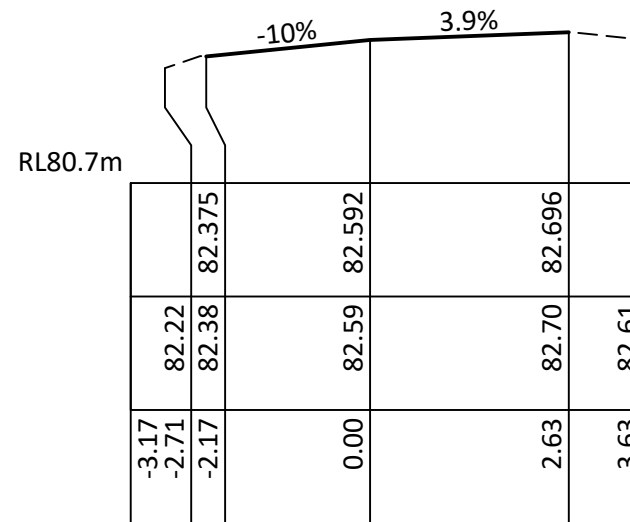
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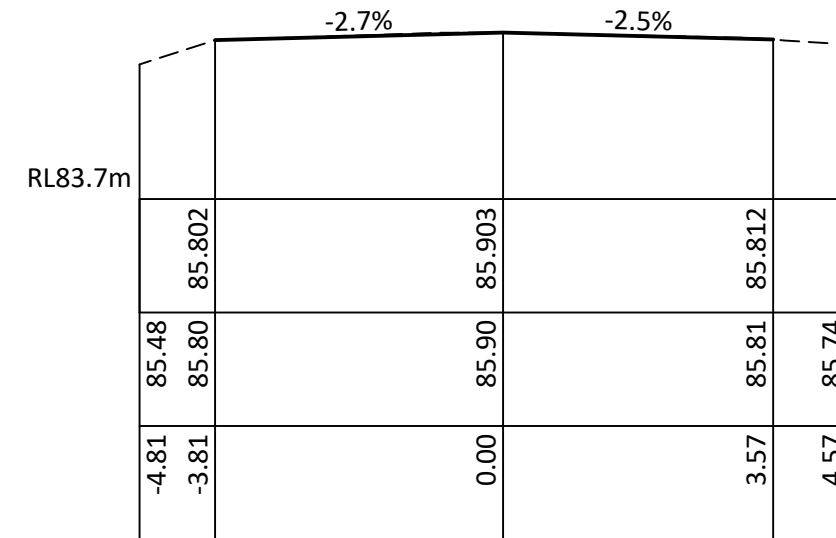
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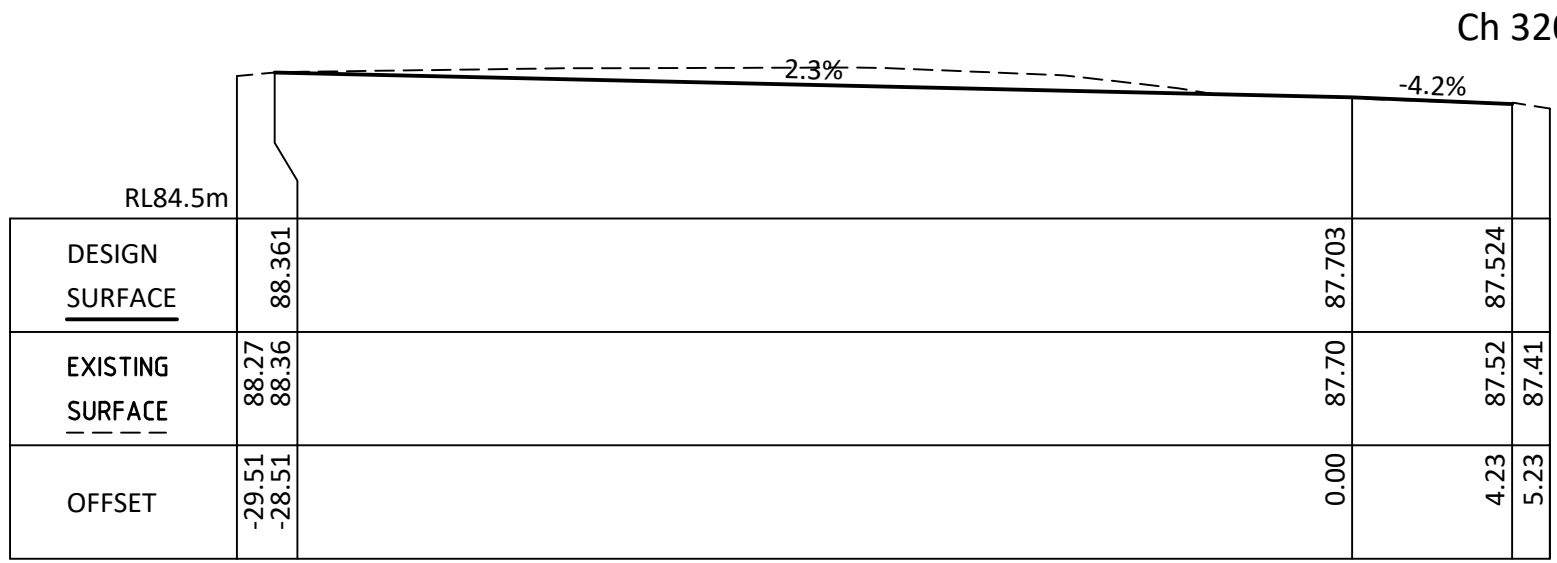
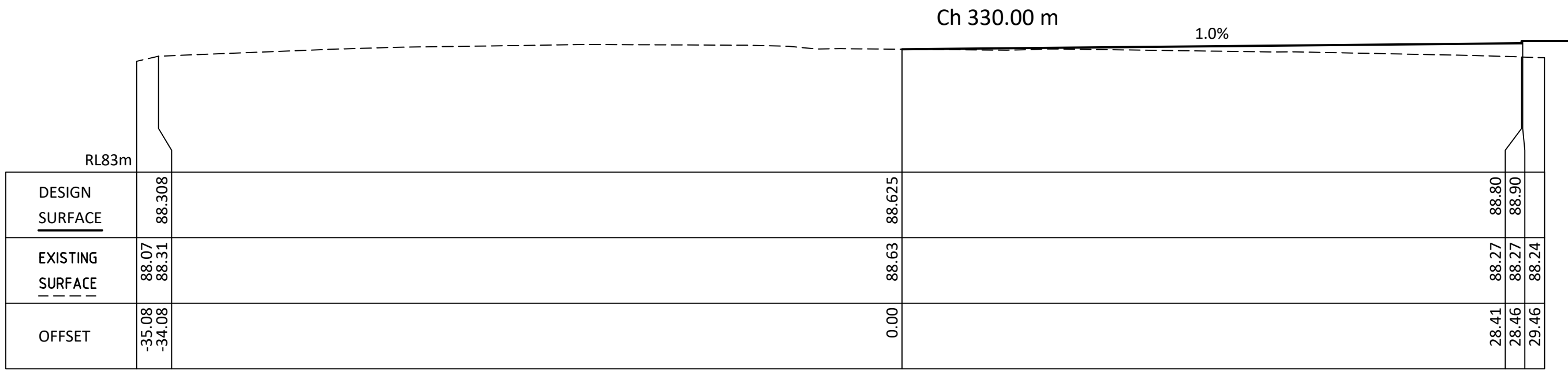
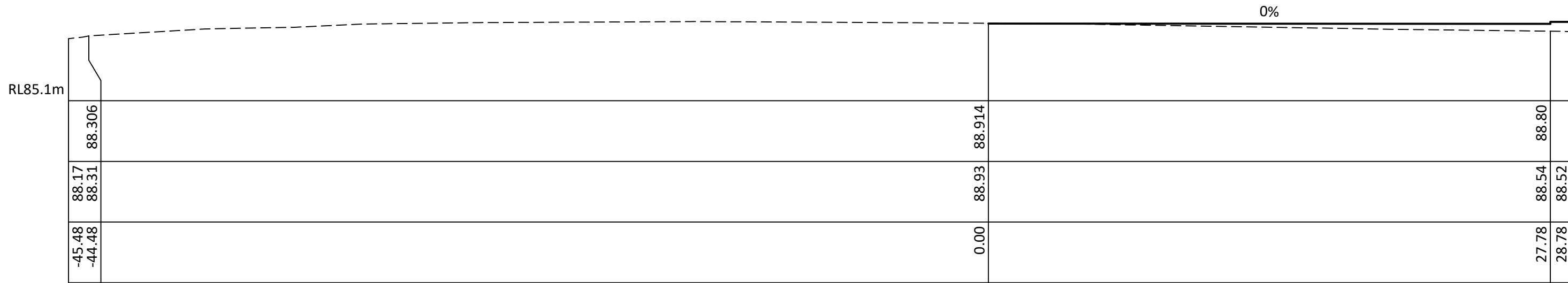


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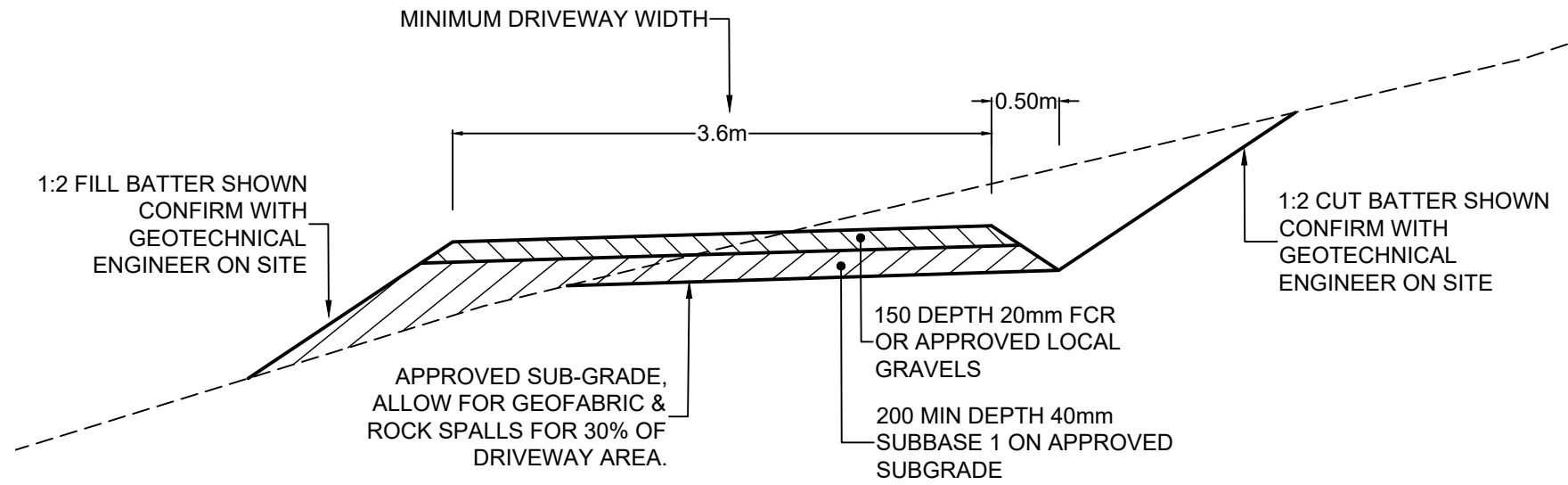


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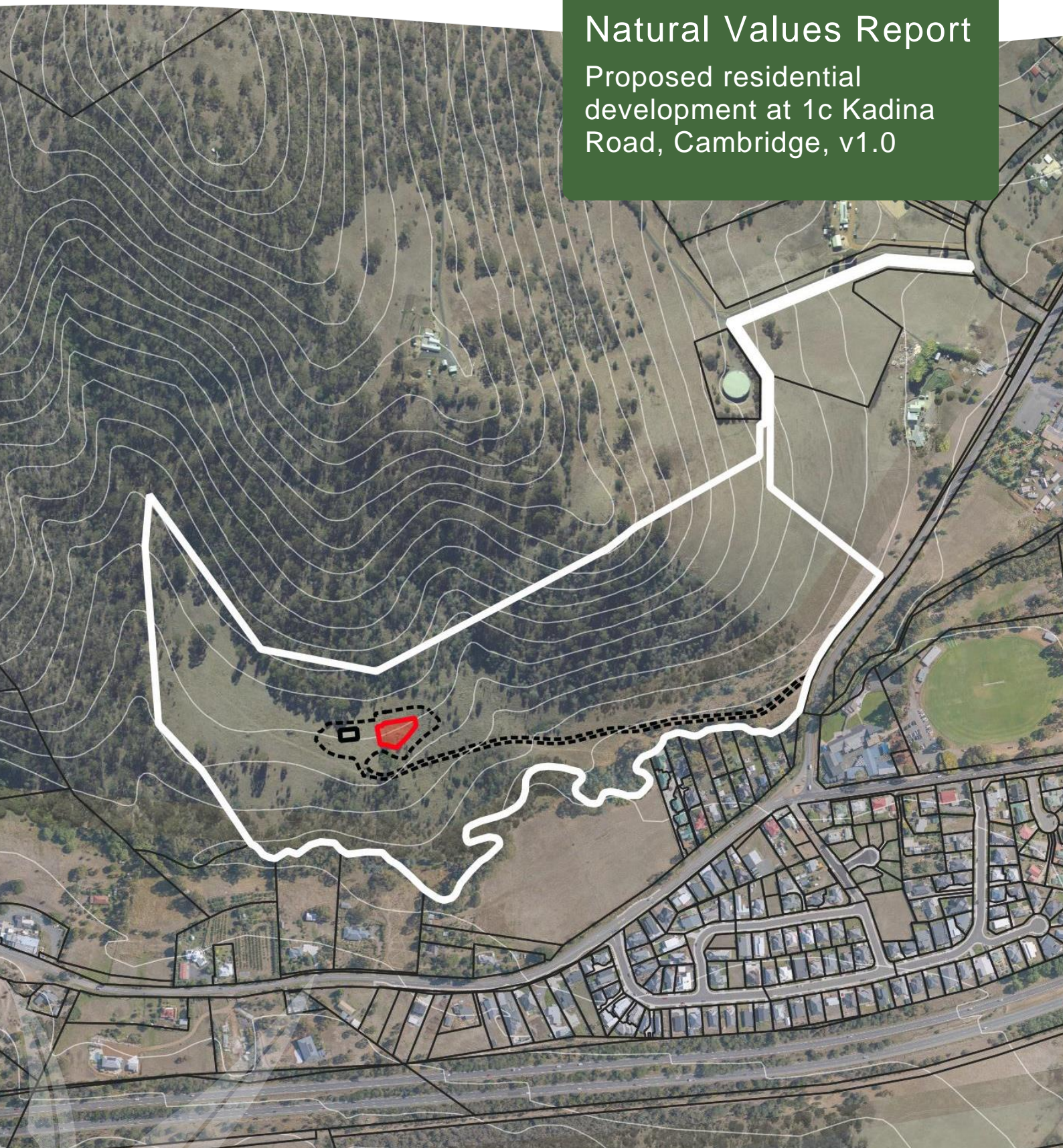
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Natural Values Report

Proposed residential
development at 1c Kadina
Road, Cambridge, v1.0



Clients: Phil Jones
Prepared by: Jim Mulcahy
Date: MAY 2023

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1 Introduction

This Natural Values Report has been prepared in support of a proposed residential development under the Tasmanian Planning Scheme – Clarence (the Scheme) at 1c Kadina Road, Cambridge. The subject land is zoned Landscape Conservation and is subject to several overlays under the Scheme.

There is a Priority Vegetation Area overlay across most of the property and a Waterway and Coastal Protection Area overlay over drainage lines running south through the land. The property access, building area and associated bushfire hazard management works have the potential to impact on natural values within these overlays. As a result, this natural values assessment has been undertaken to facilitate assessment of the proposal by the Clarence City Council.

Enviro-dynamics has been contracted to undertake this natural values assessment on behalf of the owners. The assessment identifies the natural values of those parts of the site materially affected by the proposal, including the type and extent of vegetation communities, presence of threatened species and threatened fauna habitat. It also maps weed infestations and identify any other threats present. Any potential impacts to natural values posed by the development are then analysed against the requirements of the Scheme.

2 Background

2.1 Planning and development

In September 2022 the owner applied for a permit to construct a shed on the subject land. During the planning assessment by Clarence Council, it became apparent the owner had undertaken significant earthworks and land clearing for construction of a property access and a benched building site. These works have been conducted without a permit from Council and some of the works have occurred within the area of a conservation covenant registered against the title of the property under the *Nature Conservation Act 2002*.

To resolve the breach of the conservation covenant, the Department of Natural Resources and Environment (NRE) have agreed to vary the conservation covenant to excise the areas that have been cleared and disturbed. In return, the owner has agreed to extend the area of the conservation covenant to capture some native vegetation in the southwest corner of the property.

Council have informed the owner that an application for retrospective planning approval must be lodged for the unapproved earthworks and land clearing, and that this application must be accompanied by a natural values assessment from a suitably qualified person.

Council have also informed the owner that a stand-alone shed is not a permitted use under the Landscape Conservation Zone and that he will need to apply for the shed in association with an application for a dwelling. This in turn requires a bushfire hazard assessment, with the outcomes of that assessment having relevance to the natural values assessment.

The owner has engaged Enviro-dynamics to conduct both the bushfire hazard assessment and the natural values assessment.

2.2 Site Description

The subject land is 22.66 hectares in a single title located on the lower slopes of Breakneck Hill at Cambridge, approximately 100 m north of the Cambridge town centre (Figure 1).

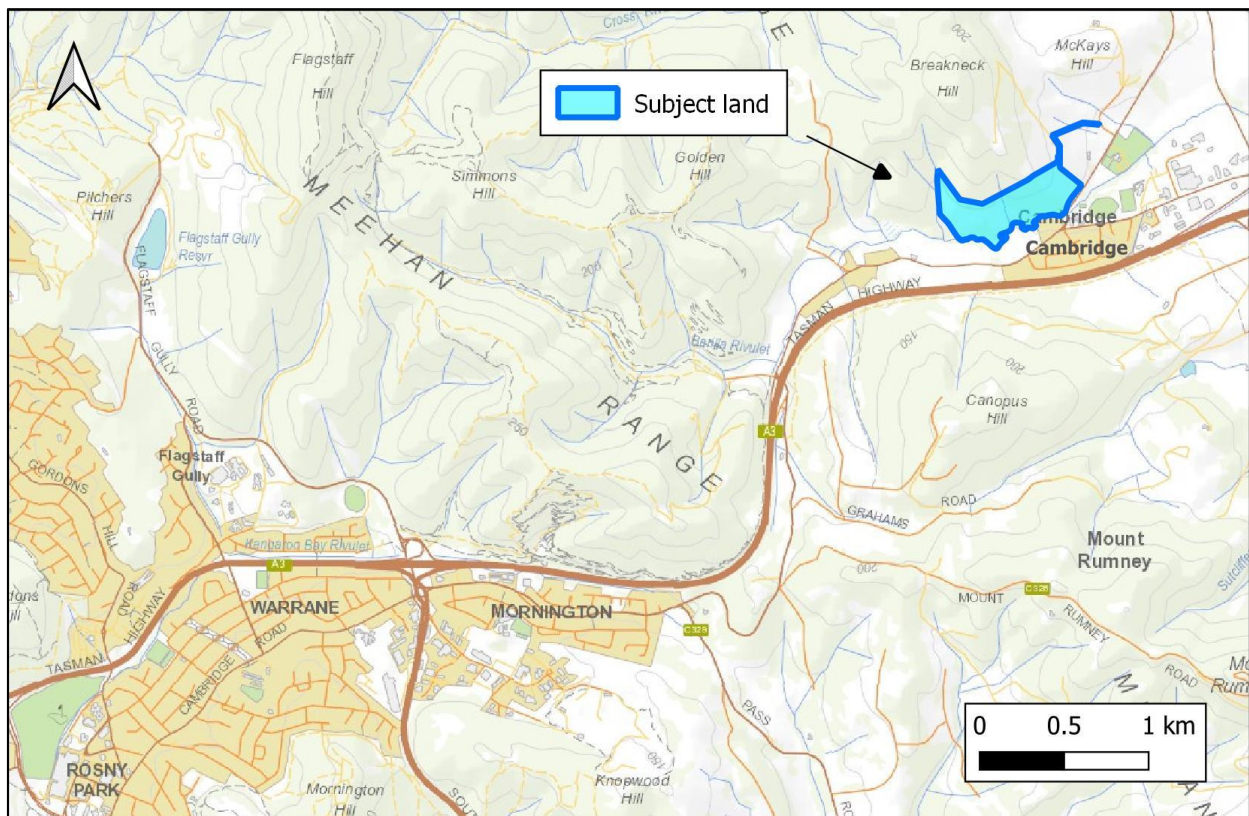


Figure 1 – Site Location (Image source: theLIST, 2023)

The property is bound to the south by Barilla Rivulet and in the southeast corner by Richmond Road. Approximately half of the property is wooded, with the other half occupied by grassland on land previously cleared and developed for pasture. Most of the property is subject to a conservation covenant under the *Nature Conservation Act 2002*, which is in the process of being varied (see proposed new boundaries in the site survey plan at Figure 3).

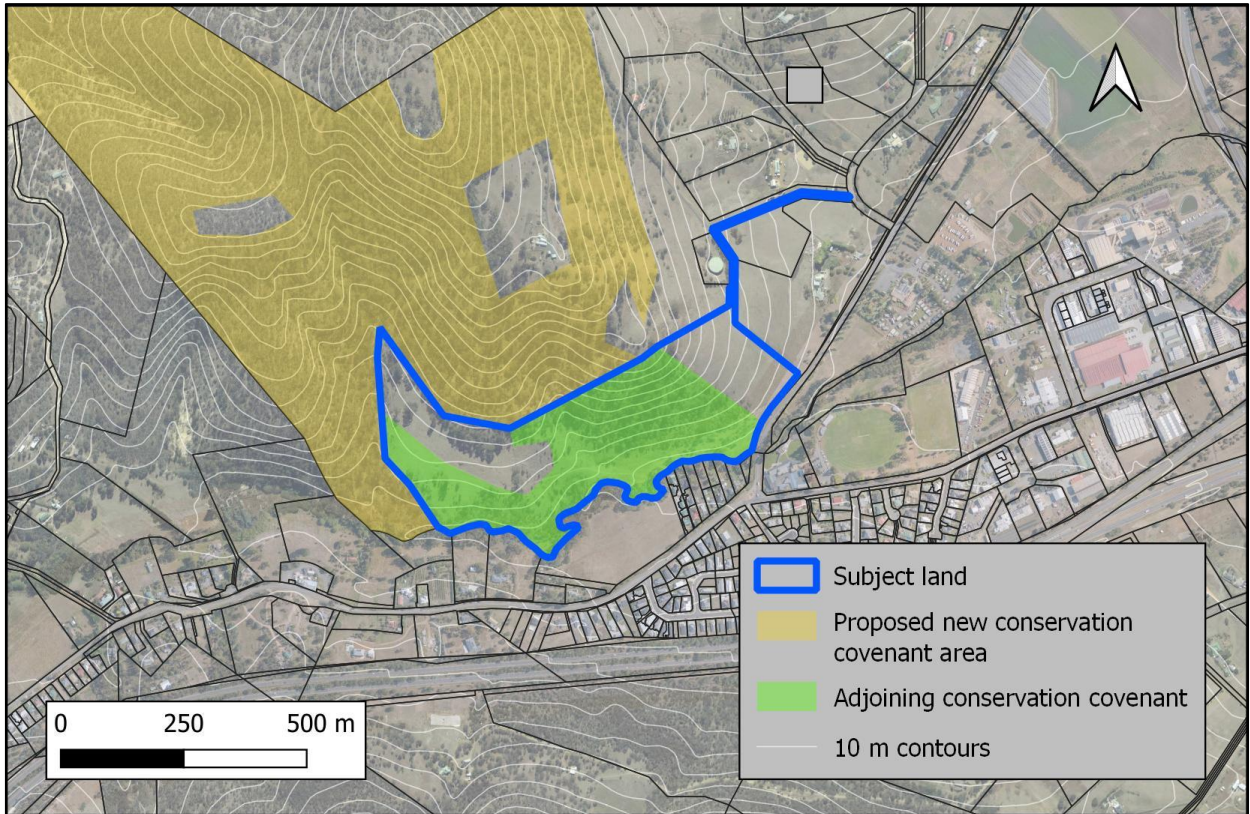


Figure 2 – Site Context Map (Source: theLIST, 2023)

The property has a southerly aspect, with an altitudinal range of 50-150 m above sea level and slopes ranging from around 10° near the proposed building site to over 30° in the forested areas directly south of the Breakneck Hill summit. The substrate across most of the site is mapped as Jurassic dolerite, with a small area of Permian mudstone mapped in the far northwest corner.

A formed gravel driveway 3.5 - 4 m wide extends from the frontage with Richmond Road in the east to a benched building site in the central west. The benched building site has been constructed through cut-and-fill involving significant excavation into the slope (see site survey plan at Figure 3). The extensive benched area currently houses a shipping container and the foundations of the proposed shed.

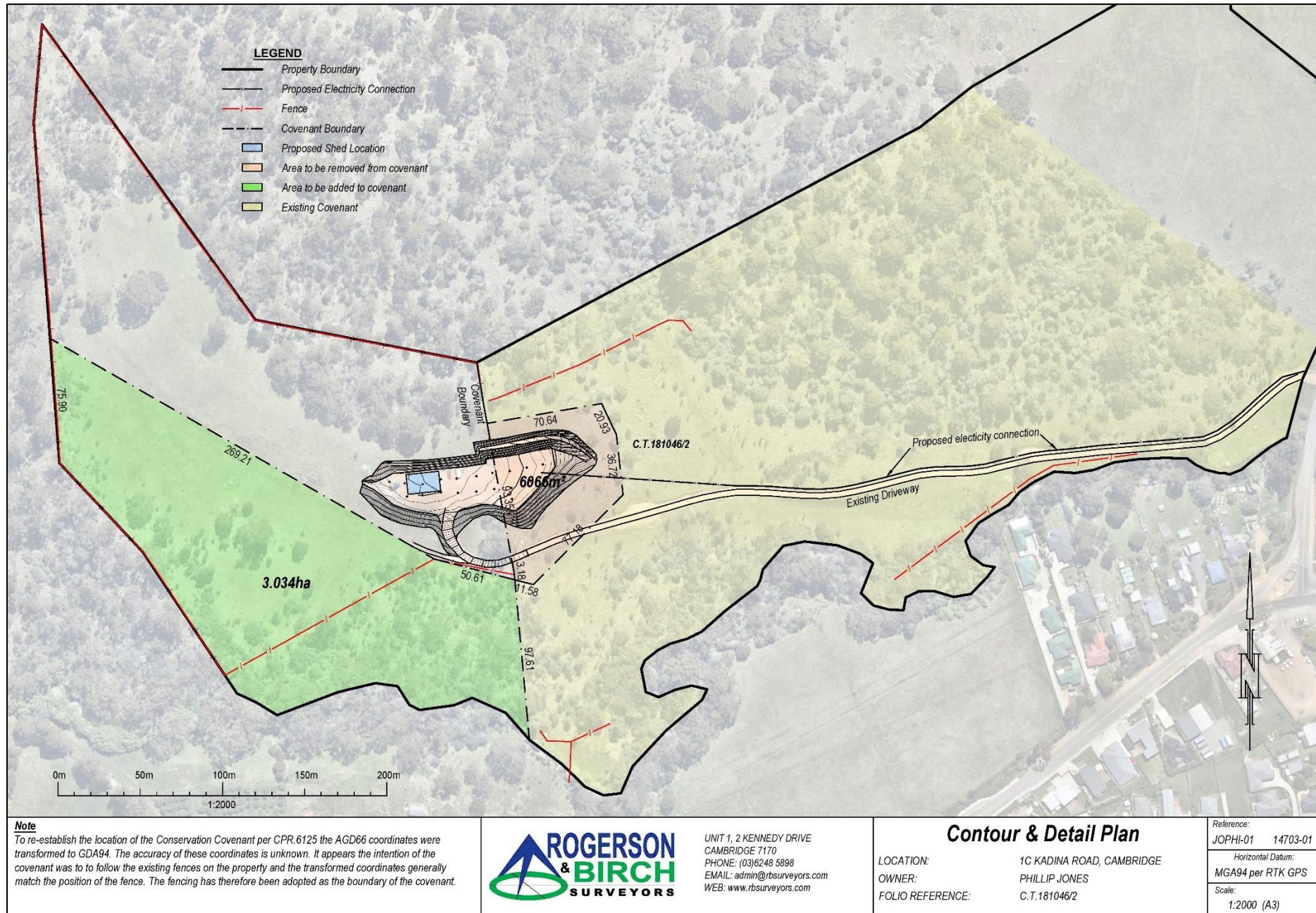


Figure 3 – Site Survey Plan (Rogerson and Birch Surveyors, April 2023)

3 Methods

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

3.1 Desktop analysis

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

- The existing 'Operations Plan' associated with the Conservation Covenant registered on the title to the property,
- An existing Natural Values Assessment conducted by north Barker Ecosystem Services at the time of the subdivision to create the subject land (North Barker, June 2017), referred to hereafter as 'the North Barker report',
- Natural Values Atlas (NRE, 2023), and
- LISTmap (theLIST, 2023).

3.2 Field survey

A meandering field survey of the area affected by the proposed development was undertaken by a single observer on the 8th of February 2023. Forested areas and the western end of the property were not surveyed in detail because these areas are not materially affected by the proposal and are unlikely to have changed significantly since the North Barker report in 2017.

Vegetation was assessed and classified according to TASVEG 4.0. All vascular plant species encountered were recorded, with an emphasis on detecting rare and threatened species. Searches for potential threatened fauna habitat e.g. tree hollows and den sites, and other evidence e.g. scats, diggings and tracks, were also undertaken.

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

3.3 Limitation of the survey

Whilst all vascular plants observed during the survey were recorded, a single rapid survey of a site is unlikely to detect all species present due to limited search time, limited site coverage and seasonal/temporal variations.

At this site, the needs of the survey were largely confined to the areas materially affected by the existing unauthorised clearing and earthworks, and the proposed additional works. As a result,

most of the property was not surveyed beyond a general perusal of canopy and shrub layer to establish the appropriate vegetation community classification.

Within the area surveyed in more detail, some plants encountered could not be identified to a species level and some species may have been overlooked due to a lack of fertile material. It is also possible that additional species are present but were dormant at the time of survey e.g. annuals, ephemerals.

4 Natural Values Assessment

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

4.1 Vegetation Communities

Five vegetation communities under the TASVEG4.0 classification system were mapped on the property:

- Blue gum (*Eucalyptus globulus*) dry forest and woodland (DGL), which is listed as a threatened community under Schedule 3A of the Tasmanian *Nature Conservation Act 2002*,
- White gum (*Eucalyptus viminalis*) dry grassy forest and woodland (DVG),
- *Acacia / Bursaria* woodland (NBA),
- Regenerating cleared land (FRG),
- Agricultural land (FAG), and
- Extra-urban miscellaneous – vehicle track (FUM).

The existing Operations Plan associated with the conservation covenant does not identify or describe the vegetation within the covenant area beyond describing the significant values being targeted – threatened DGL and associated significant habitat value for the critically endangered swift parrot (*Lathamus discolor*).

The vegetation map on page 6 of the North Barker report varies slightly from TASVEG4.0, mostly in respect of the riparian zone along Barilla Rivulet, where a narrow strip of black gum (*Eucalyptus ovata*) forest (DOV) is mapped, along with some relatively small patches (< 1 ha) of other vegetation communities. The intent of mapping at this scale for the North Barker report was clearly to highlight the significant natural values associated with the vegetation and individual mature trees in the riparian zone.

For the purposes of this report, the riparian forest is interpreted as remnants of broader forest or woodland communities which would have occupied the lower slopes of Breakneck Hill before they were cleared for pasture. In this context, the narrow riparian strip containing black gums is not an example of DOV but the margin of broader communities, with localised dominance by black gum and a shrubby understorey due to its location in the riparian zone of Barilla Rivulet. At the eastern end of this zone where white gum is the dominant, co-dominant species or sub-dominant species, the forest is mapped as DVG. At the western end where blue gum is the dominant, co-dominant species or sub-dominant species, the forest is mapped as DGL.

The vegetation communities on the property are described below, with descriptions largely following the North Barker report.

DGL

Blue gum (*E. globulus*) dry forest and woodland (DGL) is located upslope of the proposed development site and at the western end of the riparian zone along Barilla Rivulet.

The DGL forest above the proposed development site was not surveyed in detail. It has a mixed canopy of blue gum, white gum and white peppermint (*E. pulchella*). Arguably this area of forest could be mapped as white gum / white peppermint / blue gum dry forest (DPU). It is not unusual for DGL and DPU to occur in mosaic and in the absence of any detailed survey work in the forest on the southern slopes of Breakneck Hill, the broader mapping as DGL under TASVEG4.0 and the North Barker report has not been questioned.

The canopy of DGL in the riparian zone of Barilla Rivulet is dominated by blue gum with occasional white gum and black gum. The tall shrub layer includes native cherry (*Exocarpos cupressiformis*) and native box (*Bursaria spinosa*), while common groundcover species include silver tussock (*Poa labillardierei*), saggs (*Lomandra longifolia*) and rushes (North Barker, 2017).

In addition to being listed as threatened under the Tasmanian *Nature Conservation Act 2002* (NCA), DGL is also an important forage resource for the swift parrot (see fauna section below).

DVG

White gum (*E. viminalis*) forest (DVG) occurs on the lower eastern slopes of Breakneck Hill and at the eastern end of the riparian zone along Barilla Rivulet. The lower eastern slopes of the hill are unaffected by the proposal and the DVG in this area was not surveyed.

The canopy of DVG in the riparian zone is dominated by blue gum with occasional white gum and black gum. The tall shrub layer includes native cherry (*Exocarpos cupressiformis*) and native box (*Bursaria spinosa*), while common groundcover species include silver tussock (*Poa labillardierei*), saggs (*Lomandra longifolia*) and native rushes (North Barker, 2017).

NBA

Open grassy woodland dominated variously by native box (*Bursaria spinosa*) or silver wattle (*Acacia dealbata*) (NBA) occurs along the fringes of the eucalypt forest and woodland. It is floristically impoverished regrowth resulting from previous clearance but little active management to promote pasture. The larger patch in the central south of the property has native box as the dominant species, with the occasional silver wattle. This situation is reversed in the smaller patch of NBA to the east.

The understory of NBA is dominated by native grasses, which distinguishes it from adjoining FRG and FAG, which are dominated by introduced grasses. Prominent native species are silver tussock (*Poa labillardierei*), velvet tussock grass (*Poa rodwayi*), spear grass (*Austrostipa* sp.), wallaby grasses (*Austrodanthonia* spp.), tussock sedge (*Carex iynx*) and buzzy (*Acaena novae-zelandiae*). A range of exotic grass and common pasture weeds can also be found.

FRG and FAG

The areas of pasture on the lower slopes of Breakneck Hill appear at some stage to have been sown to rye grass but have not been maintained for many years (North Barker, 2017). This has resulted in a gradual succession back to a more native species assemblage, but also the establishment of agricultural weed species, including serrated tussock (*Nassella trichotoma*), which has been subject to control measures for several years (North Barker, 2017).

Colonisation by native species of areas previously cleared for pasture is evident throughout, resulting from a lack of active management (for pasture) over the last two decades. Prominent native species to establish in areas of pasture include common wallaby grass (*Rytidosperma setaceum*), silver tussock, prickly box and occasional eucalypt saplings, along with occasional sedges and rushes.

Where there is strong recruitment of shrubs and small trees within areas previously cleared for pasture, the vegetation has been mapped as regenerating cleared land (FRG). Some of these areas can be expected to succeed to NBA and if they are allowed to continue regenerating.

Where there is little or no recruitment of shrubs and small trees within areas previously cleared for pasture, the vegetation has been mapped as FAG. These areas may succeed to native grassland complex (GCL) and if they are allowed to continue regenerating.

The grassy groundcover in areas of FRG and FAG continue to be dominated by exotic grasses such as ryegrass (*Lolium* sp.), cocksfoot (*Dactylis glomerata*) and yorkshire fog grass (*Holcus lanatus*), along with common pasture weeds (see preliminary species list at Appendix 1).

The vegetation on the property is mapped in Figures 4-6 relative to the existing and proposed clearance and disturbance.

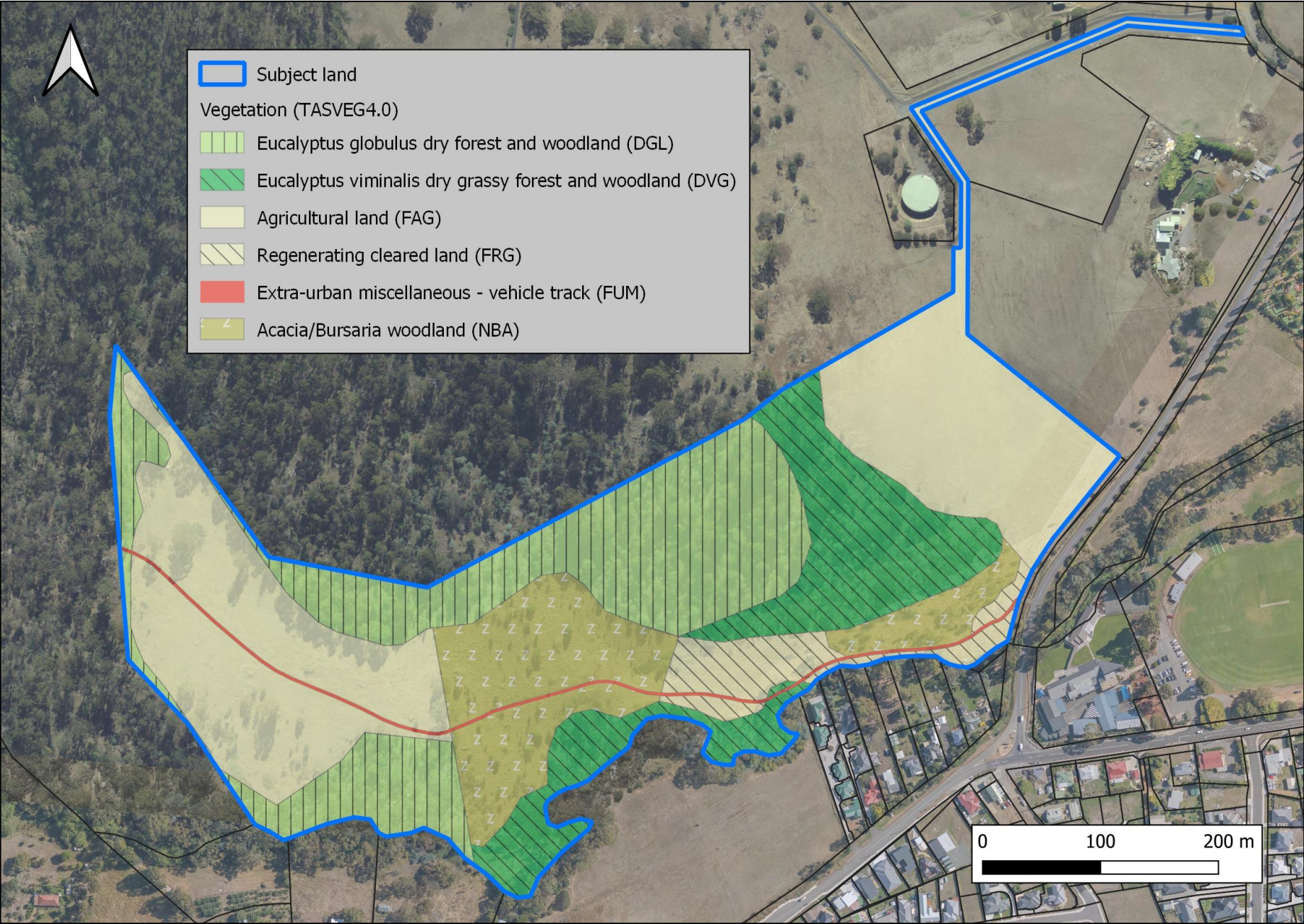


Figure 4 – Vegetation communities on the property prior to recent clearing and earthworks (Imagery: theLIST 2023)

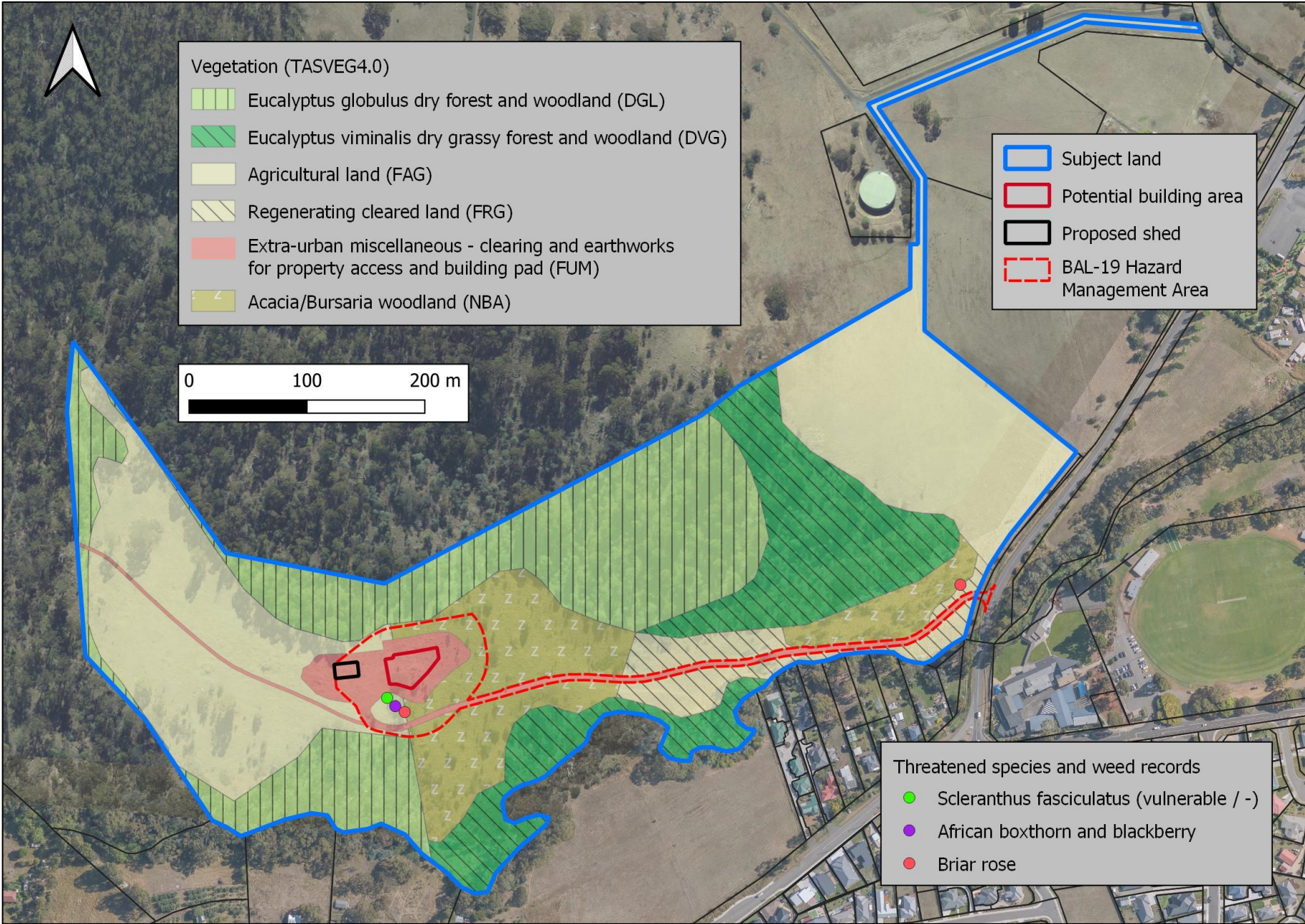


Figure 5 – Vegetation, threatened species and weeds relative to existing and proposed clearing and earthworks (Imagery: theLIST 2023)

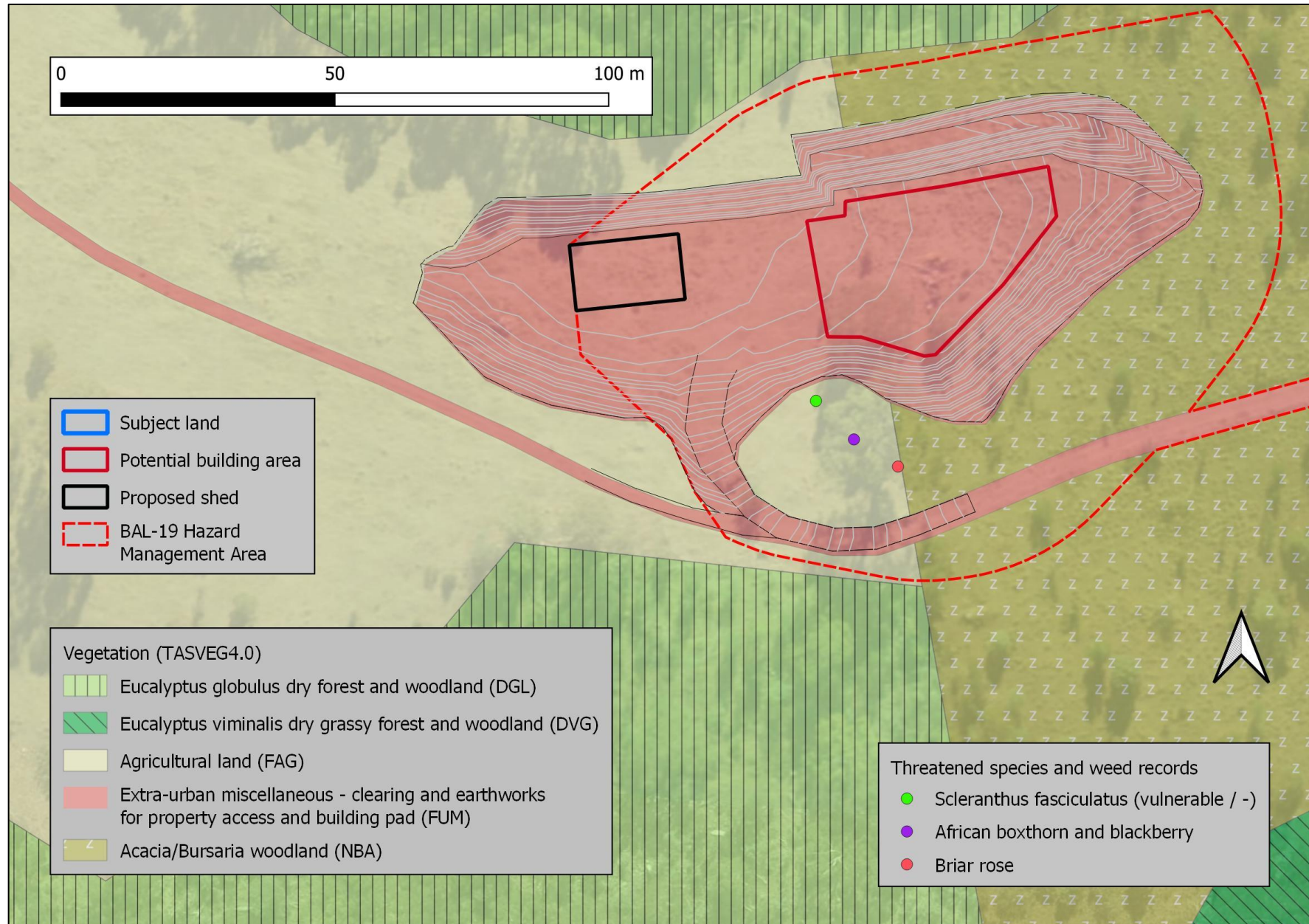


Figure 6 – Vegetation, threatened species and weeds relative to development site and proposed works (Imagery: theLIST 2023; site plan by Rogerson and Birch Surveyors, February 2023)

4.1.1 Conservation status of the vegetation communities

DGL is listed as a threatened vegetation community under Schedule 3A of the Tasmanian *Nature Conservation Act 2002* and the community also provides significant foraging habitat for the critically endangered swift parrot (*Lathamus discolor*).

None of the other vegetation communities on the property are listed as threatened under State or Commonwealth legislation, but all mature black gums are considered to have conservation significance because they provide potentially significant foraging habitat for swift parrots and all mature, hollow-bearing trees are considered to have conservation significance because they provide potentially significant nesting habitat for swift parrots.

4.2 Flora

A total of 92 vascular plants were recorded during the surveys conducted by North Barker (2017) and for this report, of which one is a species listed as vulnerable under Tasmanian legislation, twenty-seven are introduced species and four are declared weeds under the *Weed Management Act 1999* (see preliminary species list at Appendix 1).

Additional flora species are likely to occur within the site, particularly in the parts of the property not surveyed in detail for either the North Barker report or this report, and some plants could have been overlooked due to the inherent limitations of the survey, e.g. timing, meandering survey method and limited survey effort.

4.2.1 Threatened flora

One flora species listed as threatened under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) was recorded during the survey – the spreading knawel (*Scleranthus fasciculatus*). No flora species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) was recorded during the survey.

A single spreading knawel plant was found under the canopy of a large white gum directly south of the proposed development site (see Figures 5 and 6). While there are numerous records of this species from the adjoining land to the north (North Barker, 2017), it had not previously been recorded from this property.

The site where the single spreading knawel was found (under a large tree within pasture) may have provided the inter-tussock spaces the species requires whilst protecting it from threatening processes associated with pasture management, such as fertiliser and herbicide application. Once this plant was found, a more deliberate search of the immediate area surrounding the development site was conducted, but no further plants were found.

A search of the Natural Values Atlas (NRE, 2022) revealed that a further 41 threatened flora species have been recorded within 5 km of the site, but the property does not provide suitable habitat for many of these species. Species for which potential habitat occurs are listed in Table 1. It should be noted however, that given previous ownership of the property for an extended period by a Botanist and Natural Values consultant, it is probably unlikely that any of these species occur if they have not already been recorded.

Table 1 – Threatened flora species recorded within a 5 km radius of the property and potential for suitable habitat to occur

Species	Status TSPA	Status EPBCA	Comments
<i>Asperula scoparia scoparia</i> (prickly woodruff)	rare	-	Suitable habitat may be present in grassy woodland
<i>Austrostipa bigeniculata</i> (double-jointed speargrass)	rare	-	Suitable habitat may be present in areas with open grassy groundcover
<i>Austrostipa blackii</i> (crested speargrass)	rare	-	Suitable habitat may be present in areas with open grassy groundcover
<i>Carex longebrachiata</i> (drooping sedge)	rare	-	Suitable habitat may be present along Barilla Rivulet
<i>Eryngium ovinum</i> (blue devil)	vulnerable	-	Suitable habitat may be present in grassy woodland
<i>Juncus vaginatus</i> (clustered rush)	rare	-	Suitable habitat may be present along Barilla Rivulet
<i>Poa mollis</i> (soft tussockgrass)	vulnerable	-	Suitable habitat may be present in grassy woodland
<i>Senecio squarrosus</i> (leafy fireweed)	rare	-	Suitable habitat may be present in grassy woodland
<i>Teucrium corymbosum</i> (forest germander)	rare	-	Suitable habitat may be present in DVG
<i>Velleia paradoxa</i> (spur velleia)	vulnerable	-	Suitable habitat may be present in grassy woodland
<i>Vittadinia gracilis</i> woolly new-holland-daisy	rare	-	Suitable habitat may be present in grassy woodland
<i>Vittadinia muelleri</i> narrowleaf new-holland-daisy	rare	-	Suitable habitat may be present in grassy woodland

4.2.2 Introduced plants

A total of 27 introduced plants have been recorded from the property, most of which are exotic grasses and common pasture weeds. A range of woody weeds occur that are recognised as environmental weeds, and four species occur that are declared weeds under the *Weed Management Act 1999*:

- cotoneaster (*Cotoneaster sp.*), environmental weed,
- hawthorn (*Craetagus monogyna*) environmental weed,
- english broom (*Cytisus scoparius*), environmental and **declared weed**,
- african boxthorn (*Lycium ferocissimum*), environmental and **declared weed**,
- serrated tussock (*Nassella trichotoma*), environmental and **declared weed**,
- blackberry (*Rubus fruticosus*), environmental and **declared weed**, and
- briar rose (*Rosa rubiginosa*), environmental weed.

The only environmental / declared weeds recorded in the area materially affected by the proposal were individual briar rose, blackberry and african boxthorn plants (see Figures 5 and 6).

Based on discussions with the previous owner it was anticipated that some serrated tussock would be found during the survey (Phil Barker, pers comm), but no plants were recorded in the immediate vicinity of the property access or development site, which were the focus of the survey for this report.

Despite the control efforts of the previous owners, there is no doubt that serrated tussock will still be present in those parts of the property previously cleared for pasture. There are several reasons why no plants were recorded in the recent survey:

- the survey area was too narrow (probable),
- small, immature plants may have gone unrecognised or overlooked in the area surveyed,
- any plants in the area surveyed were buried under the cut and fill for the development site, or
- fortuitously, there is no serrated tussock in the areas materially affected by the proposal.

The most serious of the common pasture weeds recorded were infestations of spear thistle (*Cirsium vulgare*) in the disturbed ground along the margins of the new property access and the cut-and-fill for the development site.

4.3 Fauna

4.3.1 Threatened fauna

No threatened fauna species listed under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) or under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) was recorded during the survey.

The search of the Natural Values Atlas revealed that sixteen threatened fauna species have been recorded within a 5 km radius of the site. The property provides potential habitat for eleven of these species (see Table 2).

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

Species	Status TSPA	Status EPBCA	Comments
<i>Accipiter novae-hollandiae</i> (grey goshawk)	endangered	-	Suitable foraging habitat present, but probably no nesting habitat
<i>Aquila audax fleayi</i> (Tas. wedge-tailed eagle)	endangered	endangered	Suitable foraging habitat present but unlikely to support nests (better nesting habitat with longstanding nests nearby)
<i>Dasyurus viverrinus</i> (eastern quoll)	-	endangered	Suitable foraging and denning habitat present
<i>Lathamus discolor</i> (swift parrot)	endangered	endangered	Suitable foraging habitat present and possibly some nesting habitat
<i>Perameles gunnii</i> (eastern barred bandicoot)	-	vulnerable	Suitable foraging and nesting habitat present
<i>Sarcophilus harrisii</i> (Tasmanian devil)	endangered	endangered	Suitable foraging and denning habitat present
<i>Tyto novae-hollandiae castanops</i> (Tasmanian masked owl)	endangered	vulnerable	Suitable foraging habitat present, but probably no nesting habitat

4.3.2 Threatened fauna habitat

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

As noted in the North Barker report, the most significant threatened fauna habitat on the property is the foraging habitat and limited potential nesting habitat for the critically endangered

swift parrot. The only intersection between these habitat values and areas materially affected by the proposal is the two large white gums (*E. viminalis*) that were located directly south of the proposed development site. The largest of these trees has been retained but the second tree was removed to accommodate the cut-and-fill for the development site (see section on Development Impacts below).

White gums typically have senescent branches that often form hollows. As such, both of these mature trees had the potential to support nesting hollows for swift parrots or other hollow-dependent species.

5 Development Impacts

The following section outlines the potential impacts of the proposed development on natural values and provides an assessment of the proposal against the relevant provisions of the Priority Vegetation Area overlay of the Tasmanian Planning Scheme – Clarence.

Most of the vegetation clearance and physical disturbance required for the development has already occurred through construction of the property access and cut-and-fill for the proposed development site. While some of the property access follows the pre-existing vehicle track, for the most part access construction is new disturbance (see Figures 4 and 5). A reasonably comprehensive set of photos illustrating the existing works is provided at Appendix 2.

5.1 Impact on vegetation communities

The only vegetation communities impacted by the works are agricultural land (FAG), regenerating cleared land (FRG) and *Acacia / Bursaria* woodland (NBA). At this site, all these communities are disturbance - induced communities resulting from past clearance of woodland or forest. The impacted vegetation is predominantly grassy groundcover containing varying proportions of native and exotic species, along with occasional removal of shrubs and trees (see Figures 7-9). These vegetation communities do not have significant conservation value but could house species or habitat of significance.

5.2 Impact on threatened flora

While it can't be ruled out that spreading knawel (*Scleranthus fasciculatus*) plants may have occurred within the areas of disturbance, this is considered unlikely as the one plant recorded is in a relatively unique situation not replicated in the disturbed areas. As noted in the flora section above, the site where the single spreading knawel was found (under a large tree within pasture) may have provided the inter-tussock spaces the species requires whilst protecting it from threatening processes associated with pasture management, such as fertiliser and herbicide application.

5.3 Impact on threatened fauna habitat

The only potential impact on threatened fauna habitat associated with the development is the impact on mature white gums directly south of the development site, which coincides with the site where the spreading knawel was found. At least one mature tree has been removed in this area (Figure 9), which may have had the potential to support hollows. One mature tree, which was the largest tree at the site, has been retained.



Figure 7. - The newly constructed property access through NBA, with evidence of native box (*Bursaria spinosa*) removal at right



Figure 8. - The eastern end of development site, with evidence of native box (*Bursaria spinosa*) removal at right



Figure 9. The area immediately south of the development site, with retained mature white gum at right, evidence of the removal of at least one mature white gum at centre, and the location of the spreading knawel record at bottom right



Figure 10. The area immediately south of the development site, with retained mature white gum at right and evidence of the removal of at least one mature white gum at bottom centre and right

6 Legislative and Statutory considerations

6.1 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

The proposed development does not trigger any requirements or response under the EPBCA. The mature white gum directly to the south of the development site should be retained as potential nesting habitat for the swift parrot (*Lathamus discolor*) which is listed as critically endangered under this Act.

6.2 Tasmanian *Threatened Species Protection Act 1995*

A permit is required should the owner wish to remove the spreading knawel (*Scleranthus fasciculatus*) located directly to the south of the development site. Indirect impacts from residential occupation and use will probably make it hard to retain spreading knawel at the site, but with a dedicated effort at sympathetic management it may be possible. Sympathetic management would constitute occasional slashing of the grassy groundcover in the area and avoiding application of, or impacts from, fertiliser and herbicide.

The mature white gum directly to the south of the development site should be retained as potential nesting habitat for the swift parrot (*Lathamus discolor*) which is listed as critically endangered under this Act.

6.3 Tasmanian *Nature Conservation Act 2002* (NCA)

No vegetation listed as threatened under the NCA is present on site.

6.4 Tasmanian *Weed Management Act 1999* (WMA)

Two declared weeds in the form of african boxthorn and blackberry were recorded in the vicinity of the development site and a third in the form of serrated tussock may be present but gone undetected.

These weed species will need to be managed in accordance with the WMA following the best practise prescriptions as laid out in the *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, Stewart and Askey-Doran, 2015)

6.5 Tasmanian Planning Scheme - Clarence

The site is zoned as Landscape Conservation (22.0). Most of the area materially affected by the proposal is subject to the Priority Vegetation Area overlay and/or the Waterway and Coastal Protection Area overlay of the Natural Assets Code (see Figure 11).

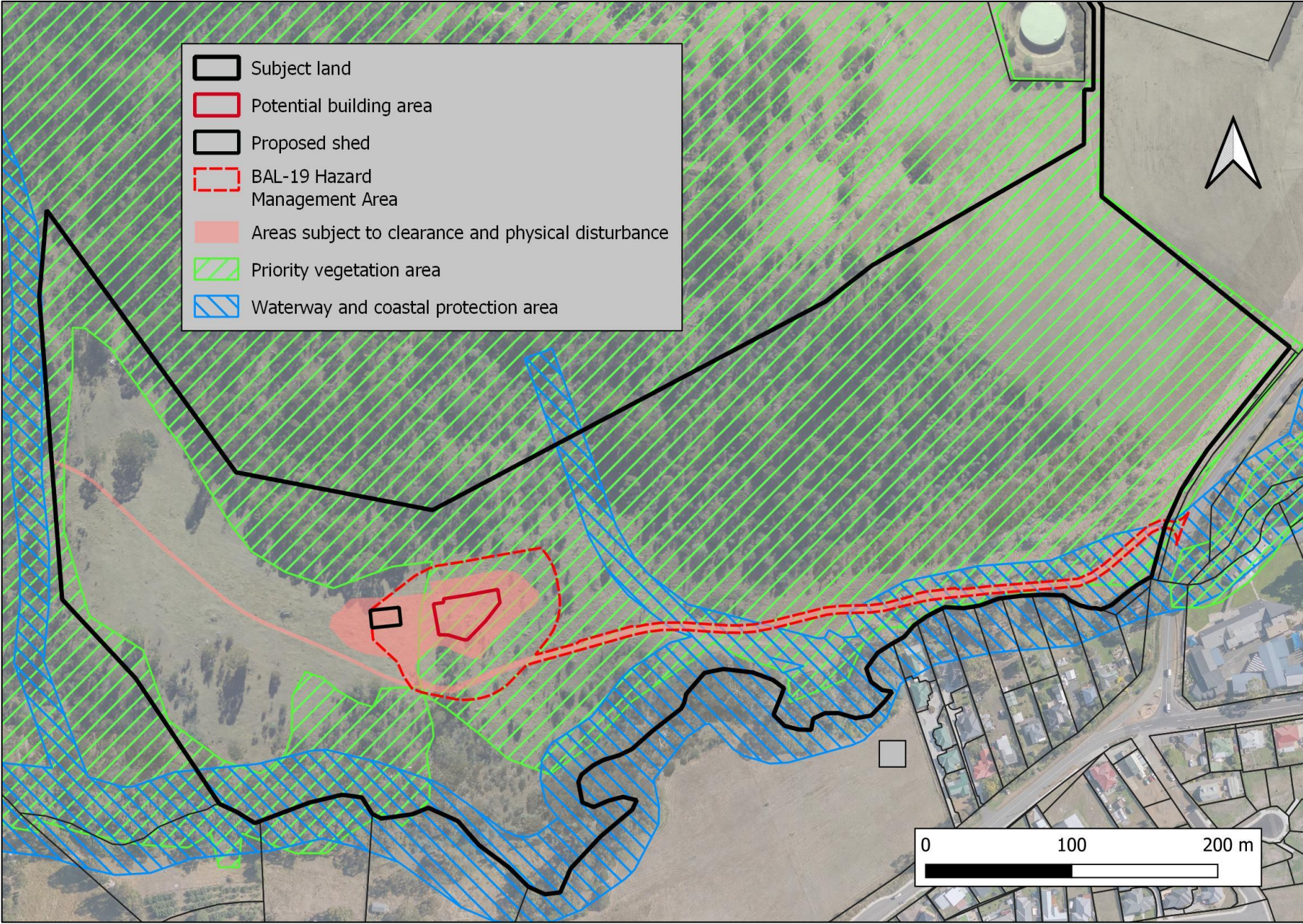


Figure 11. Scheme overlays applying to the development site

Natural Assets Code (C7.0)

The site is subject to the Waterway and Coastal Protection Area and the Priority Vegetation Area overlays of the Natural Assets Code.

C7.6.1 Buildings and works within a waterway and coastal protection area

Most of the property access is within the overlay where it applies to Barilla Rivulet (Class 2 watercourse). The property access also crosses the overlay where it applies to an ephemeral watercourse (Class 4 watercourse). The proposal must meet the performance criteria, as outlined below.

The author is not qualified to assess the engineering and construction standard of the recently constructed property access, in particular to assess whether the culverts and drainage provided meet applicable standards and are adequate to prevent any adverse outcomes during high rainfall events. For the purposes of this assessment, it is assumed the property access has been engineered and constructed to all applicable standards and is adequate.

Subclauses of C7.6.1 P1 which relate to the coast, to wetlands, to in-stream areas, to stream banks and to permanent watercourses are excluded from consideration because they are not relevant to this proposal.

P1.1 Buildings and works within a waterway and coastal protection area must avoid or minimise adverse impacts on natural assets, having regard to:

- (a) impacts caused by erosion, siltation, sedimentation and runoff,

Response: although the property access runs through the overlay where it applies to Barilla Rivulet (Class 2 watercourse), it is outside the riparian zone and the chosen alignment around the contour is appropriate,

the property access cuts across the overlay where it applies to an ephemeral watercourse (Class 4 watercourse) which is such a minor drainage line as to be difficult to discern where the access crosses,

it is assumed the property access has been engineered and constructed to an adequate standard to avoid impacts on natural values caused by erosion, siltation, sedimentation and runoff,

- (b) impacts on riparian or littoral vegetation,

Response: although the property access runs through the overlay where it applies to Barilla Rivulet, it is outside the riparian zone,

no riparian or littoral vegetation is directly impacted by the proposal,

it is assumed the property access has been engineered and constructed to an adequate standard to avoid indirect impacts on riparian or littoral vegetation caused by erosion, siltation, sedimentation and runoff,

(e) [the need to avoid significantly impeding natural flow and drainage,](#)

Response: the ephemeral watercourse (Class 4 watercourse) cut by the property access is such a minor drainage line as to be difficult to discern where the access crosses,

it is assumed the property access has been engineered and constructed to an adequate standard to avoid impeding natural flow and drainage where the access crosses this watercourse,

(i) [minimising cut and fill,](#)

Response: the chosen alignment of the property access around the contours appears to do a good job of minimising cut and fill,

(j) [building design that responds to the particular size, shape, contours or slope of the land,](#)

Response: there is no crossover between this overlay and the proposed building area,

(l) [minimising the need for future works for the protection of natural assets, infrastructure and property,](#)

Response: it is assumed the property access has been engineered and constructed to an adequate standard to avoid the need for future works for the protection of natural assets, infrastructure and property,

(m) [the environmental best practice guidelines in the Wetlands and Waterways Works Manual ...](#)

Response: it is assumed the property access has been engineered and constructed to all applicable standards and is adequate.

C7.6.2 Buildings and works within a priority vegetation area

Most of the existing and proposed development occurs within this overlay.

Within the definition of terms in the planning scheme 'Priority Vegetation' means native vegetation where any of the following apply:

(a) [it forms an integral part of a threatened native vegetation community as prescribed under Schedule 3A of the *Nature Conservation Act 2002*,](#)

Response: the proposal only affects areas of FAG, FRG and NBA, none of which are threatened native vegetation community as prescribed under Schedule 3A of the *Nature Conservation Act 2002*,

(b) [is a threatened flora species,](#)

Response: no threatened flora species were recorded in the areas directly impacted by the proposal,

one spreading knawel (*Scleranthus fasciculatus*), which is listed as vulnerable under the TSPA, was recorded in proximity to the proposed development site, it is possible but unlikely that spreading knawel plants were in the areas already cleared and disturbed for construction of the property access and development site,

indirect impacts from residential occupation and use will probably make it hard to retain spreading knawel at the site, but with a dedicated effort at sympathetic management it may be possible,

(c) [it forms a significant habitat for a threatened fauna species, or](#)

Response: no significant habitat for a threatened fauna species has been identified in the areas directly impacted by the proposal,

the large mature white gum directly south of the development site has the potential to support hollows which could provide nesting habitat for hollow-dependent species, including the critically endangered swift parrot (*Lathamus discolor*),

(d) [it has been identified as native vegetation of local importance.](#)

Response: the application of the Priority Vegetation Area overlay to sites without known threatened vegetation or threatened species habitat indicates that the site has been modelled as having potential to contain native vegetation of local importance,

with the exception of the single spreading knawel plant and the large mature white gum directly south of the development site, no natural values were identified that would qualify the vegetation materially affected by the proposal as locally significant (e.g. native vegetation with limited bioregional reservation and extent).

C7.6.2 Clearance within a priority vegetation area

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

- (b) buildings and works associated with the construction of a single dwelling or an associated outbuilding ...

Response: the clearing that has occurred and will occur is in support of a single dwelling and associated outbuilding.

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

Response: there is no evidence that the clearing which has occurred and will occur as a result of the proposed development has or will have any direct impact on priority vegetation,

the priority vegetation identified near the development site, in the form of the single spreading knawel plant and the large mature white gum directly south of the development site, should be retained and any indirect impacts arising from the development should be avoided.

7 Summary and conclusions

The natural values of land at 1c Kadina Road, Cambridge were assessed as part of a development application for a new habitable building and outbuilding.

There is no evidence that the clearing which has occurred and will occur as a result of the proposed development has or will have any direct impact on priority vegetation or other significant natural values.

Priority vegetation in the form of a single spreading knawel plant and a large mature white gum were identified in the area directly south of the development site. These values should be retained and any indirect impacts arising from the development should be avoided (see management advice in section 5 on page 18 regarding development impacts).

The following general recommendations are provided regarding further development and use of the land:

- all declared weeds and environmental weeds should be controlled, and
- any soil or gravel imported to the site for construction or landscaping purposes should be from a weed free source to prevent the establishment of further introduced species on the site.

8 References

Commonwealth of Australia (1999) Environment Protection and Biodiversity Conservation Act 1999. No. 91, 1999.

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Appendix 1 – Preliminary plant species list for 1c Kadina Road, Cambridge

Recorder: Andrew North (North Barker, 2017) **Date:** 14th June 2017

Recorder: Jim Mulcahy **Date:** 8th February 2023

Dicotyledons

ARALIACEAE

Hydrocotyle hirta hairy pennywort

ASTERACEAE

Cassinia aculeata dolly bush

Cirsium vulgare spear thistle i

Hypochaeris radicata cat's ear i

Lagenophora stipitata blue bottle daisy

Sonchus asper spiny sow-thistle i

Taraxacum sp. dandelion

Senecio linearifolius fireweed groundsel

Senecio quadridentatus cotton fireweed

Senecio sp. fireweed

CAMPANULACEAE

Wahlenbergia sp. bluebell

CARYOPHYLLACEAE

Scleranthus fasciculatus spreading knawel v

CONVOLVULACEAE

Dichondra repens kidney weed

DILLENACEAE

Hibbertia sp. guinea flower

ERICACEAE

Acrotriche serrulate ant's delight

<i>Styphelia humifusum</i>	native cranberry	
FABACEAE		
<i>Acacia dealbata</i>	silver wattle	
<i>Acacia melanoxylon</i>	blackwood	
<i>Acacia verticillata</i>	prickly moses	
<i>Bossiaea prostrata</i>	creeping bossia	
<i>Cytisus scoparius</i>	english broom	i, d
<i>Genista sp.</i>	broom	i
<i>Trifolium sp.</i>	clover	i
<i>Vicia sp.</i>	vetch	i
GENTIANACEAE		
<i>Centaurium erythraea</i>	common centaury	i
GERANIACEAE		
<i>Geranium potentilloides</i>	soft cranesbill	
<i>Geranium dissectum</i>	cut-leaved crane's-bill	i
<i>Geranium sp.</i>	geranium	
HALORAGACEAE		
<i>Gonocarpus tetragynus</i>	common raspwort	
HYPERICACEAE		
<i>Hypericum gramineum</i>	saint john's wort	i
LAMIACEAE		
<i>Prunella vulgaris</i>	common selfheal	i
MYRTACEAE		
<i>Eucalyptus globulus</i>	tasmanian blue gum	
<i>Eucalyptus obliqua</i>	stringybark	
<i>Eucalyptus pulchella</i>	white peppermint	
<i>Eucalyptus viminalis</i>	stringybark	
<i>Leptospermum lanigerum</i>	woolly tea-tree	

OROBANCHACEAE

Parentucellia viscosa yellow glandweed i

OXALIDACEAE

Oxalis perennans grassland wood sorrel

Oxalis sp. wood sorrel

PHYLLANTHACEAE

Poranthera microphylla. small poranthera

PITTOSPORACEAE

Bursaria spinosa native box

PLANTAGINACEAE

Plantago coronopus buck's horn plantain i

Plantago lanceolata ribwort plantain i

Plantago varia variable plantain

Veronica gracilis slender speedwell

POLYGONACEAE

Rumex sp. dock

POTAMOGETONACEAE

Potamogeton sp. pond weed

RANUNCULACEAE

Clematis aristata old man's beard

Ranunculus lappaceus common buttercup

ROSACEAE

Acaena novae-zelandiae common buzzy

Acaena echinata sheep's burr

Cotoneaster sp. cotoneaster i

Craetagus monogyna hawthorn i

Rosa rubiginosa briar rose i

Rubus fruticosus blackberry i, d

RUBIACEAE

Coprosma quadrifida native currant

SANTALACEAE

Exocarpos cupressiformis native cherry

SOLANACEAE

Lycium ferocissimum african boxthorn i, d

THYMELAEACEAE

Pimelea glauca smooth rice flower

Pimelea humilis dwarf rice flower

VIOLACEAE

Viola hederaceae native violet

Monocotyledons

ASPARAGACEAE

Lomandra longifolia sagg

Lomandra nana small mat-rush

CYPERACEAE

Carex appressa tall sedge

Carex iynx tussock sedge

Lepidosperma elatius tall sword sedge

Lepidosperma laterale variable sword sedge

Schoenus apogon common bog rush

Schoenus sp. bog rush

Uncinia sp. hook sedge

JUNCACEAE

Juncus pauciflorus loose flower rush

Juncus saropholus broom rush

POACEAE

Anthoxanthum odoratum sweet vernal grass i

<i>Agrostis sp.</i>	bent grass	i
<i>Austrostipa sp.</i>	spear grass	
<i>Cynosurus echinatus</i>	bristly dogstail grass	i
<i>Dactylis glomerata</i>	cocksfoot	i
<i>Ehrharta distichophylla</i>	hairy rice grass	
<i>Ehrharta stipoides</i>	weeping grass	
<i>Holcus lanatus</i>	yorkshire fog grass	i
<i>Lachnagrostis sp.</i>	blown grass	i
<i>Lolium sp.</i>	ryegrass	i
<i>Nassella trichotoma</i>	serrated tussock	i,d
<i>Poa labillardieri</i>	silver tussock grass	
<i>Poa rodwayi</i>	velvet tussock grass	
<i>Poa sieberiana</i>	grey tussock grass	
<i>Rytidosperma penicillatum</i>	slender wallaby grass	
<i>Rytidosperma setaceum</i>	common wallaby grass	
<i>Rytidosperma sp.</i>	wallaby grass	
<i>Themeda triandra</i>	kangaroo grass	

Pteridophytes

DENNSTAEDTIACEAE

Pteridium esculentum subsp. esculentum bracken

PTERIDIACEAE

Adiantum aethiopicum maidenhair fern

i = introduced

d = declared weed (*Weed Management Act 1999*)

CR = Critically Endangered, EN = Endangered, VU = ~ (*Environment Protection and Biodiversity Conservation*

Vulnerable *Act 1999*)

e = endangered v = vulnerable r = rare ~ (*Tasmanian Threatened Species Protection Act 1995*)

Appendix 2 – Illustrative photos of clearance and disturbance associated with recent construction of property access and cut-and-fill for development site



Photo 1 – Crossover from Richmond Road

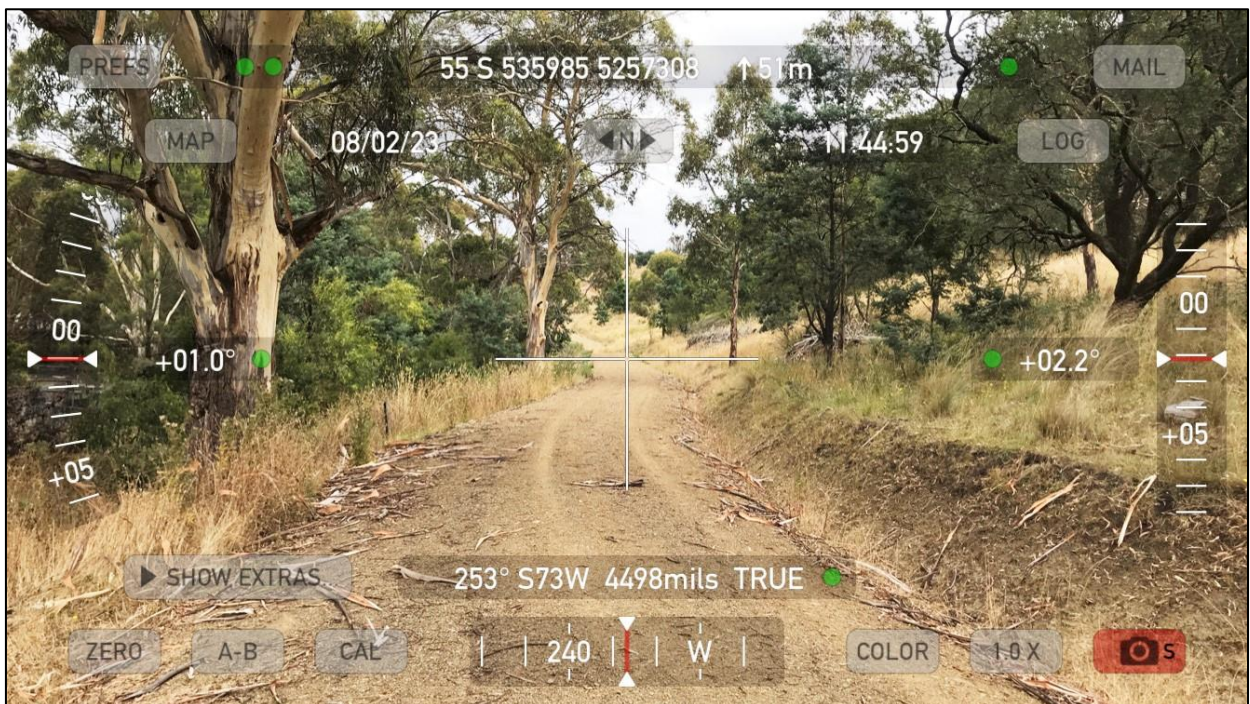


Photo 2 – Eastern section of property access



Photo 3 – Central section of property access



Photo 4 – Western section of property access



Photo 5 – Western end of property access

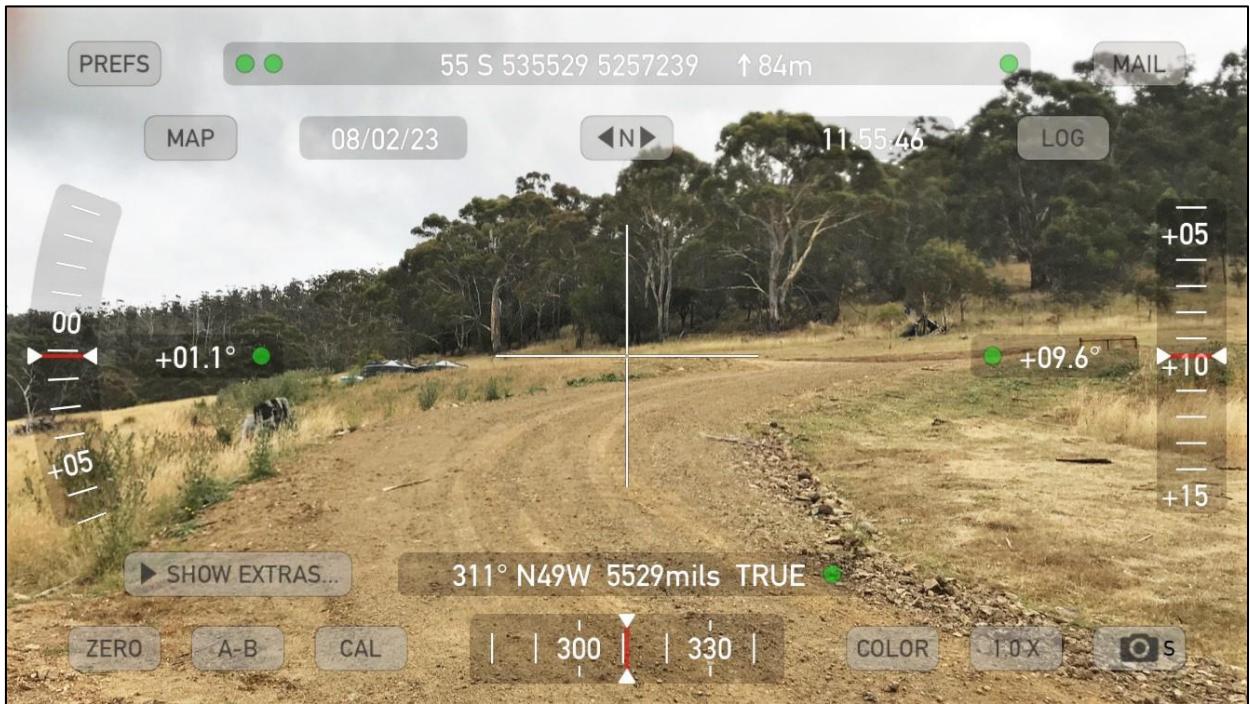


Photo 6 – Property access on approach to development site



Photo 7 – Fill at the eastern end of the development site



Photo 8 – Fill at the western end of the development site



Photo 9 – Cut-and-fill at the western end of the development site, with proposed shed site at centre

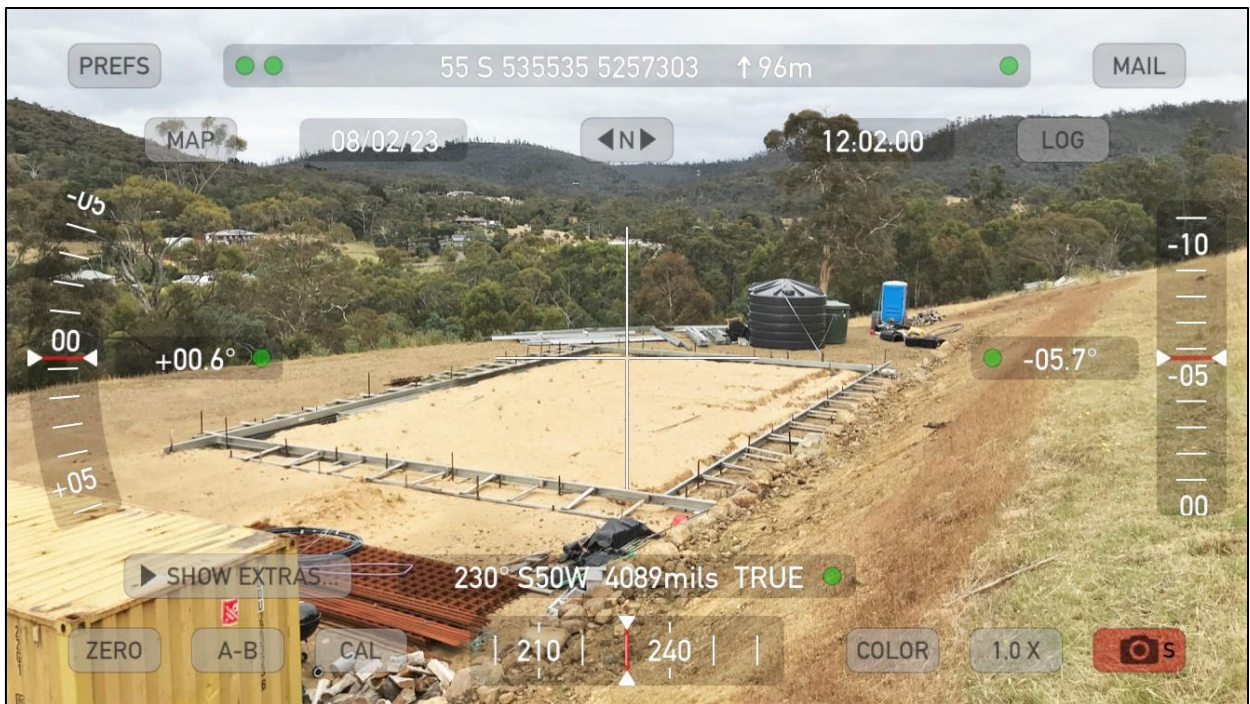


Photo 10 – Cut-and-fill at the western end of the development site, with proposed shed site at centre



Photo 11 – Cut-and-fill at the eastern end of the development site, with proposed house site at right



Photo 12 – Cut-and-fill at the eastern end of the development site, with proposed house site at central left

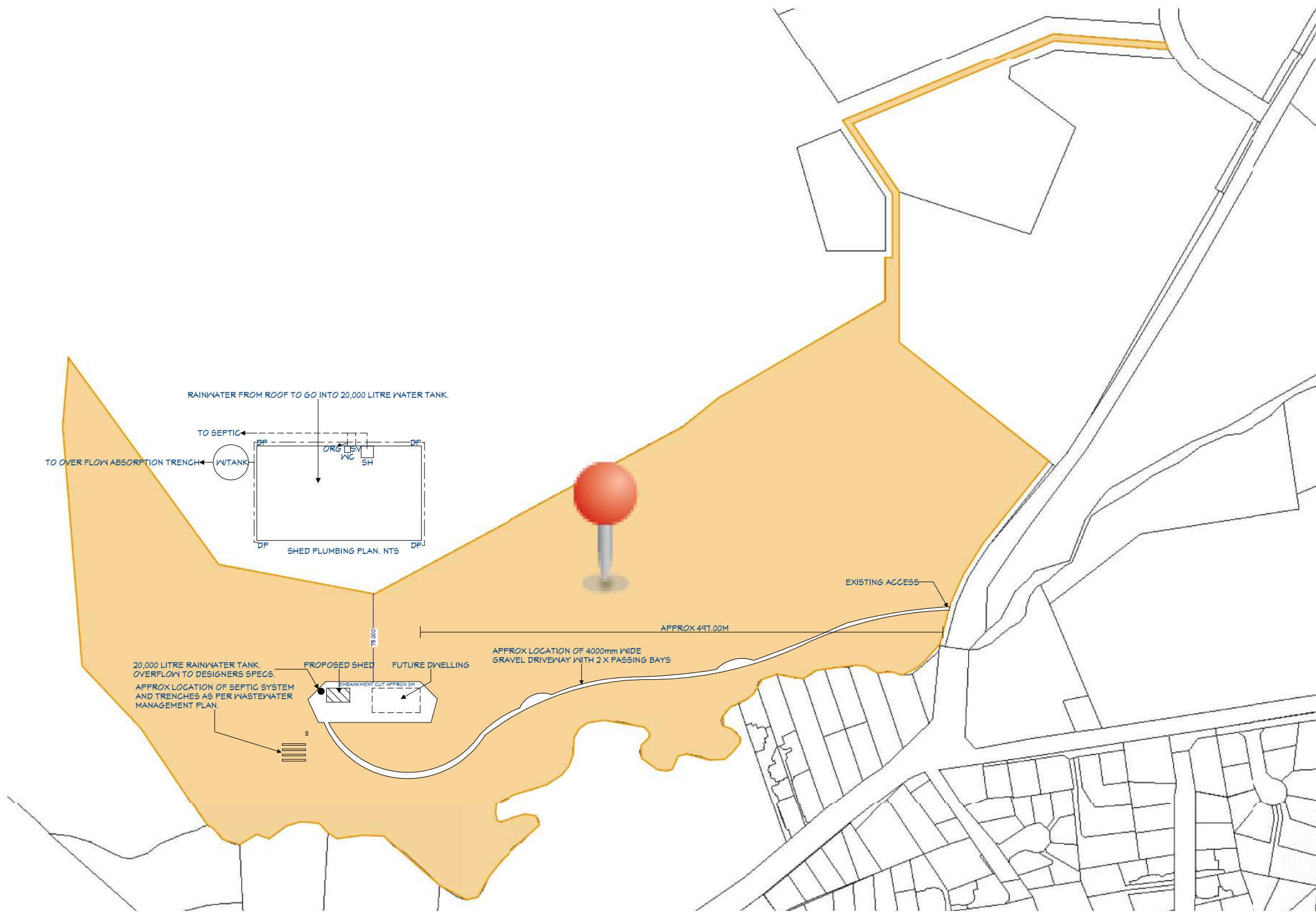
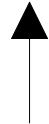


Photo 13 – Cut-and-fill at the eastern end of the development site, with proposed house site at centre



Photo 13 – Proposed house site

NORTH



AREA
LAND AREA: 20.29 HA

FLOOR AREAS
SHED AREA: 241 SQ/M

DRAWN SB	CHECKED	SCALE 1:3500
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No.	REVISION	PROJECT
		PROPOSED SHED FOR P. JONES 1B KADINA RD CAMBRIDGE ©COPYRIGHT 2022.

SITE AND PLUMBING PLAN	
DRG No 2018-73-WD2	REV
DATE: APR 2022	A3

BUILDING DESIGNER: SAM BURNETT
ACCREDITATION No: CC6609

 14 TIANNA RD LINDISFARNE TAS 7015
 PO BOX 233 LINDISFARNE TAS 7015
 T:0472544068
 E:sam@architecturaldesigns.org

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To: Owner /Agent
 Address
 Suburb/postcode

Form **55**

Qualified person details:

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

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

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

Details of work:

Address: Lot No:
 Certificate of title No:

The assessable item related to this certificate: (description of the assessable item being certified)
Assessable item includes –
- a material;
- a design
- a form of construction
- a document
- testing of a component, building system or plumbing system
- an inspection, or assessment, performed

Certificate details:

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

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

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

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:

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

Relevant calculations:

Refer to above report.

References:

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

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

Site classification consistent with AS1726.

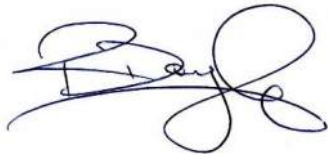
Scope and/or Limitations

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

I certify the matters described in this certificate.

Qualified person:

Signed:



Certificate No:

1101

Date:

19/7/2022



DOYLE
SOIL
CONSULTING



LANDSLIDE ASSESSMENT REPORT

1C Kadina Road

Cambridge

July 2022

Founding Statement

Dr Richard Doyle is a highly qualified geologist, geomorphologist and soil scientist with over 38 years work experience in earth sciences. He has a B.Sc. (Hons) in geology with a double major in physical geography (Victoria University of Wellington, NZ), an M.Sc. in geology awarded with distinction specialising in geomorphology, erosion and soil development (Victoria University of Wellington, NZ) and a PhD in soil science (UTAS). Dr Doyle is a Certified Professional Soil Scientist (CPSS) of the Australian Society of Soil Science of which he is the former state and national president. He has worked and taught around the world on a wide range of earth science projects (Greece, Namibia, USA, NZ and PNG). Dr Doyle has researched and taught soil and earth science at Tertiary level for over 28 years and co-supervised >30 honours/master students, and 21 research higher degree completions (PhDs and Masters). He has authored many landslide risk, coastal erosion, inundation and other earth based risk assessments for Tasmanian councils and has over 100 refereed scientific publications in journals, books and conference proceedings with over 50,000 publication reads and 1800 citations leading to a H-Citation Index of 20.

Introduction

This report examines the risk of a proposed construction site that is overlain by a Low Landslide Hazard Areas overlay (figure 1). This overlay is due to the area being identified to have *'Remaining areas slopes 11-20 degrees'*. The mapped Landslide Hazard overlay has been generated by Mineral Resources Tasmania (MRT), but no known active landslides have occurred recently in the low hazard area.

Site Information

Client: Phil Jones

Address: 1C Kadina Road, Cambridge (CT 181046/1)

Site Area: Approximately 20 ha

Date of inspection: 1/07/2022

Building type: New house

Services: None

Planning Overlays: Landslide Hazard Area (Low), Priority Vegetation Area, Waterway and Coastal Protection Area, Bushfire Prone Areas, Airport Obstacle Limitation Area

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

Jd = Jurassic Dolerite

Subsoil Drainage: Imperfectly drained

Drainage lines / water courses: Barilla Rivulet to the south, minor tributary onsite

Vegetation: Bush/cleared

Rainfall in previous 7 days: Approximately 6 mm

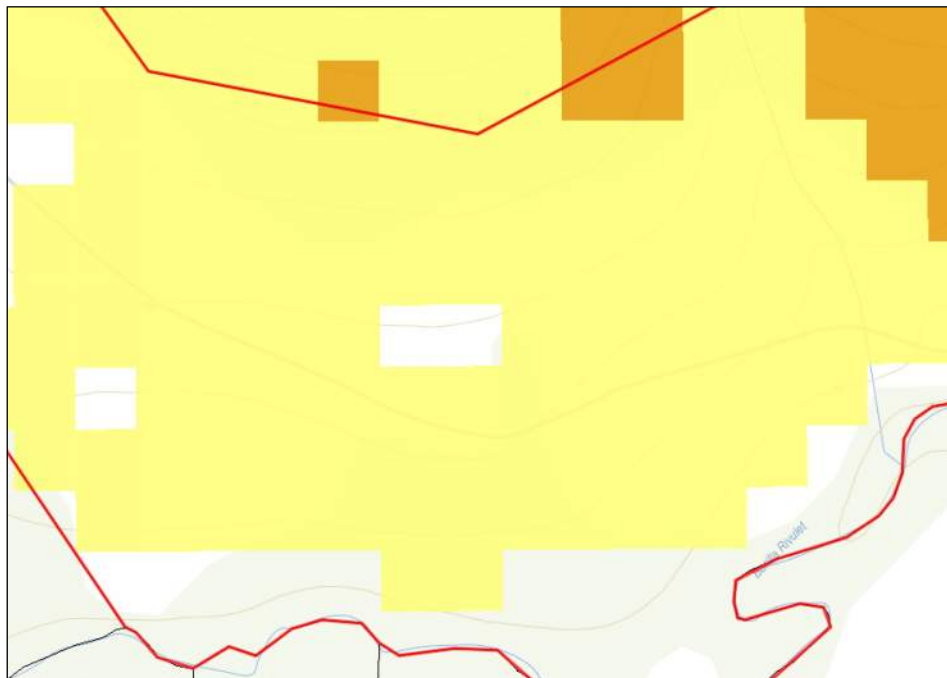
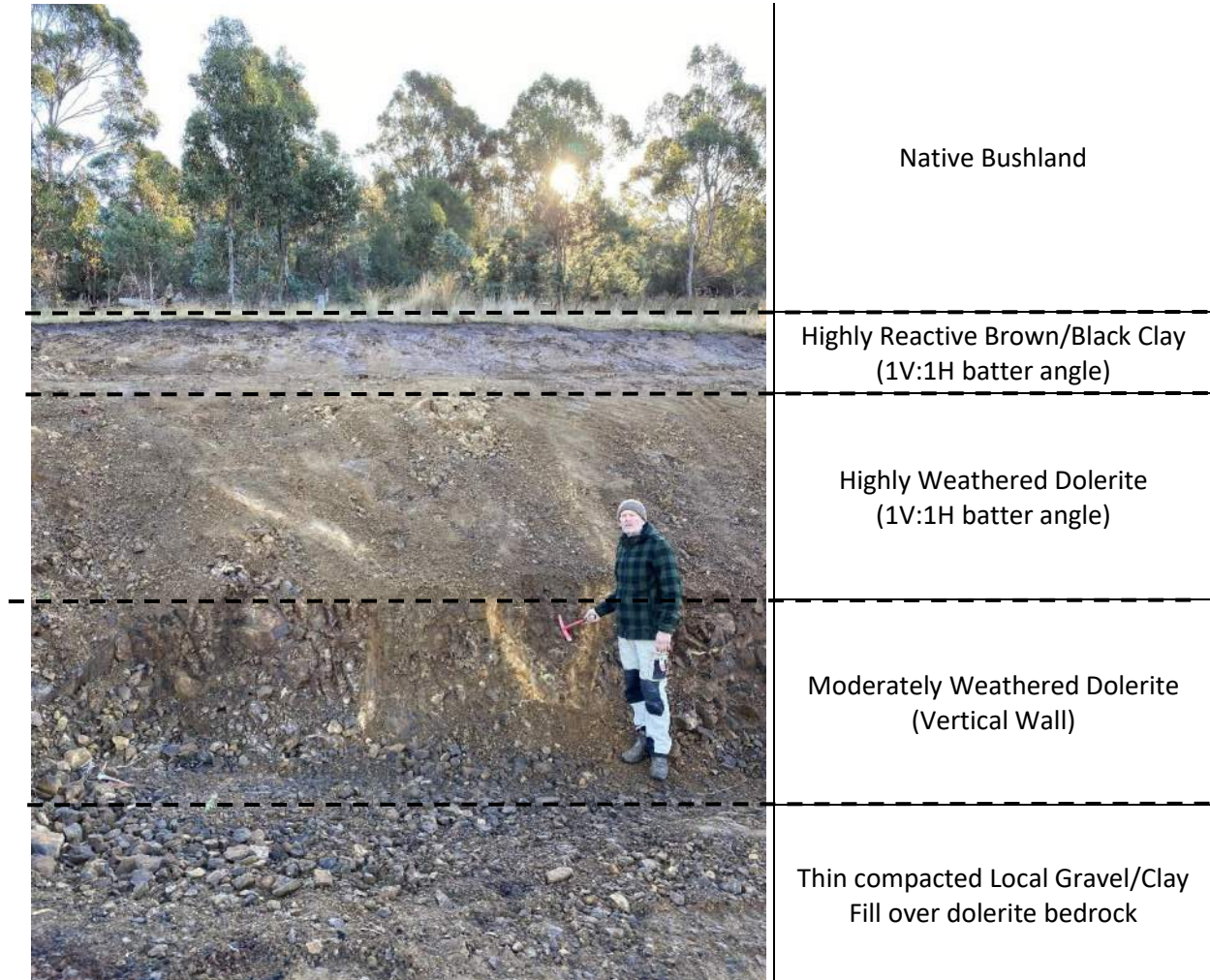


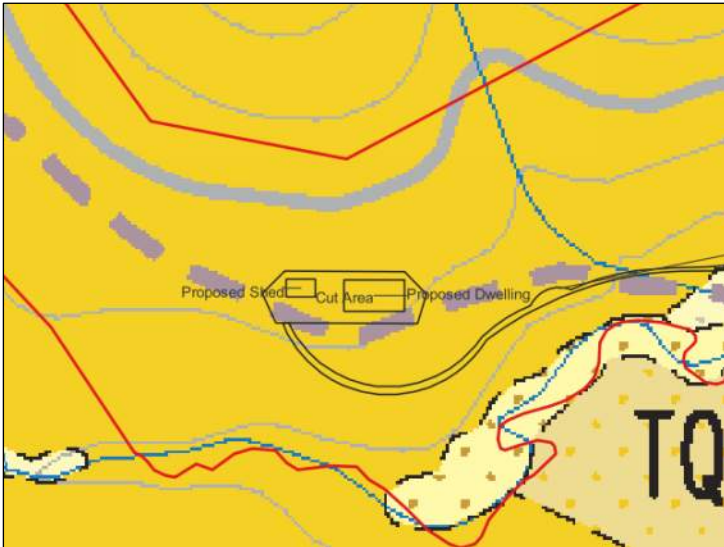
Figure 1: Landslide Hazard Area 'Low' overlay (yellow): Remaining areas slopes 11-20 degrees and Landslide –

LISTmap

Geomorphology, Soils and Geology

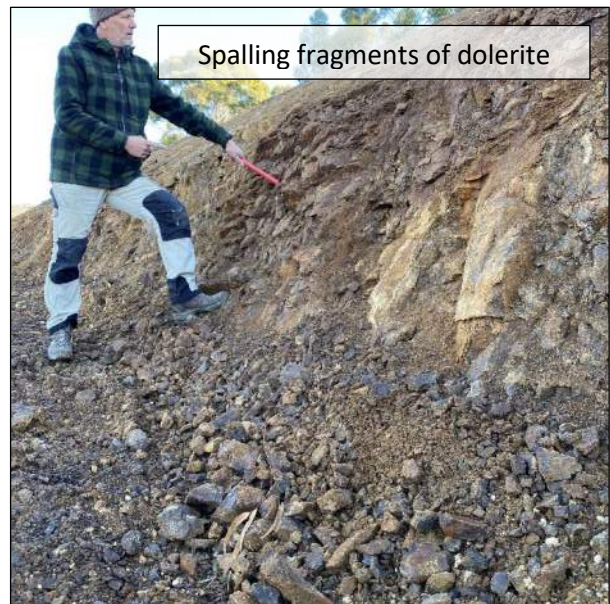
The site has been cut and filled with a 4 m cut in the dolerite slope and associated filling on the downslope side. The natural soil profiles are formed from clayey colluvium (~ 1 m) overlying highly weathered dolerite bedrock (~ 2 – 3 m) over moderate – weakly weathered dolerite (basement) as shown in the site cut below.





Mineral Resources Tasmania Hobart and Hobart 1:25,000 geological polygons of the environs around number 1C Kadina Road, Cambridge. The orange polygon is mapped as Jurassic dolerite. This is a competent rock type and forms many natural cliffs and steep slopes in Tasmania.

The highly weathered dolerite regolith is typically slightly reactive and moderately well drained. The moderately weathered dolerite has veins of more weathered materials and cut slopes produce fragmental stones and boulders. The surface of the rock face has partly loosened stones and boulders that can spall off and roll to the base of the cut. This needs to be managed with a low retaining wall, and by setting any building walls back 1 – 2 m from the cut face.



The site is located on a southerly facing slope. Drainage at the rear of the cutting needs to be adequate and maintained to ensure on going stability of the slope. The blue dashed line suggests the location and direction of current spoon drain. Part of the base of the current cut

has been stabilised with a boulder/block retaining and sediment trap wall and this needs to be continued along the entire base of the cut slope to intercept any surface debris which may fall and roll off the fresh cut. The deeper part of the cut has been benched which is an excellent slope stabilising and draining safety feature and will help ensure ongoing stability and safety.



There is also approximately 4.0 m of local earth fill on the site with an approximate batter angle that ranges from 1V:1H (~40°–45°) to 1V:2H (~20°–30°). At the time of visit the fill did not show signs of instability or movement. However batter angles of no more than 1V:1.5H are recommended (Look, 2007) in such materials. It will also be critical to vegetate this slope with deep-rooted grasses and low shrubs to stabilise the surface and utilise infiltration waters.



It is important to ensure the fill is not used as a discharge area and all stormwater must be diverted away from the area, to ensure the fill is not destabilised.

Geotechnical Assessment of Slope Stability

The proposed construction site for the new dwelling at 1C Kadina Road, Cambridge has a Landslide Hazard Area (Low) overlay. The overlay is produced by:

- Recording observations of land instability in- and surrounding the- study area (the landslide database).
- Analysis of the processes that control each landslide type.
- Computer-assisted modelling that simulates each of the landslide processes to predict areas that could be affected by future landslides.

The proposed construction site falls under the Tasmanian Planning Scheme – Clarence – State Planning Provisions Code C15.0 Landslip Hazard Code.

According to section C15.2.1, This Code applies to:

- a) use or development of land within a landslip hazard area; or
- b) use or development of land identified in a report, that is lodged with an application, or required in response to a request under section 54 of the Act, as having potential to cause or contribute to a landslip.

The site is assessed according to C15.6.1 of the Scheme. This geotechnical advice on the site considers several important and specific parameters pertinent to the area.

Potential for Mass Movement of Soil Materials at The Site

The site has moderately steep slopes of approximately 10 – 20+° with a large are of cut and fill (~4 m vertical). The cut slope revealed moderately deep (~ 1 m) reactive clayey soils developing above moderately to highly weathered Jurassic dolerite over moderately to weakly weathered dolerite. The moderately thick clayey subsoils (>1 m) are highly reactive and while quite permeable (well-structured) they are prone to shrinking and swelling and therefore can slowly soil creep over time. Foundation of all buildings on the cut bench/platform onto the dolerite bedrock will significantly mitigate any land sliding potential. Thus piercing through fill at the front/downslope side of the cut will be required to intercept the competent dolerite.

The Jurassic dolerite bedrock is known to be a competent lithology, and the soil-regolith (colluvium/alluvium) is generally only moderately deep (~1 m soil) across the site and the weathered zone ~ 2 m and this will limit deep-seated land sliding.

The bedrock at site appears stable with regard to land sliding with no evidence of active instability, therefore, the geotechnical risk associated with instability in the natural soils, regolith and bedrock confirms the LOW ranking for this hazard so long as the building is founded/piered onto the bedrock. The soils may be subject to water erosion if exposed i.e., left bare of vegetation for extended periods, and therefore minimal soil disturbance and maintenance of vegetation cover will be needed during and after foundation excavations to minimise surface soil erosion. However, no evidence of more deep-seated landslide hazards, i.e., 3 – 10 m of soft regolith, were detected or are likely at this site.

Modification of drainage on site may affect the regolith stability as excess water destabilises loose or soft surface (<0.5 m) sediments – therefore drainage design should avoid water accumulation in the construction area - *Please refer to the extract on good hillside construction practice from the Australian Geomechanics Society (Appendix 3) and CSIRO BTF-18.*

Measures to Mitigate Against Instability

There are grasslands and mixed trees and scrub across the site which ought to be retained where possible as vegetation helps stabilise slopes. The current batters of the earth fill areas ought to be grassed with deep rooted grass species and low shrubs. We suggest that appropriate sediment and erosion control measures be in place during all phases of

construction and thought be given to utilising landscaping to help maintain slope stability – and in particular address potential topsoil erosion via adequate site drainage and vegetation retention.

The risk of land instability within the proposed building envelope can be reduced via use of current best practice for construction on sloping sites as appended to this report. Most critically the building needs to be founded on the bedrock and a pier/pole method of foundation is recommended. This will include the need to pier foundations through the fill on the outer part of the cut on the site.

Where the natural soil and rock has been cut, we recommend extending the boulder retaining wall on the western part of the site to the remainder to stabilise and minimise and trap any loose rock fragments from rolling and falling to the base of the cut.

C15.6.1 Building and works within a landslip hazard area

Objective:

That building and works on land within a landslip hazard area can:

- a) minimise the likelihood of triggering a landslip event; and
- b) achieve and maintain a tolerable risk from a landslip.

Acceptable Solution A1	Comments
No acceptable solution.	

Performance Solution P1.1	Comments
Building and works within a landslip hazard area must minimise the likelihood of triggering a landslip event and achieve and maintain a tolerable risk from landslip, having regard to: a) the type, form, scale and intended duration of the development;	4 - 5 m deep cut into dolerite bedrock has already been made and building has commenced on a dwelling. It has been benched in the deeper part of the cut.

<p>b) whether any increase in the level of risk from a landslip requires any specific hazard reduction or protection measures;</p> <p>c) any advice from a State authority, regulated entity or a council; and</p> <p>d) the advice contained in a landslip hazard report.</p>	<p>While the bedrock is competent loose spalling stones and boulders need to be managed via a retaining wall (boulder wall) and a suitable set-back distance (~1 – 2 m) for any building.</p> <p>The fill at the front of the site needs to be well vegetated with deep rooting grasses and low shrubs, and kept well-drained with all stormwater diverted away.</p>
--	--

Performance Solution P1.2	Comments
<p>A landslip hazard report also demonstrates that the buildings and works do not cause or contribute to landslip on the site, on adjacent land or public infrastructure.</p>	<p>Follow the recommended advice that has been given in this report.</p>

Performance Solution P1.3	Comments
<p>If landslip reduction or protection measures are required beyond the boundary of the site the consent in writing of the owner of that land must be provided for that land to be managed in accordance with the specific hazard reduction or protection measures.</p>	<p>n/a</p>

Landslide Risk Analysis

Risk assessment of land sliding relates to:

- 1) Likelihood of occurrence of any form of mass movement e.g., soil creep, debris flow, slumping, landslide, rock fall etc, including its' likely scale (size, area, volume) would be affected by the scale of any land cutting in the rear and side walls of the building. However, in generally the local dolerite bedrock is stable and competent material. Revegetation and minimum site disturbance are recommended to minimise water erosion. The deeper part of the cut has already been benched and drained which significantly mitigates risks of land sliding on the site.
- 2) The estimated consequences to life, property and services of such is **low** if the site is appropriately developed as outlined in this report, e.g., pole/pier foundations with all foundations set into the competent bedrock.

In this case the likelihood of land sliding is **LOW**, and if founding on the competent Jurassic dolerite bedrock units to negate any actions of soil creep, then the consequence is acceptable.



Evan Langridge
B.Agr.Sc.(Hons).
Soil Scientist



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



Appendix 1 – Risk tables

Extract from AGS Sub-committee (2007) Landslide Risk Management Concepts and Guidelines.
Australian Geomechanics Journal

TABLE 1: RISK TO PROPERTY

Qualitative Risk		Significance - Geotechnical engineering requirements
Very high	VH	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low. May be too expensive and not practical. Work likely to cost more than the value of the property.
High	H	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to acceptable level. Work would cost a substantial sum in relation to the value of the property.
Moderate	M	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as possible.
Low	L	Usually acceptable to regulators. Where treatment has been needed to reduce the risk to this level, ongoing maintenance is required.
Very Low	VL	Acceptable. Manage by normal slope maintenance procedures.

TABLE 2: LIKELIHOOD

Likelihood	Annual Probability
Almost Certain	1:10
Likely	1:100
Possible	1:1,000
Unlikely	1:10,000
Rare	1:100,000
Barely credible	1:1,000,000

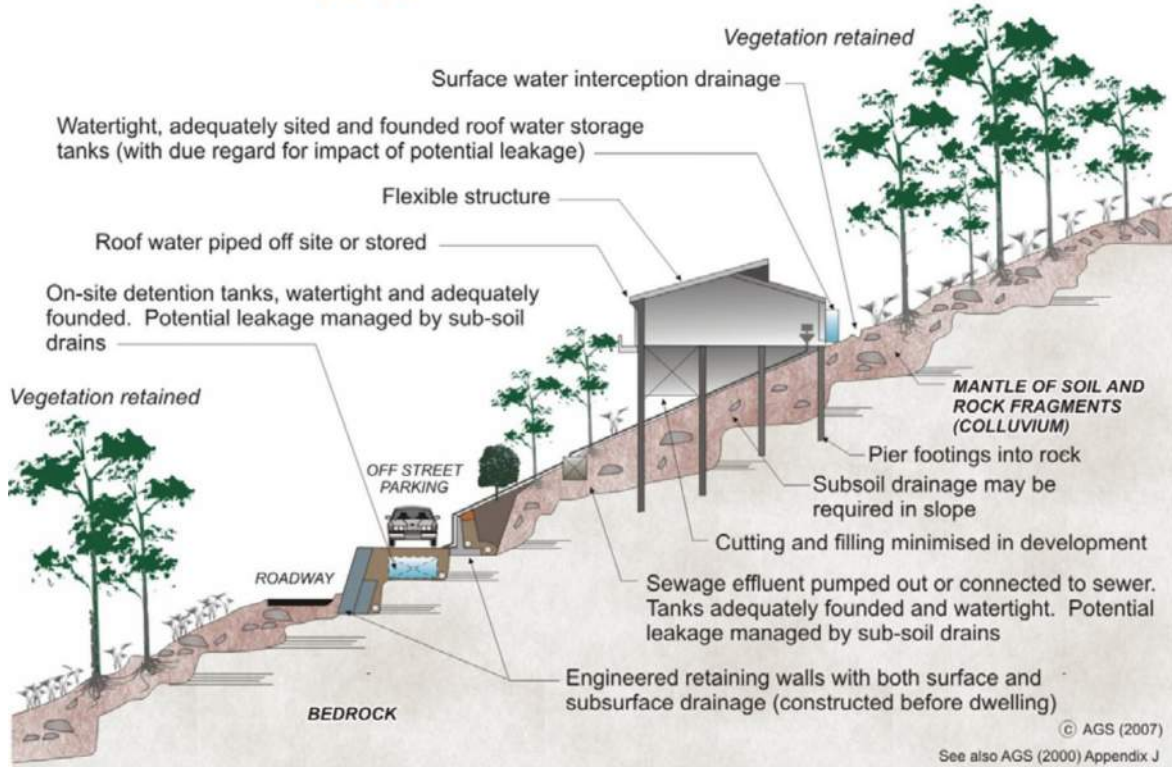
TABLE 3: RISK TO LIFE

Risk (deaths per participant per year)	Activity/Event Leading to Death (NSW data unless noted)
1:1,000	Deep sea fishing (UK)
1:1,000 to 1:10,000	Motor cycling, horse riding , ultra-light flying (Canada)
1:23,000	Motor vehicle use
1:30,000	Fall
1:70,000	Drowning
1:180,000	Fire/burn
1:660,000	Choking on food
1:1,000,000	Scheduled airlines (Canada)
1:2,300,000	Train travel
1:32,000,000	Lightning strike

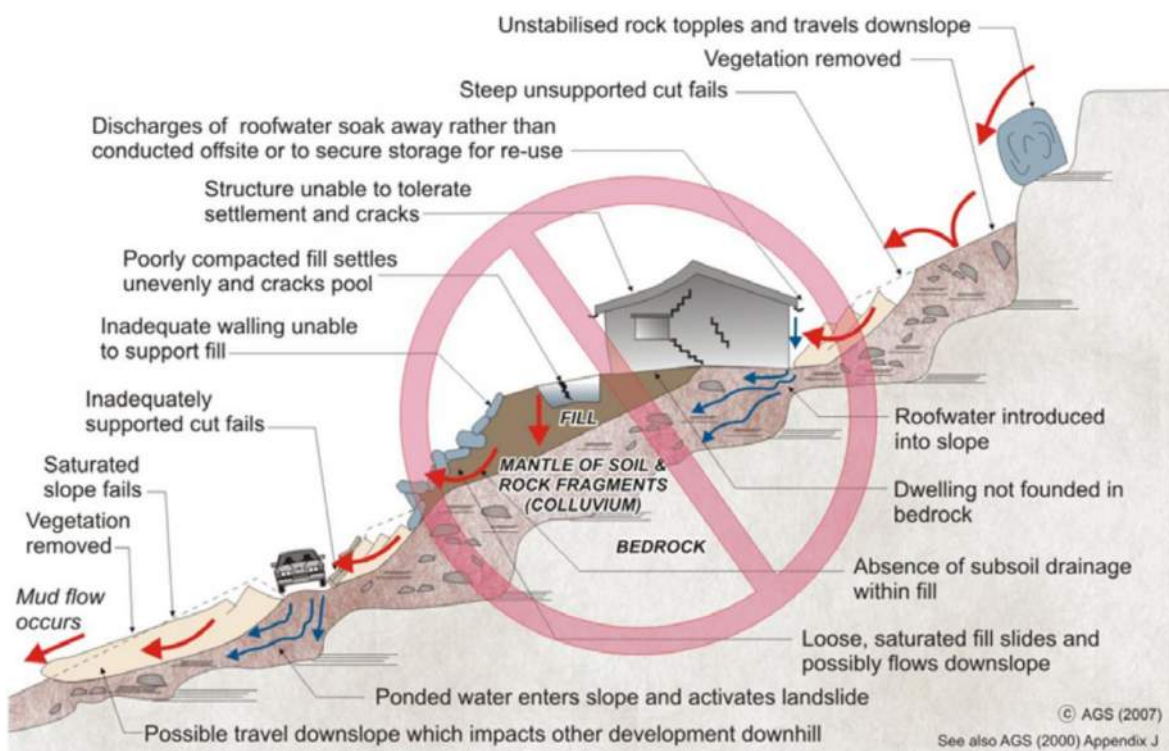
Appendix 2 – Guidelines for hillside construction

Extract from AGS Sub-committee (2007) Landslide Risk Management Concepts and Guidelines.
Australian Geomechanics Journal

EXAMPLES OF **GOOD** HILLSIDE CONSTRUCTION PRACTICE

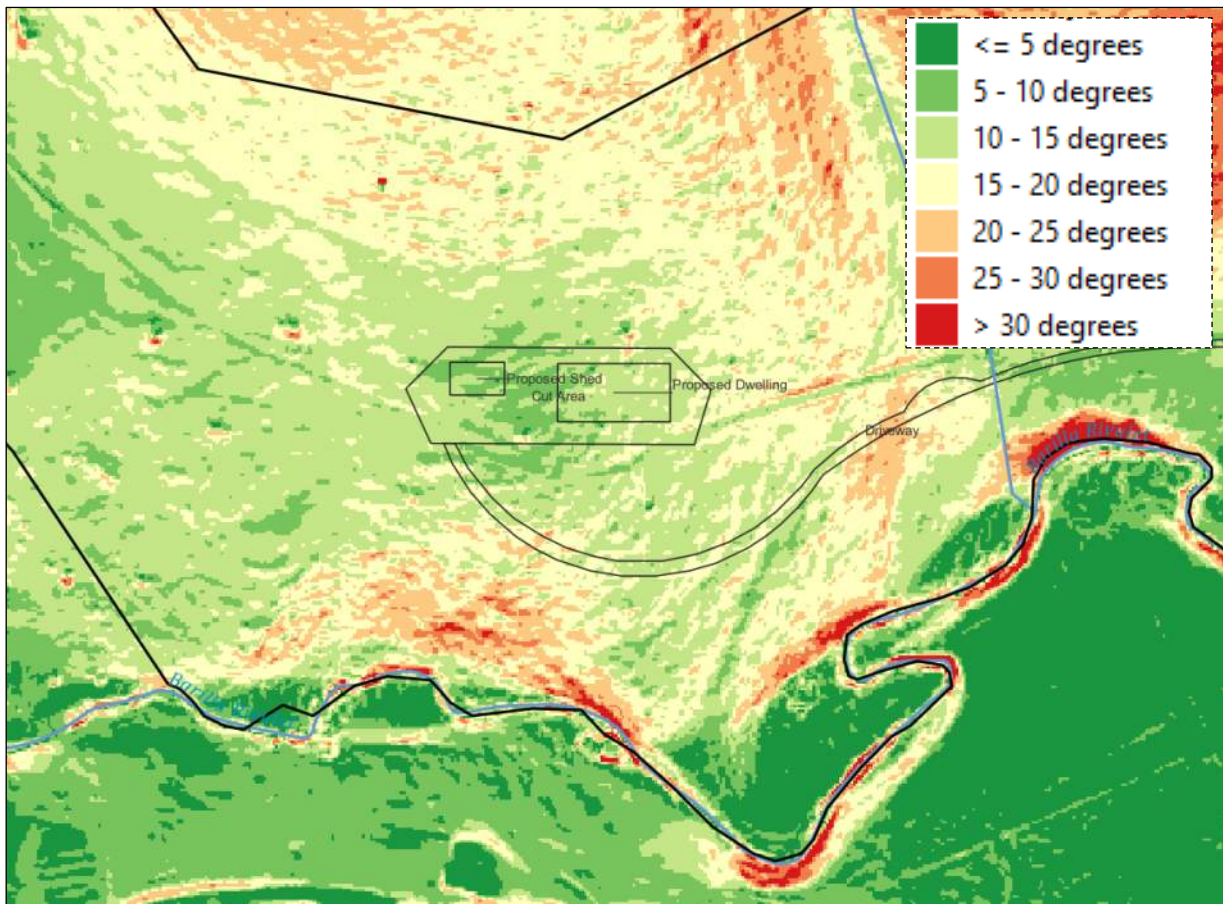


EXAMPLES OF **POOR** HILLSIDE CONSTRUCTION PRACTICE



Appendix 3 – 1 metre contour map and slope angle raster

This map was generated using QGIS, LiSTMap extracted data, and ELVIS Digital Elevation Data (DEM) to process the 1 m contour lines and raster image that shows the slope angle.



Appendix 4 – Flow Accumulation

This map was generated using QGIS, LiSTMap extracted data, and ELVIS Digital Elevation Data (DEM) to process the raster image that shows accumulation of surface water flow (light blue to dark blue)

