NOTICE OF PROPOSED DEVELOPMENT

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

SITE:
2 OLYMPIC AVENUE, MIDWAY POINT

PROPOSED DEVELOPMENT:
DWELLING

The relevant plans and documents can be inspected at the Council Offices at 47 Cole Street, Sorell during normal office hours, or the plans may be viewed on Council's website at www.sorell.tas.gov.au until **Tuesday 4th November 2025.**

Any person may make representation in relation to the proposal by letter or electronic mail (sorell.council@sorell.tas.gov.au) addressed to the General Manager. Representations must be received no later than **Tuesday 4th November 2025.**

APPLICATION NO: **5.2025-273.1**
DATE: **17/10/2025**

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

Full description of Proposal:	*Use:* Residential *Development:* Proposed New residence *Large or complex proposals should be described in a letter or planning report.*
Design and construction cost of proposal:	$ 650,000 (approx.)

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

Location of proposed works:	Street address: 2 Olympic Avenue Suburb: Sorell Postcode: 7171 Certificate of Title(s) Volume: 183934 Folio: 14

Current Use of Site	Residential Land

Current Owner/s:	Name(s) JAC Estates Pty Ltd

Is the Property on the Tasmanian Heritage Register?	No: ☑ Yes: ☐	*If yes, please provide written advice from Heritage Tasmania*
Is the proposal to be carried out in more than one stage?	No: ☑ Yes: ☐	*If yes, please clearly describe in plans*
Have any potentially contaminating uses been undertaken on the site?	No: ☑ Yes: ☐	*If yes, please complete the Additional Information for Non-Residential Use*
Is any vegetation proposed to be removed?	No: ☑ Yes: ☐	*If yes, please ensure plans clearly show area to be impacted*
Does the proposal involve land administered or owned by either the Crown or Council?	No: ☑ Yes: ☐	*If yes, please complete the Council or Crown land section on page 3*

If a new or upgraded vehicular crossing is required from Council to the front boundary please complete the Vehicular Crossing (and Associated Works) application form
https://www.sorell.tas.gov.au/services/engineering/

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

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

Applicant Signature:	Signature: Sadixya Pant Date: 07/10/2025

Crown or General Manager Land Owner Consent
If the land that is the subject of this application is owned or administered by either the Crown or Sorell Council, the consent of the relevant Minister or the Council General Manager whichever is applicable, must be included here. This consent should be completed and signed by either the General Manager, the Minister, or a delegate (as specified in s52 (1D-1G) of the *Land Use Planning and Approvals Act 1993*). Sorell Council Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf Plans Reference: P1 Date Received: 07/10/2025 Please note: • If General Manager consent if required, please first complete the General Manager consent application form available on our website www.sorell.tas.gov.au • If the application involves Crown land you will also need a letter of consent. • Any consent is for the purposes of making this application only and is not consent to undertaken work or take any other action with respect to the proposed use or development.
I _____ being responsible for the administration of land at _____ declare that I have given permission for the making of this application for _____

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

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
183934	14
EDITION	DATE OF ISSUE
1	23-Dec-2022

SEARCH DATE : 04-Jul-2025
SEARCH TIME : 09.39 AM

DESCRIPTION OF LAND

Parish of SORELL Land District of PEMBROKE
Lot 14 on Sealed Plan 183934
Derivation : Part of Lot 306, 120 Acres Gtd. to John Lord.
Prior CT 41343/1

SCHEDULE 1

M871044 TRANSFER to JAC ESTATES PTY LTD Registered 17-Feb-2021 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP183934 EASEMENTS in Schedule of Easements
SP183934 COVENANTS in Schedule of Easements
SP183934 FENCING PROVISION in Schedule of Easements
SP 14888 FENCING COVENANT in Schedule of Easements
SP 14888 COUNCIL NOTIFICATION under Section 468(12) of the Local Government Act 1962

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

OWNER: JAC ESTATES PTY LTD

FOLIO REFERENCE: 41343/1; 176809/3

GRANTEE: PART OF 3002 ACRES GTD TO JAMES WINDERMERE LORD & PART OF LOT 306, 120 ACRES GTD TO JOHN LORD

PLAN OF SURVEY

BY SURVEYOR: A. P. McINDOE of PDA SURVEYORS, ENGINEERS & PLANNERS
6 FREEMAN STREET, KINGSTON

LOCATION: PEMBROKE–SORELL

SCALE 1: 2500 | LENGTHS IN METRES | SURVEYORS REF 48881LM–1

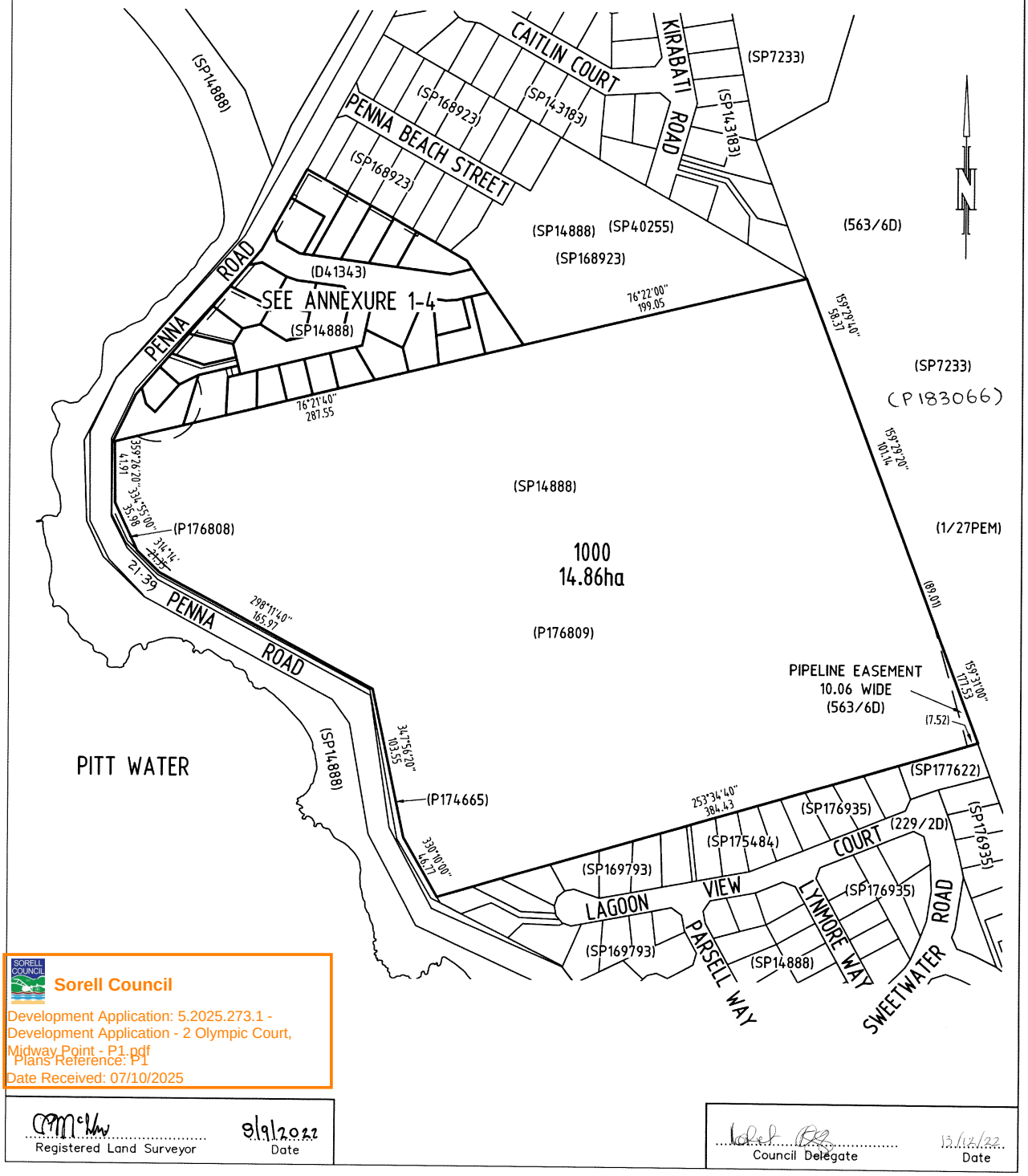
REGISTERED NUMBER
SP183934

~~APPROVED~~ EFFECTIVE FROM 23 DEC 2022
Recorder of Titles

PRIORITY FINAL PLAN

ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

INDEX PLAN



Sorell Council
Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf
Plans Reference: P1
Date Received: 07/10/2025

Registered Land Surveyor — 9/9/2022 Date

Council Delegate — 13/12/22 Date

PLAN OF SURVEY ANNEXURE SHEET SHEET 1 OF 4 SHEETS	OWNER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1; 176809/3 SCALE 1:500 LENGTH IN METRES SURVEYORS REF: 48881LM–1	Registered Number SP 183934
SIGNED FOR IDENTIFICATION PURPOSES Council Delegate 13/12/22 Date	THIS ANNEXURE SHEET FORMS PART OF THE ATTACHED INDEX PLAN. Registered Land Surveyor 8/9/2022 Date	~~APPROVED~~ EFFECTIVE FROM 23 DEC 2022 Recorder of Titles

Sorell Council
Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf
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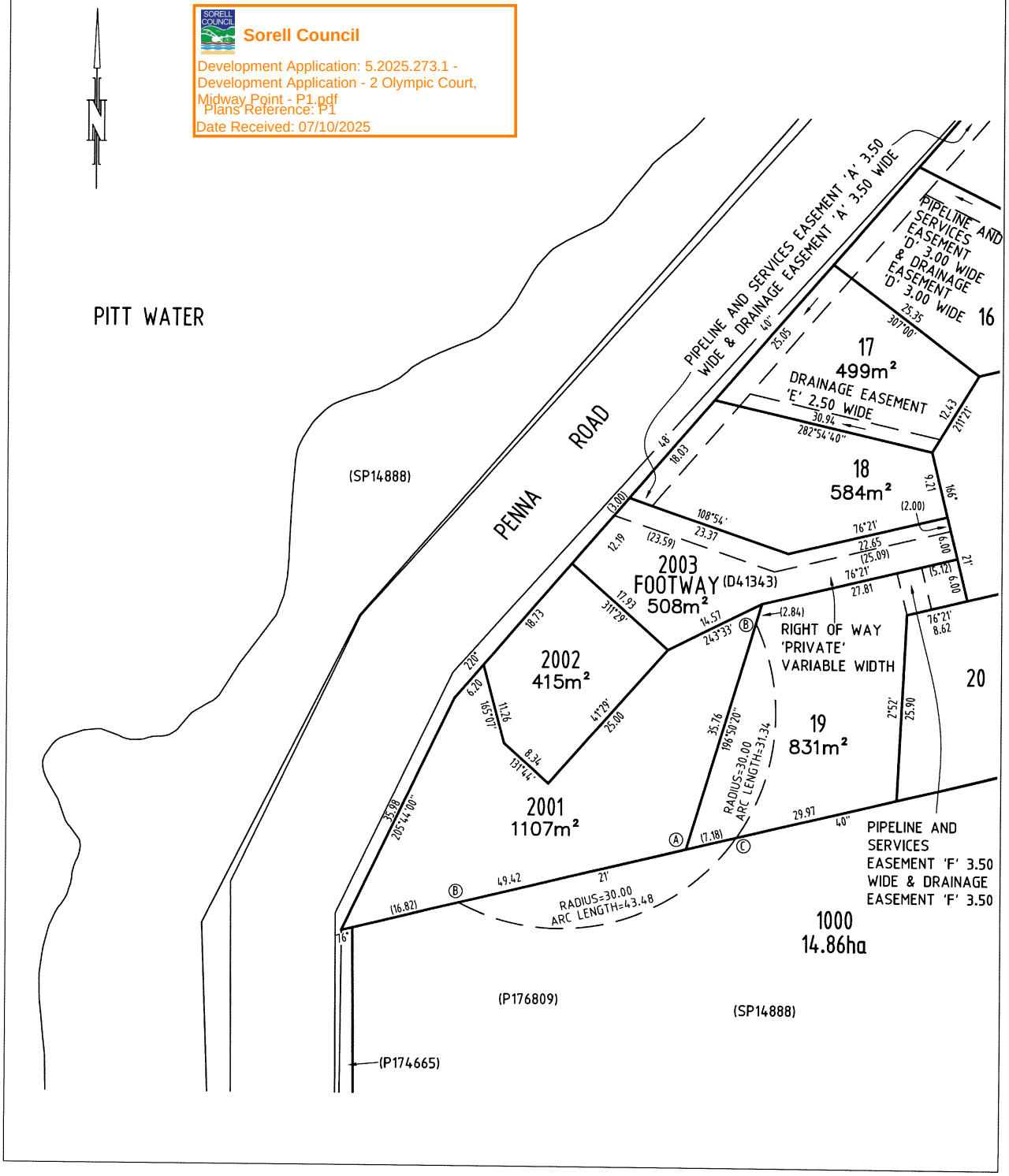

PLAN OF SURVEY ANNEXURE SHEET SHEET 2 OF 4 SHEETS	OWNER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1; 176809/3 SCALE 1:500 LENGTH IN METRES SURVEYORS REF: 48881LM–1	Registered Number SP 183934
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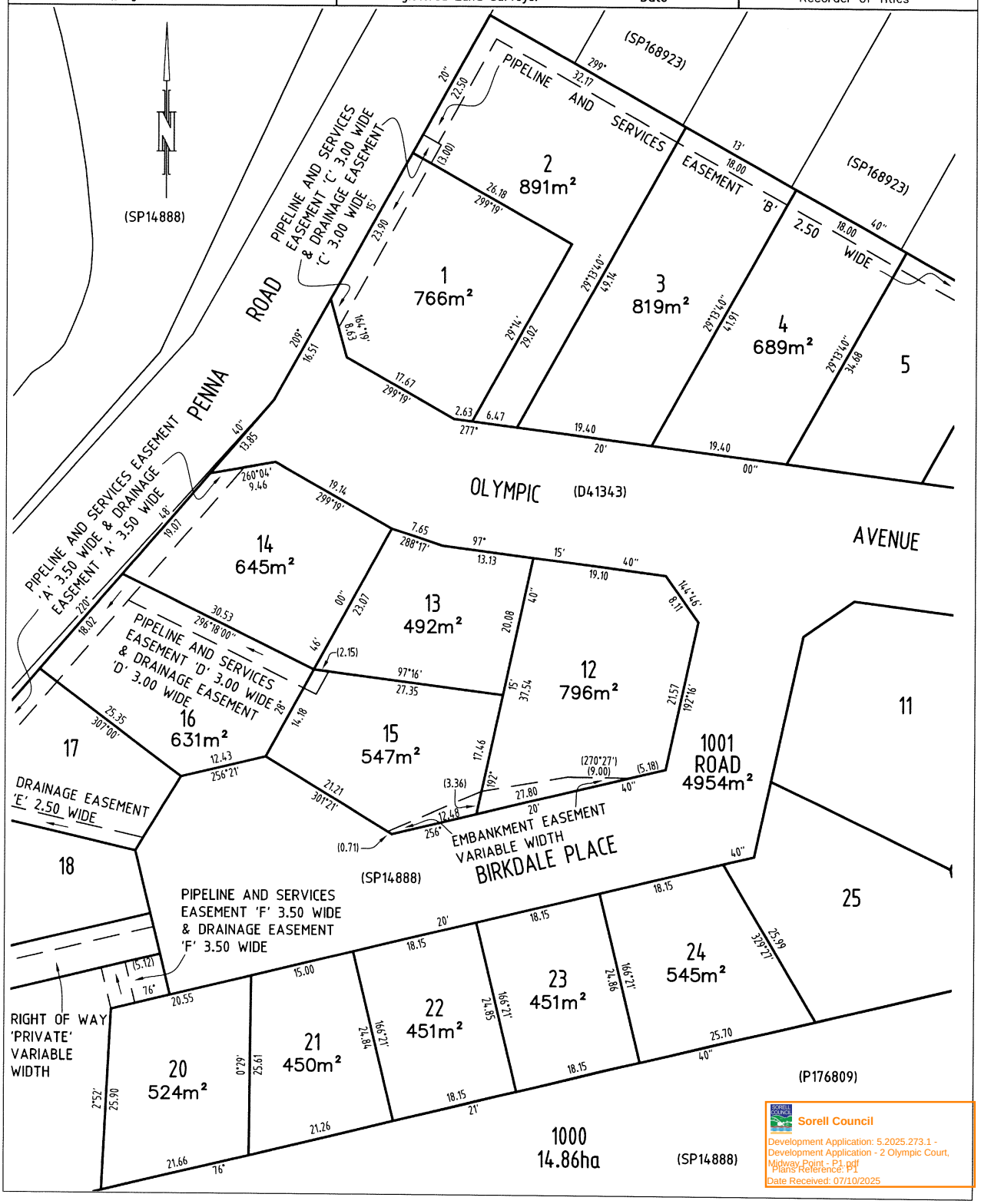
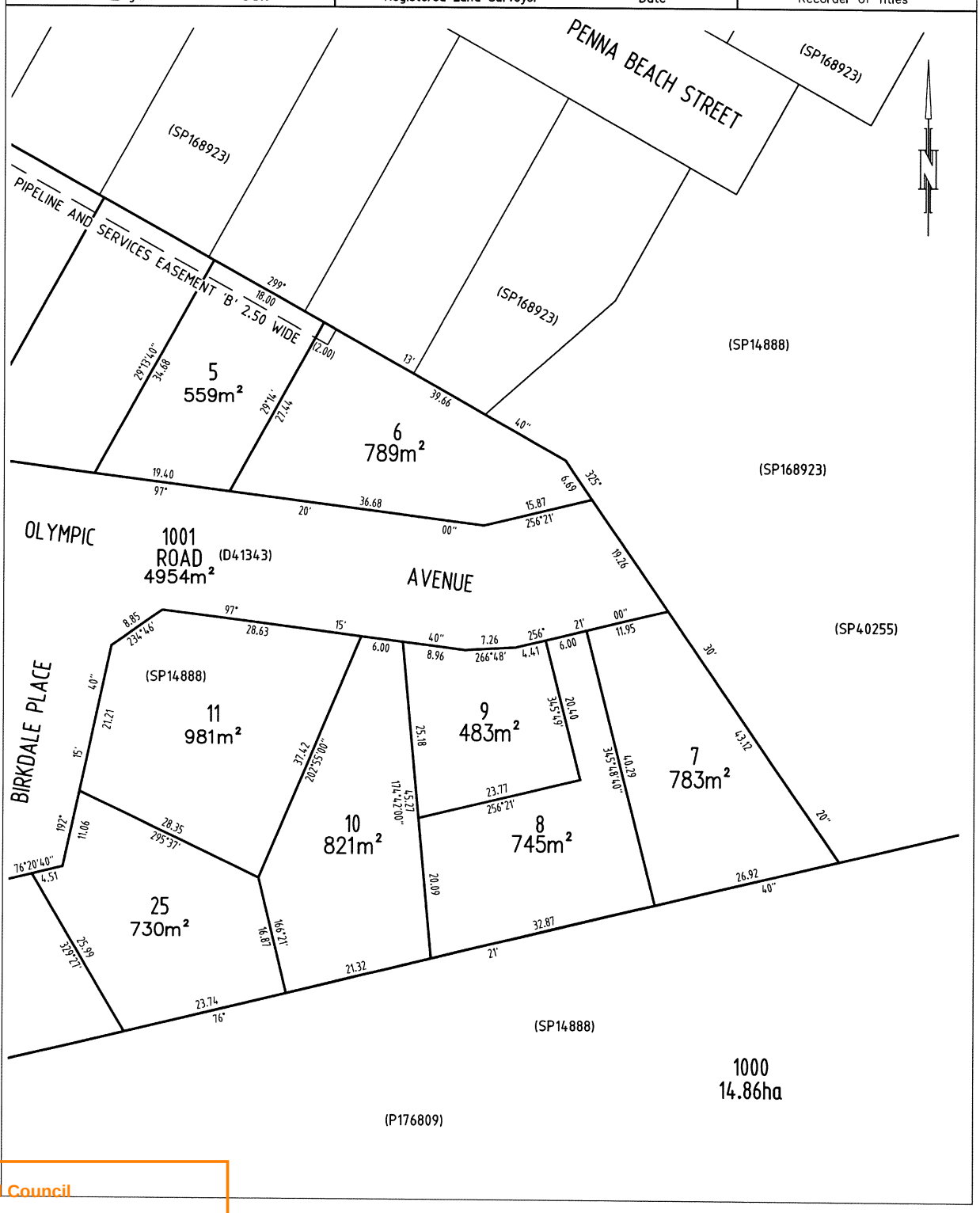


PLAN OF SURVEY ANNEXURE SHEET SHEET 3 OF 4 SHEETS	OWNER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1; 176809/3 SCALE 1:500 LENGTH IN METRES SURVEYORS REF: 48881LM-1	Registered Number SP 183934
SIGNED FOR IDENTIFICATION PURPOSES Council Delegate 13/12/22 Date	THIS ANNEXURE SHEET FORMS PART OF THE ATTACHED INDEX PLAN. Registered Land Surveyor 8/9/2022 Date	~~APPROVED~~ EFFECTIVE FROM 23 DEC 2022 Recorder of Titles



PLAN OF SURVEY
ANNEXURE SHEET

SHEET 4 OF 4 SHEETS

OWNER: JAC ESTATES PTY LTD

FOLIO REFERENCE: 41343/1; 176809/3

SCALE 1:500 LENGTH IN METRES SURVEYORS REF: 48881LM-1

Registered Number

SP183934

SIGNED FOR IDENTIFICATION PURPOSES

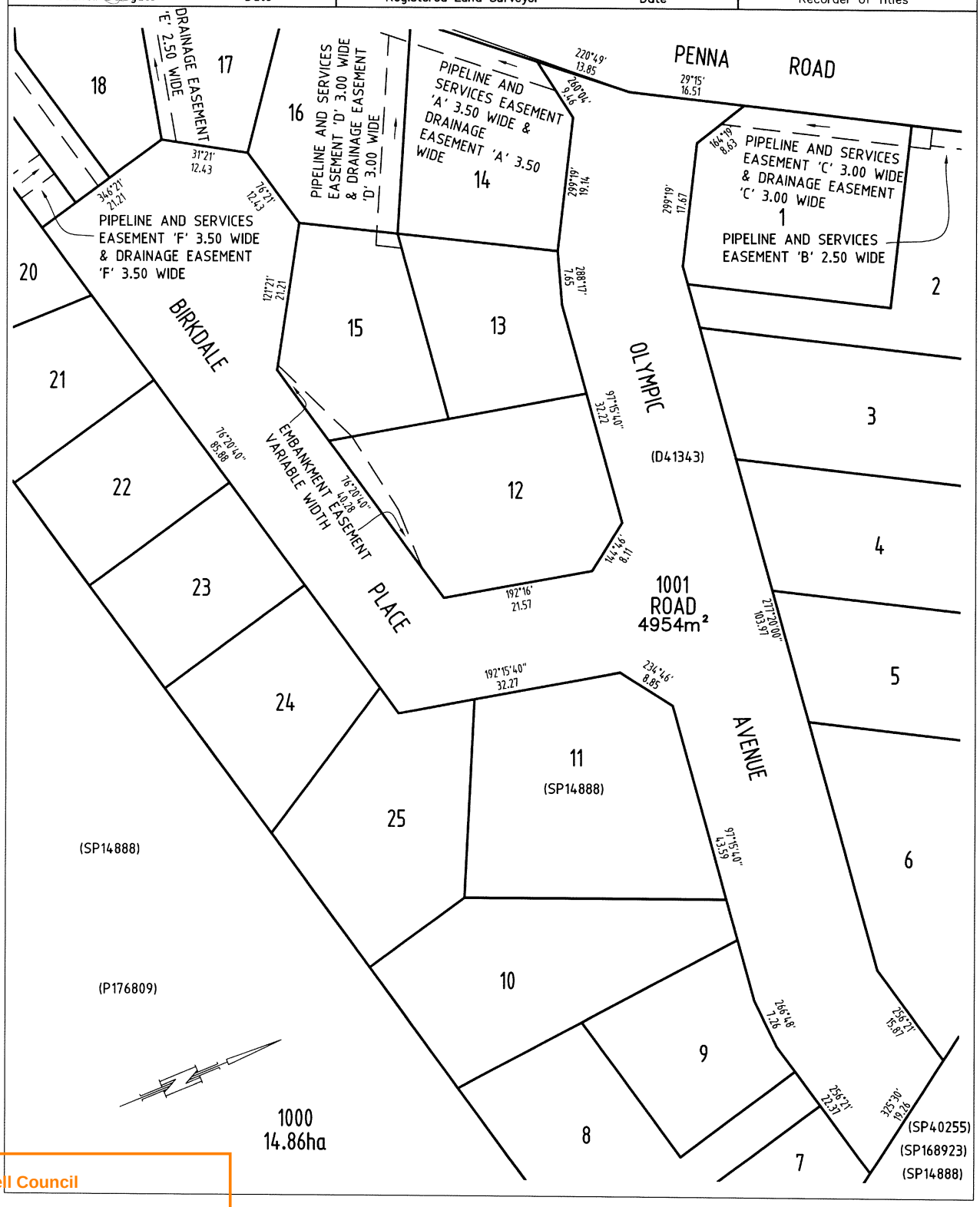
Council Delegate 13/12/22 Date

THIS ANNEXURE SHEET FORMS PART OF THE ATTACHED INDEX PLAN.

Registered Land Surveyor 8/9/2022 Date

~~APPROVED~~ EFFECTIVE FROM 23 DEC 2022

Recorder of Titles



2

SCHEDULE OF EASEMENTS	Registered Number
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	SP 183934

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

Taswater

Lots 1 & 2 are subject to a Pipeline & Services Easement in gross in favour of the Tasmanian Water and Sewerage Corporation Pty Ltd, its successors and assigns ("TasWater") over the land marked "PIPELINE AND SERVICES EASEMENT 'C' 3.00 WIDE & DRAINAGE EASEMENT 'C' 3.00 WIDE" as shown on the plan ("the Easement Land").

Lots 2-6 (inclusive) are subject to a Pipeline & Services Easement in gross in favour of the Tasmanian Water and Sewerage Corporation Pty Ltd, its successors and assigns ("TasWater") over the land marked "PIPELINE AND SERVICES EASEMENT 'B' 2.50 WIDE" as shown on the plan ("the Easement Land").

Lots 14, 16- 18 (inclusive) are subject to a Pipeline & Services Easement in gross in favour of the Tasmanian Water and Sewerage Corporation Pty Ltd, its successors and assigns ("TasWater") over the land marked "PIPELINE AND SERVICES EASEMENT 'A' 3.50 WIDE & DRAINAGE EASEMENT 'A' 3.50 WIDE" as shown on the plan ("the Easement Land").

Lots 15 & 16 are subject to a Pipeline & Services Easement in gross in favour of the Tasmanian Water and Sewerage Corporation Pty Ltd, its successors and assigns ("TasWater") over the land marked "PIPELINE AND SERVICES EASEMENT 'D' 3.00 WIDE & DRAINAGE EASEMENT 'D' 3.00 WIDE" as shown on the plan ("the Easement Land").

Lot 19 is subject to a Pipeline & Services Easement in gross in favour of the Tasmanian Water and Sewerage Corporation Pty Ltd, its successors and assigns ("TasWater") over the land marked "PIPELINE AND SERVICES EASEMENT 'F' 3.50 WIDE & DRAINAGE EASEMENT 'F' 3.50 WIDE" as shown on the plan ("the Easement Land").

(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: JAC ESTATES PTY LTD FOLIO REF: 41343/1 & 176809/3 SOLICITOR & REFERENCE: Butler McIntyre & Butler (JS:221259)	PLAN SEALED BY: SORELL COUNCIL DATE: 13/12/22 ~~SA 2016/00011~~ REF NO. SA 2020/6 Council Delegate
NOTE: The Council Delegate must sign the Certificate for the purposes of identification.	

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 2 OF 6 PAGES	Registered Number SP 183934
SUBDIVIDER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1 & 176809/3	

Drainage

Lots 1 & 2 (inclusive) are subject to a Right of Drainage in gross in favour of the Sorell Council over the land marked "PIPELINE AND SERVICES EASEMENT 'C' 3.00 WIDE & DRAINAGE EASEMENT 'C' 3.00 WIDE" as shown on the plan.

Lots 14, 16- 18 (inclusive) are subject to a Right of Drainage in gross in favour of the Sorell Council over the land marked "PIPELINE AND SERVICES EASEMENT 'A' 3.50 WIDE & DRAINAGE EASEMENT 'A' 3.50 WIDE" as shown on the plan ("the Easement Land").

Lots 15 & 16 (inclusive) are subject to a Right of Drainage in gross in favour of the Sorell Council over the land marked "PIPELINE AND SERVICES EASEMENT 'D' 3.00 WIDE & DRAINAGE EASEMENT 'D' 3.00 WIDE" as shown on the plan.

Lot 17 is subject to a Right of Drainage in gross in favour of the Sorell Council over the land marked "DRAINAGE EASEMENT 'E' 2.50 WIDE" as shown on the plan.

Lot 19 is subject to a Right of Drainage in gross in favour of the Sorell Council over the land marked "PIPELINE AND SERVICES EASEMENT 'F' 3.50 WIDE & DRAINAGE EASEMENT 'F' 3.50 WIDE" as shown on the plan.

Access

Lot 2003 is subject to a Right of Carriageway marked "Right of Way (private) Variable Width" in favour of Lot 2002, and Lot 2001.

Lots 2001 & 2002 are each together with a right of carriageway over the land marked Right of Way 'Private' variable width shown on the Plan.

Embankment

Lots 12 & 15 on the Plan are subject to an Embankment Easement over the area marked "EMBANKMENT EASEMENT VARIABLE WIDTH" shown on the Plan in favour of the Sorell Council.

Pipeline

Lot 1000 is subject to an easement in favour of Metropolitan Water Board over the area marked "PIPELINE EASEMENT 10.06M (563/6D)" shown on the Plan and fully set forth in sealed plan 14888.

Lot 1000 is subject to an easement for pipeline rights in favour of Sorell Council over the area marked "PIPELINE EASEMENT 10.06M (563/6D)" shown on the Plan and fully set forth in transfer B912948.

Director ..... Director .....

Definitions:

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

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 3 OF 6 PAGES	Registered Number SP 183934
SUBDIVIDER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1 & 176809/3	

Definitions:

"Embankment Easement " means all the full and free right and liberty for the Sorell Council and its successors and its and their servants, agents and contractors ("the Council") at all times hereafter:-

(a) to have the stability and support of the area shown on the Plan as road being lot 1001 on the sealed plan ("Road") upheld and maintained by the Embankment Easement.

(b) to enter into and upon the servient land with or without all necessary plant, machinery and equipment and the means of transporting the same and if necessary to cross the remainder of the said land in consultation with the registered proprietors for the purpose of examining, maintaining, repairing or modifying the land area marked "Embankment Easement" without doing unnecessary damage to the said servient land and making good all damage occasioned by such make good.

(c) Nothing within this definition shall prevent the registered proprietors for themselves and their successors in title from using the servient land provided that such use does not derogate from this grant or, in the opinion of the Council, compromise support provided to the Road.

"Pipeline and Services Easement" is defined as follows:-

FIRSTLY, THE FULL AND FREE RIGHT AND LIBERTY for TasWater and its employees, contractors, agents and all other persons duly authorised by it, at all times to:

(1) enter and remain upon the Easement Land with or without machinery, vehicles, plant and equipment;

(2) investigate, take soil, rock and other samples, survey, open and break up and excavate the Easement Land for any purpose or activity that TasWater is authorised to do or undertake;

(3) install, retain, operate, modify, relocate, maintain, inspect, cleanse, repair, remove and replace the Infrastructure;

(4) run and pass sewage, water and electricity through and along the Infrastructure;

(5) do all works reasonably required in connection with such activities or as may be authorised or required by any law:

(a) without doing unnecessary damage to the Easement Land; and

(b) leaving the Easement Land in a clean and tidy condition;

Director ..... Director .....

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 4 OF 6 PAGES	Registered Number SP 183934
SUBDIVIDER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1 & 176809/3	

(6) if the Easement Land is not directly accessible from a highway, then for the purpose of undertaking any of the preceding activities TasWater may with or without employees, contractors, agents and any other persons authorised by it, and with or without machinery, vehicles, plant and equipment enter the Lot from the highway at any vehicle entry and cross the Lot to the Easement Land; and

(7) use the Easement Land as a right of carriageway for the purpose of undertaking any of the preceding purposes on other land, TasWater reinstating any damage that it causes in doing so to any boundary fence of the Lot.

SECONDLY, the benefit of a covenant in gross for TasWater with the registered proprietor/s of the Easement Land and their successors and assigns not to erect any building, or place any structures, objects, vegetation, or remove any thing that supports, protects or covers any Infrastructure on or in the Easement Land, without the prior written consent of TasWater to the intent that the burden of the covenant may run with and bind the servient land and every part thereof and that the benefit thereof may be annexed to the easement herein described.

Interpretation:

"**Infrastructure**" means infrastructure owned or for which TasWater is responsible and includes but is not limited to:

(a) sewer pipes and water pipes and associated valves;
(b) telemetry and monitoring devices;
(c) inspection and access pits;
(d) electricity assets and other conducting media (excluding telemetry and monitoring devices);
(e) markers or signs indicating the location of the Easement Land or any other Infrastructure or any warnings or restrictions with respect to the Easement Land or any other Infrastructure;
(f) anything reasonably required to support, protect or cover any other Infrastructure;
(g) any other infrastructure whether of a similar nature or not to the preceding which is reasonably required for the piping of sewage or water, or the running of electricity, through the Easement Land or monitoring or managing that activity; and
(h) where the context permits, any part of the Infrastructure.

Director ..... Director .....

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 5 OF 6 PAGES	Registered Number SP 183934
SUBDIVIDER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1 & 176809/3	

"**TasWater**" means Tasmanian Water & Sewerage Corporation Pty Ltd (ACN 162 220 653), its successors and assigns.

"**Owner**" means the registered proprietors of the Lot from time to time.

"Right of Drainage" means a right of drainage as defined within Schedule 8 of the Conveyancing and Law of Property Act 1884 (Tas).

"Right of Carriageway" means a right of carriage way as defined within Schedule 8 of the Conveyancing and Law of Property Act 1884 (Tas).

FENCING PROVISION

In respect to the lots on the plan the vendor (JAC ESTATES PTY LTD) shall not be required to fence.

COVENANTS

The owners of lots 19 & 1000 on the Plan covenants in gross with the Sorell Council 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 these covenants shall be annexed to and devolve with Sorell Council to observe the following stipulation:

- Not to construct, or allow to be constructed, any habitable room with a dwelling within the area marked A B C on the plan.

The owners of each lot on the Plan covenants in gross with the Sorell Council 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 these covenants shall be annexed to and devolve with Sorell Council to observe the following stipulation not to construct on a lot a dwelling without :

- A minimum 5,000 litre rain water tank fitted to collect all roof runoff; and
- Such tank shall be installed with minimum retention storage of 2000 litres and be plumbed into toilets so that re-use occurs, with top up from the reticulated water supply.

The owners of lots 1, 2, 14, 16, 17, 18 2001, 2002 & 2003 on the Plan covenants in gross with the Sorell Council 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 these covenants shall be annexed to and devolve with Sorell Council to observe the following stipulation not to allow vehicular access to Penna Road.

Director ..... Director .....

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

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ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 6 OF 6 PAGES	Registered Number SP 183934
SUBDIVIDER: JAC ESTATES PTY LTD FOLIO REFERENCE: 41343/1 & 176809/3	

EXECUTED by **JAC ESTATES PTY LTD (ACN 638 495 182)** pursuant to section 127 of the Corporations Act 2001 by:

....

Director Signature Director/ ~~Secretary~~ Signature

PETER KNIGHT DEAN MURRAY COCKER

Director Full Name (print) Director/ ~~Secretary~~ Full Name

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

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Registered Number

SP 183934

COUNCIL APPROVAL

(Insert any qualification to the permit under section 83(5), section 109 or section 111 of the Local Government (Building & Miscellaneous Provisions) Act 1993)
The subdivision shown in this plan is approved

In witness whereof the common seal of SORELL COUNCIL has been affixed, pursuant to a resolution of the Council of the said municipality passed the 13 day of DEC 2022, in the presence of us

Member .....

Member .....

Council Delegate .....

Council Reference SA 2020/00006

NOMINATIONS

For the purpose of section 88 of the Local Government (Building & Miscellaneous Provisions) Act 1993 the owner has nominated

BUTLER, MCINTYRE & BUTLER ..... Solicitor to act for the owner

PDA SURVEYORS, ENGINEERS & PLANNERS ..... Surveyor to act for the owner

PDA ref: 48881LM–1

Sorell Council

Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf
Plans Reference: P1
Date Received: 07/10/2025

OFFICE EXAMINATION: Indexed ✓ Computed 21/12/2022 Examined 21/12/2022

Prime Design
your build, your way

7 October 2025

Sorell Council
47 Cole Street
Sorell, TAS 7172

Dear Planner,

Re: Proposed New Residence at 2 Olympic Avenue, Midway Point

Please see a proposal for a new residence with 4 bedrooms, 2 bath, open living/ kitchen/ dining, walk-in pantry, laundry and alfresco. The proposal falls in the General Residential zone in the Tasmanian Planning Scheme.

I will be looking to address the codes where possible. Please do not hesitate to get in touch if you require further information for us to complete this application.

C7.0 Natural Assets Code (C7.6 Development Standards for Buildings and Works)

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

- All works are undertaken generally in accordance with 'Wetlands and Waterways Works Manual' and "Tasmanian Coastal Works Manual" and the unnecessary use of machinery within watercourses or wetlands is avoided.
- Machinery and equipment to be cleaned off-site before travel to the work site.
- All site works to be undertaken with minimal intervention protecting natural streambank and streambed condition with minimal impact on riparian or littoral vegetation.
- Ensure no harmful and toxic debris to waterways and manage adverse erosion, avoid landfill, sedimentation and run off.
- Site responsive building design with minimal cut and fill.
- Maintain the integrity of ecosystems (natural streambank and streambed condition – where it exists). Interfere as little as possible with the coastal processes and ecosystems keeping contaminants out of waterways.
- Mitigate damage to the environment by avoiding impacts on threatened species, minimise damage to vegetation (preserve riparian vegetation wherever feasible) and ensure work site is stabilised and implement rehabilitation where required.

Kind regards

Sadixya Pant

ABN 63 111 803 948
10 Goodman Court
Invermay, Launceston
Shop 9, 105-111 Main Road
Moonah, TAS
p+(l) 03 6332 3790
p+(l) 03 6228 4575
info@primedesigntas.com.au
primedesigntas.com.au

enviro•tech
CONSULTANTS
Geotechnical & Environmental Services

FOUNDATION CLASSIFICATION

2 OLYMPIC AVENUE - MIDWAY POINT

PROPOSED RESIDENCE

Client: Prime Design

Certificate of Title: 183934/14

Investigation Date: 25/08/2025

Refer to this Report As

Enviro-Tech Consultants Pty. Ltd. 2025. Foundation Classification Report for a Proposed Residence, 2 Olympic Avenue - Midway Point. Unpublished report for Prime Design by Enviro-Tech Consultants Pty. Ltd., 25 August 2025.

Report Distribution

This report has been prepared by Enviro-Tech Consultants Pty. Ltd. (Envirotech) for the use by parties involved in the proposed development of the property named above.

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

Limitations of this report

In some cases, variations in actual Site conditions may exist between subsurface investigation boreholes. This report only applies to the tested parts of the Site at the Site of testing, and if not specifically stated otherwise, results should not be interpreted beyond the tested areas.

The Site investigation is based on the observed and tested soil conditions relevant to the inspection date and provided design plans (building footprints presented in Attachment A). Any site works which has been conducted which is not in line with the Site plans will not be assessed. Subsurface conditions may change laterally and vertically between test Sites, so discrepancies may occur between what is described in the reports and what is exposed by subsequent excavations. No responsibility is therefore accepted for any difference in what is reported, and actual Site and soil conditions for parts of the investigation Site which were not assessed at the time of inspection.

This report has been prepared based on provided plans detailed herein. Should there be any significant changes to these plans, then this report should not be used without further consultation which may include drilling new investigation holes to cover the revised building footprint. This report should not be applied to any project other than indicated herein.

No responsibility is accepted for subsequent works carried out which deviate from the Site plans provided or activities onsite or through climate variability including but not limited to placement of fill, uncontrolled earthworks, altered drainage conditions or changes in groundwater levels.

At the time of construction, if conditions exist which differ from those described in this report, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets that requirement referenced herein or stipulated by an engineer before any footings are poured.

Investigation Summary

Site Classification

In accordance with AS2870 – 2011 and after thorough consideration of the known details pertaining to the proposed building and associated works (hereafter referred to as the Site), the geology, soil conditions, soil properties, and drainage characteristics of the Site have been classified as follows:

CLASS P based on the following problematic ground conditions identified at the site:

- Class 1 dispersive soils are present at the Site with CLASS P foundation conditions requiring specialised management measures to mitigate erosion hazards

Notwithstanding the problematic soil conditions observed/proposed at the Site, the soil would be classified as Class M

Foundations

Concentrated loads including but not limited to slab edge or internal beam or strip footings shall be supported directly on piers or pads which are founded on the extremely weathered sandstone bedrock at 0.6 to 1.0m depth or greater (below problem soil layers with an allowable bearing capacity of 400 kPa).

Wind Load Classification

The AS 4055-2021 Wind loads for Housing classification is summarised.

Region:	A
Terrain category:	TC1
Shielding Classification:	NS
Topographic Classification:	T0
Wind Classification:	N3
Design Wind Gust Speed ($V_{h,u}$) m/s	50

I recommend that during construction, I and/or the design engineer are notified of any major variation in the foundation conditions as predicted in this report.

Kris Taylor, BSc (hons)

Environmental & Engineering Geologist

Director

Site Investigation

The Site investigation is summarised in Table 1.

Table 1 Summary of Site Investigation

Client	**Prime Design**
Project Address	2 Olympic Avenue - Midway Point
Council	Sorell
Planning Scheme	Tasmanian Planning Scheme
Inundation, Erosion or Landslip Overlays	None
Proposed	Residence
Investigation	Fieldwork was carried out by an Engineering Geologist on the 19/8/2025
Site Topography	The building site has a moderate slope of approximately 10% (6°) to the northwest
Site Drainage	The site receives overland flow runoff directly from the southeast.
Soil Profiling	Two investigation holes were direct push sampled from surface level around the proposed residence (Appendix A):
Investigation Depths	The target excavation depth was estimated at 2.3 m. Borehole BH01 was direct push sampled to 0.8 m and borehole BH02 was direct push sampled to 1.1 m (both ending on sandstone). Borehole logs and photos are presented in Appendix B & C.
Soil moisture and groundwater	All recovered soil at the site ranged from dry to slightly moist. Groundwater was not encountered.
Geology	According to 1:250,000 Mineral Resources Tasmania geological mapping (accessed through The LIST), the geology comprises of: Permian - Triassic Dominantly quartz sandstone.

Soil Profiles

The geology of the site has been documented and described according to Australian Standard AS1726 for Geotechnical Site Investigations, which includes the Unified Soil Classification System (USCS). Soil layers, and where applicable, bedrock layers, are summarized in Table 2.

Table 2 Soil Summary Table

#	Layer	Details	USCS	BH01	BH02
1	Silty SAND	Silty SAND, dark greyish brown, well sorted, fine grained sand, trace roots, trace clay, 5 % roots and leaf litter, MD-D	SM	0-0.2 DS@0.0	0-0.2
2	Silty Sandy CLAY	Silty Sandy CLAY, dark grey, well sorted, medium plasticity, fine grained sand, trace roots, 5 % roots, VSt-H	CI	0.2-0.5 DS@0.4	0.2-0.4
3	Sandy CLAY	Sandy CLAY trace gravel, dark brown, mottled brownish yellow, well sorted, high plasticity, fine to medium grained sand; sub-angular gravel, VSt	CH		0.4-0.8 DS@0.6
4	Silty Sandy CLAY	Silty Sandy CLAY, very dark brown, mottled brownish yellow, well sorted, medium plasticity, fine grained sand, H	CI	0.5-0.6 DS@0.5	
5	Silty CLAY	Silty CLAY trace sand, brownish yellow, medium plasticity, fine grained sand, VSt-H	CI		0.8-1 DS@0.8
6	SANDSTONE	Extremely Weathered SANDSTONE Bedrock, L (rock strenght inferred from BH01,0.7)		0.6-0.8 PL@0.7 REF	1-1.1

Consistency[1] **VS** Very soft; **S** Soft; **F** Firm; **St** Stiff; **Vst** Very Stiff; **H** Hard. Consistency values are based on soil strengths AT THE TIME OF TESTING and is subject to variability based on field moisture condition
Density[2] **VL** Very loose; **L** Loose; **MD** Medium dense; **D** Dense; **VD** Very Dense
Rock Strength **EL** Extremely Low; **VL** Very Low; **L** Low; M Medium; **H** High; **VH** Very High; **EH** Extremely High
PL Point load test (lump)
DS Disturbed sample
PV Pocket vane shear test
FV Downhole field vane shear test
U50 Undisturbed 48mm diameter core sample collected for laboratory testing.
REF Borehole refusal
INF DCP has continued through this layer and the geology has been inferred.

[1] Soil consistencies are derived from a combination of field index, DCP and shear vane readings.
[2] Soil density descriptions presented in engineering logs are derived from the DCP testing.

Planning – DISPERSION

Sorell local provisions schedule - SOR-S1.7.1 Development on dispersive soils

Objective

That buildings and works with the potential to disturb dispersive soil are appropriately located or managed:

(a) to minimise the potential to cause erosion; and

(b) to reduce risk to property and the environment to an acceptable level.

Acceptable Solutions

Given the proposed development involves disturbance of soils and is not for a habitable building or an extension less than 100 m^2, the building and works do not meet LPS acceptable solutions, and performance solution SOR-S1.7 is to be addressed.

Performance Criteria

Performance Criteria	Recommendations
Building and works must be designed, sited and constructed to minimise the risks associated with dispersive soil to property and the environment, having regard to:	
(a) the dispersive potential of soils in the vicinity of proposed buildings, driveways, services and the development area generally;	Severely dispersive soils below the topsoil layer. Shallow bedrock offers engineering management control of erosion.
(b) the potential of the development to affect or be affected by erosion, including gully and tunnel erosion;	Management is required to prevent tunnel development within cuttings as well as soil exposed to precipitation and drainage.
(c) the dispersive potential of soils in the vicinity of water drainage lines, infiltration areas and trenches, water storages, ponds, dams and disposal areas;	Drainage needs to be managed to prevent interaction with Class 1 dispersive soils.
(d) the level of risk and potential consequences for property and the environment from potential erosion, including gully and tunnel erosion;	Risks are manageable by ensuring there is minimal contact between running water and dispersive soils. Other management measures include applying gypsum and coverings (liners, paving and topsoil).
(e) management measures that would reduce risk to an acceptable level; and	Risks can be reduced to an acceptable level at the Site through management.
(f) the advice contained in a dispersive soil management plan.	Dispersive soil management measures are recommended herein.

Recommendations

General

For Class P Sites, the designer should be a qualified engineer experienced in the design of footing systems for buildings.

Dispersive soils

Findings

The results presented in Appendix E indicate:

- Shallow soil Layer 1 is considered only slightly dispersive (Class 3) to depths of up to 0.2m depth.
- Deeper soil Layers 2 to 5 (greater than 0.2m depth) comprises Emerson Class 1 category soils which are considered severely dispersive

Site specific recommendations

- Most of the soil encountered at the Site is severely dispersive and vulnerable to erosion and potential tunnel erosion.
- As the Site has a gradient, there is the potential for severely dispersive soils to be exposed within cuts.
- Dispersive soil management is recommend in the first stages of site works.
- For further guidance, general recommendations are presented in Appendix F.

Risk of Dispersive Soils at the Site

The majority of soils encountered at the Site are classified as severely dispersive, making them susceptible to erosion and potential tunnel formation. The presence of a natural gradient increases the likelihood that these soils may be exposed during excavation works.

Recommendations for Building Areas

Dispersive soils should not be placed beneath the building pad unless they are properly treated with gypsum. Additionally, measures must be implemented to prevent water from seeping beneath the slab, as this can exacerbate erosion.

Use of Retaining Walls and Sand Barriers

Given the shallow depth to bedrock, installing retaining walls will provide an effective barrier against tunnel development. The high sand content at the Site supports the use of geofabric, which can help retain sand and form barriers against silt and dispersive soil erosion.

Batter Management

Managed batters may be capped with gypsum and loam to reduce the risk of erosion. It is also advisable to construct low-height retaining walls at the toe of the batter, complemented by ag drains installed against the bedrock. This system will help divert both surface and groundwater away from building and paved areas. The combined use of geofabric, drainage rock, and ag drains is recommended for effective water management.

Water Diversion Measures

Opportunities exist to intercept water on the uphill side of the building by installing paving between the toe of the retaining wall or batter and the building footprint.

Joint Sealing

For concrete works, flexible seals are recommended at all joints to prevent water ingress and further protect against soil dispersion.

Lawn

Grassed areas will need to be treated with gypsum and topped with at least 200mm of loam.

Swale Drains

Swale drains must be lined with concrete or a membrane.

Trenches

It is recommended that service trenches are backfilled with compacted sand rather than rock screenings.

Soil Exposure Classification

The soil has been tested for salinity impacts on footings in accordance with AS2870, as well as preliminary pH testing as a proxy to potential sulphate aggressivity. Results are presented in Appendix E and Appendix F.

- Concrete design parameters are limited by salinity more so than soil pH
- Although Layer 2 has a B1 class which indicates the need for greater controls (concrete strength, cover and curing length), all other soil layers are Class A1, indicating standard design may apply to footings and slab.
- Engineering advice is required to determine design strengths, cover and curing in this setting.

Plumbing

Refer to hydraulic design drawings for detailed plumbing advice and requirements.

Refer to Table 3 to assess soil movement (Ys) around pipework for different depth ranges.

*Table 3 Millimetres soil movement (Ys) for determining plumbing requirements for various soil depths **

Building	Profiles	P*	E Ys >75	H2 Ys 60-75	H1 Ys 40-60	M Ys 20-40	S Ys 0-20	A Ys 0
Residence	BH01 BH02	YES				0-0.4	0.4-1	1-3

* Depths in this table are based on surfaces at the time of testing and do not allow for the influence of any additional fill added to the soil profile unless the Iss calculation depth has been modified based on the proposed cut and fill (see 'Footing Minimum Target Depths'). Where additional fill is proposed (and not indicated in the attached plans) Enviro-Tech are to be advised of final FFL's so the Site classification can be recalculated according to the specific fill reactivity and thickness used in the design.

Class A and S

When pipework service trench basses fall within Class A to S depth range as shown in Table 3, and all plumbing recommendations herein have been implemented, the drainage system does not require any additional protection and should be installed following the AS/NZS 3500 series standards.

Class M

When pipework service trench basses fall within Class M depth range as shown in Table 3, and all plumbing recommendations herein have been implemented, all stormwater and sanitary plumbing drains should have fittings set at their midposition during installation to allow 0.5ys movement in any direction. Pipe wrappings can be used at critical points.

AS3500.2:2021 Appendix G of AS3500.2:2021 should be referred for general advice.

Site Drainage

Surface drainage shall be considered in the design of the footing system, and necessary modifications shall be included in the design documentation. The surface drainage of the site shall be controlled from the beginning of the preparation and construction of the site. The drainage system shall be completed after the completion of the building construction.

Ideally, the areas around the footprint of the building should be graded or drained so that the water cannot pond against or near the building. As soon as footing construction has been completed, the ground immediately adjacent to the building should be graded to a uniform fall of 50mm minimum away from the building over the first metre. The final provision of paving to the edge of the building can greatly limit soil moisture variations due to seasonal wetting and drying.

Temporary Site Drainage

It is recommended that drainage protection works (cut off drains/mounds) are put in place above (upgradient of) the work area to prevent water and sediment from accumulating in and around footings and reduce the risk of erosion and instability around any proposed earth retaining structures.

Rock Excavatability

It is recommended that a 5 tone excavator or larger fitted with a GP bucket will be effective in removing bedrock.

Permanent Cut Batters – Soil and Rock

To ensure that cuts remain serviceable, it is recommended that unretained cuts in soil do not exceed 1V: 2H and unsupported baters in bedrock do not exceed 2V: 1H. Before cuts are approached by workers, cuts must be appropriately scaled to remove any loose soil and rock. The bedrock should not be increased beyond 2.0 m height relative to depth below natural level, without inspection by a suitably qualified person to ensure that these cuts are safe to work under.

Filling Works

- In the case where either of the following conditions occur, the Site is classified as Class P (AS2870 Clauses 2.5.2 and 2.5.3), in which case footings are to be designed in accordance with engineering specifications:
    - FILL OTHER THAN SAND exceeds 0.4 m depth.
    - SAND FILL exceeds 0.8 m depth.
- It is recommended that footing (edge beams, internal beams, and load support thickenings) concentrated loads are transferred through the fill to target founding layers.
- Subject to engineering advice, edge beams, internal beams, and load support thickenings may need to be founded on natural ground.
- SAND or FCR is always recommended rather than fill containing SILT or CLAY.
- Compacted SAND FILL on well drained slopes should not exceed 1V:2H unless supported by an engineered retaining wall.
- Compacted stable rock fill on well drained slopes should not exceed 2V:3H unless supported by an engineered retaining wall.
- Any proposed filling works must be in accordance with AS3798 'Earthworks for Residential and Commercial Developments'.
- Before placing fill for landscaping, all topsoil should be removed from the filled area.
- Ideally, the fill should be free draining and placed to prevent water ponding. The fill should be placed in layers no greater than 150mm height and suitably compacted.

Long-term erosion management

The following measures are generally recommended for maintaining long-term erosion stability of soil slopes:

- Slopes exceeding 1V: 4H and up to 1V: 3H will need to be effectively stabilised with mulch/topsoil mixes, drill/broadcast seeding, hydroseeding or soil binders.
- Slopes up to 1V:2Hcan be stabilised with straw mulching.
- Slopes exceeding 1V: 2H and up to 1V:1.5H may be effectively stabilised with hydromulching
- Slopes exceeding 1V:1.5H but no greater than 1V: 1H will generally require measures such as erosion control blankets.

Building Pad Preparation

Any organic matter or other deleterious materials will need to be removed from the building envelope.

Topsoil containing grass roots must be removed from the area on which the footing will rest.

Unless otherwise stated in an engineering report, fill or loose, soft, low bearing capacity soil should either be removed from the building pad, or otherwise footings or piers should ideally be established to the base of this material to support the proposed structure.

Earthworks should be carried out in accordance with AS3798 'Earthworks for Residential and Commercial Developments'. Unsuitable materials in structural fill are listed in AS2870 Section 4.3.

The base of the excavation must be generally level but may slope not more than 1:40 to allow excavations to drain.

Pad Preparation - Compaction

Ordinarily, compaction is not recommended for CLAY soils, but in this case, Emerson Class 1 to Class 2 soil layers is to be compacted if exposed at surface.

It is recommended that any crushed rock, sand or granular soils across the building pad, filled areas and the base of the footing excavations are compacted with several passes with a medium weight (~80 kg) plate compactor (80 kg).

Bored Pier Impediments - Obstructions

There were no obvious impediments to auguring such as cobbles or boulders obstructions.

Bored Pier Impediments - Groundwater

Groundwater was not encountered.

Foundation Maintenance

Details on appropriate site and foundation maintenance practises from the CSIRO BTF 18 Foundation Maintenance and Footing Performance: A Homeowner's Guide are presented in Appendix H of this report.

Kris Taylor, BSc (hons)

Environmental & Engineering Geologist

Notes About Your Assessment

The Site classification provided and footing recommendations including foundation depths are assessed based on the subsurface profile conditions present at the time of fieldwork and may vary according to any subsequent *Site works* carried out. *Site works* may include changes to the existing soil profile by cutting more than 0.5 m and filling more than 0.4 to 0.8 m depending on the type of material and the design of the footing. All footings must be founded through fill *other than* sand not exceeding 0.4 m depth or sand not exceeding 0.8 m depth, or otherwise a Class P applies (AS2870 Clauses 2.5.2 and 2.5.3).

For reference, borehole investigation depths relative to natural soil surface levels are stated in borehole logs where applicable.

In some cases, variations in actual Site conditions may exist between subsurface investigation boreholes. At the time of construction, if conditions exist which differ from those described in this report, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets the requirement referenced herein or stipulated by an engineer before any footings are poured.

The site classification assumes that the performance requirements as set out in Appendix B of AS 2870 are acceptable and that site foundation maintenance is carried out to avoid extreme wetting and drying.

It is the responsibility of the homeowner to ensure that the soil conditions are maintained and that abnormal moisture conditions do not develop around the building. The following are examples of poor practises that can result in abnormal soil conditions:

- The effect of trees being too close to a footing.
- Excessive or irregular watering of gardens adjacent to the building.
- Failure to maintain Site drainage.
- Failure to repair plumbing leaks.
- Loss of vegetation near the building.

The pages that make up the last six pages of this report are an integral part of this report. The notes contain advice and recommendations for all stakeholders in this project (i.e. the structural engineer, builder, owner, and future owners) and should be read and followed by all concerned.

References

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Appendix A Mapping

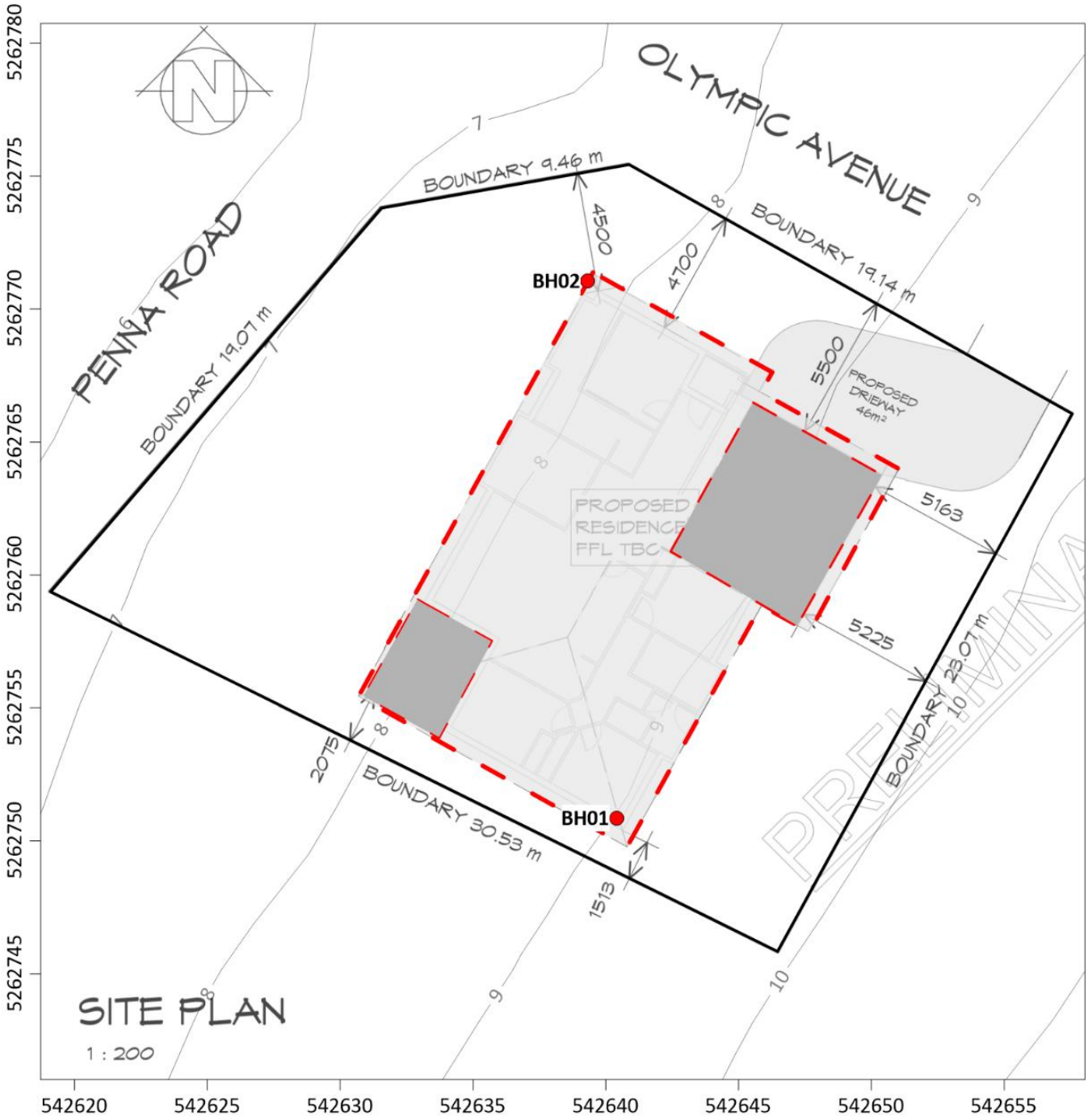

Figure 1 Site Borehole Locations

Appendix B Borehole Logs

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ASSESSMENT: Foundation Classification
STRUCTURE: Residence
EASTING: 542640.5 **HORIZONTAL**
NORTHING: 5262751 **ACCURACY:** 0.61m

HOLE ID NO.: BH01
DATE TESTED: 19/08/2025
LOGGED BY: M. Scalisi
ELEVATION: 10.00

LOCATION: 2 Olympic Avenue - Midway Point
CLIENT: Prime Design

EQUIPMENT: AMS Powerprobe 9120 RAP
NATURAL SURFACE (RL):

DEPTH (m)	GRAPHIC	DESCRIPTION	LAYER	DENSITY CONSISTENCY STRENGTH	MOISTURE INDEX	%	SAMPLES	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows/100mm 0 5 10 15 20
0.0	SM	Silty SAND, dark greyish brown, well sorted, fine grained sand, trace roots, trace clay, 5 % roots and leaf litter	1	medium dense	Dry		DS				3.0	
											5.0	
	CI	Silty Sandy CLAY, dark grey, well sorted, medium plasticity, fine grained sand, trace roots, 5 % roots	2	hard	Dry						10.0	
						11	DS				12.0	
0.5	CI	Silty Sandy CLAY, very dark brown, mottled brownish yellow, well sorted, medium plasticity, fine grained sand	4		Slightly Moist	9	DS				11.0	
		Extremely Weathered SANDSTONE Bedrock pale yellow	6	low	Dry						12.0	
							PL	IS 50			REF	
		Direct Push Sampler Refusal on Extremely Weathered SANDSTONE Bedrock End of borehole at 0.8m depth.										

GROUNDWATER: Not Encountered

TESTING: Penetrometer: AS 1289.6.3.2

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Where blows per 100mm are less than 1, distance travelled per penetrometer blow is measured and converted to blows per 100mm.

DS - Disturbed Sample; U50 - Undisturbed 50mm Core; FV - Field Vane (Ømm); PP - Pocket Penetrometer; CBR - Califronian Bearing Ratio: PV - Pocket Vane

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ASSESSMENT: Foundation Classification
STRUCTURE: Residence
EASTING: 542639.5 **HORIZONTAL**
NORTHING: 5262771 **ACCURACY:** 0.6m

HOLE ID NO.: BH02
DATE TESTED: 19/08/2025
LOGGED BY: M. Scalisi
ELEVATION: 8.00

LOCATION: 2 Olympic Avenue - Midway Point
CLIENT: Prime Design

EQUIPMENT: AMS Powerprobe 9120 RAP
NATURAL SURFACE (RL):

DEPTH (m)	GRAPHIC	DESCRIPTION	LAYER	DENSITY CONSISTENCY STRENGTH	MOISTURE INDEX	%	SAMPLES	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows/100mm
0.0	SM	Silty SAND, dark greyish brown, well sorted, fine grained sand, trace roots, trace clay, 5 % roots and leaf litter	1	medium dense to dense	Dry						5.0	
	CI	Silty Sandy CLAY, dark grey, well sorted, medium plasticity, fine grained sand, trace roots, 5 % roots	2	very stiff to hard	Slightly Moist						8.0 8.0 10.0	
0.5	CH	Sandy CLAY trace gravel, dark brown, mottled brownish yellow, well sorted, high plasticity, fine to medium grained sand	3	very stiff	Slightly Moist	16	DS				8.0 8.0 6.0 7.0	
	CI	Silty CLAY trace sand, brownish yellow, medium plasticity, fine grained sand	5	very stiff to hard	Slightly Moist	10	DS				9.0 11.0	
1.0		Extremely Weathered SANDSTONE Bedrock pale yellow	6								REF	
		Direct Push Sampler Refusal on Extremely Weathered SANDSTONE Bedrock End of borehole at 1.1m depth.										

GROUNDWATER: Not Encountered
TESTING: Penetrometer: AS 1289.6.3.2

PAGE 1 of 1

Where blows per 100mm are less than 1, distance travelled per penetrometer blow is measured and converted to blows per 100mm.
DS - Disturbed Sample; U50 - Undisturbed 50mm Core; FV - Field Vane (Ømm); PP - Pocket Penetrometer; CBR - Califronian Bearing Ratio: PV - Pocket Vane

Appendix C Core Photographs

BH01

BH02

*** 1 metre core tray length**

Appendix D Explanatory Notes

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USCS Soil Classification Methodology

Soil classification was undertaken in accordance with the Unified Soil Classification System (USCS) and AS 1726 – Geotechnical Site Investigations, using a combination of particle size distribution and plasticity assessment. This process was applied consistently to all soil layers encountered.

1. Particle Size Distribution (Wet Sieve Analysis)

Particle size analysis was performed by wet sieving in accordance with Australian Standard sieve sizes:

- Gravel fraction: >2.36 mm
- Sand fraction: 0.075 mm to 2.36 mm
- Fines fraction (silt + clay): <0.075 mm

Samples were soaked (often overnight) to fully disperse fines prior to sieving. Wet sieving is particularly effective for Tasmanian soils, which are often dispersive, ensuring accurate quantification of the fines fraction. The oversize fraction (>63 mm) was excluded from the mass percentages before classification.

2. Plasticity Assessment

Plasticity of the fines fraction was determined using:

- Laboratory Atterberg limits, where available, with liquid limit (WL) and plasticity index (PI) plotted on the Plasticity Chart (AS 1726) to determine the fines classification (silt vs clay) and plasticity level (low, medium, high).
- Field index tests (where Atterberg limits were not available), following Table 1 &
- Table 2:
  - Dry strength – resistance of dried soil to crushing.
  - Dilatancy – reaction of a moist soil pat to shaking.
  - Toughness – resistance of a soil thread near the plastic limit.

Table 1 Field Assessment of Fine Grained Soils (adapted from AS 1726 Table 7)

Dry Strength		Dilatancy (reaction to shaking)		Toughness (consistency near plastic limit)	
None	The dry specimen crumbles into powder with mere pressure of handling.	None	No visible reaction or change in the specimen.	Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft.
Low	The dry specimen crumbles into powder with some finger pressure.	Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear during squeezing.		
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure.			Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness.
High	The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface.	Rapid	Water appears quickly on the surface of the specimen during shaking and disappears during squeezing.	High	Considerable pressure is required to roll the thread near the plastic limit. The thread and the lump have very high stiffness.
Very High	The dry specimen cannot be broken between the thumb and a hard surface.				

Table 2 Identification of Fine Grained Soils by Visual–Tactile Methods (adapted from AS 1726 Table 8)

Soil description	Identification of inorganic fine-grained soils		
	Dry Strength	Dilatancy	Toughness and Plasticity
SILT	None to low	Slow to rapid	Low or thread cannot be formed
Clayey SILT — Clay/silt mixtures of low plasticity	Low to medium	None to slow	Low to medium
Silty CLAY — Silt/clay mixtures of medium plasticity	Medium to high	None to slow	Medium
High plasticity CLAY	High to very high	None	High

3. Classification Hierarchy

3.1 Fine- vs Coarse-Grained determination

- Fine-grained soils: More than 35% (by mass) passes the 0.075 mm sieve → classify using Table 3
- Coarse-grained soils: More than 65% (by mass) is retained on the 0.075 mm sieve → classify using
- Table 4.

3.2 Coarse-grained soils (

Table 4)

1. **Determine Gravel vs Sand:**
    - Gravel (G*) – more than 50% of the coarse fraction is retained on the 2.36 mm sieve.
    - Sand (S*) – less than 50% of the coarse fraction is retained on the 2.36 mm sieve.
2. **Assign fines modifiers:**
    - ≤5% fines: "Clean" gravels/sands (GW, GP, SW, SP).
    - 5–12% fines: Dual classification (e.g., SP-SM, GW-GM).
    - ≥12% fines: Silty or clayey modifiers (GM, GC, SM, SC) based on fines plasticity from Atterberg limits or field index tests.

3.3 Fines classification for coarse-grained soils

When coarse-grained soils contain ≥12% fines, the fines fraction is classified as silty or clayey based on:

- Atterberg limits where available; or
- Field index tests (Table 1 &
- Table 2) where Atterberg limits are not available.

3.4 Fine-grained soils (Table 3)

Fine-grained soils are those with >35% (by mass) passing the 0.075 mm sieve.

- With Atterberg limits available: WL and PI are plotted on the Plasticity Chart (AS 1726) to determine plasticity level (low, medium, or high) and USCS classification (ML, CL/CI/CH, MH, OL, OH).

- Where Atterberg limits are not available: The fines are classified directly in accordance with Table 3 by comparing field index test results (dry strength, dilatancy, toughness) to the criteria given for each USCS group. This allows direct assignment of ML, CL/CI/CH, MH, or OL/OH without reference to the A-line.

Organic soils (OL, OH) are identified based on colour, odour, and fibrous texture in addition to field index characteristics.

4. Integration of Results

The final USCS group symbol for each layer was determined by integrating:

- The proportion of gravel, sand, and fines from wet sieve analysis.
- The classification of the fines fraction using either Atterberg limits or field index methods.
- The classification hierarchy in Table 3 &
- Table 4.

This combined approach ensures that soil classification is both quantitatively accurate and fully compliant with AS 1726, while allowing consistent classification whether or not laboratory Atterberg limit testing is available.

Table 3 Classification of Fine Grained Soils (adapted from AS 1726 Table 10)

Major Division	Group Symbol	Typical names	Field classification of silt and clay			Laboratory classification
			Dry strength	Dilatancy	Toughness	% <0.075
SILT and CLAY (low to medium plasticity, %)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
	CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
	OL	Organic silt	Low to medium	Slow	Low	Below A line
SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
	CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
	OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
Highly organic soil	Pt	Peat, highly organic soil	—	—	—	—

Table 4 Classification of Coarse Grained Soils (adapted from AS 1726 Table 9)

Major Division	Group Symbol	Typical names	Field classification of sand and gravel	Laboratory classification
GRAVEL (more than half of coarse fraction is larger than 2.36 mm)	GW	Gravel and gravel–sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤5% fines, Cu > 4, 1 < Cc < 3

Major Division	Group Symbol	Typical names	Field classification of sand and gravel	Laboratory classification
	GP	Gravel and gravel–sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤5% fines, fails to comply with above
	GM	Gravel–silt mixtures and gravel–sand–silt mixtures	'Dirty' materials with excess of nonplastic fines, zero to medium dry strength	≥12% fines, fines are silty
	GC	Gravel–clay mixtures and gravel–sand–clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥12% fines, fines behave as clay
SAND (more than half of coarse fraction is smaller than 2.36 mm)	SW	Sand and gravel–sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤5% fines, $Cu > 6$, $1 < Cc < 3$
	SP	Sand and gravel–sand mixtures, little or no fines, uniform sands	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤5% fines, fails to comply with above
	SM	Sand–silt mixtures	'Dirty' materials with excess of nonplastic fines, zero to medium dry strength	≥12% fines, fines are silty
	SC	Sand–clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥12% fines, fines are clayey

Standard Methodology for Determination of Soil Reactivity and Index of Shrink–Swell (Ips) for SIFE Investigations

1. Introduction

This methodology outlines the procedures adopted by Enviro-Tech Consultants Pty. Ltd. for determining soil reactivity and deriving the Index of Shrink–Swell (Ips) for each soil layer in accordance with the principles of AS 2870. The method combines Australian Standard testing procedures with enhanced correlation techniques developed from an extensive dataset of over 2,000 field and laboratory tests.

The approach ensures consistent, accurate classification of soil reactivity across a wide range of soil types. By combining standard and modified testing procedures, it enables calculation of profile movement for complex soil profiles, accounting for groundwater levels, bedrock depth, and particle size distribution.

2. Sampling and Preparation

2.1 Undisturbed Sampling

Undisturbed samples are collected using a thin-wall sampler to preserve natural soil structure and in-situ moisture conditions when performing shrink–swell testing. A 45 mm diameter core sampler is used for these tests to ensure uniformity and comparability between results. Most other laboratory testing is carried out on disturbed samples, which is one of the advantages of the linear shrinkage and modified linear shrinkage testing methods.

2.2 Sample Identification

All samples are assigned a Unified Soil Classification System (USCS) code using accurate laboratory and field identification techniques in accordance with AS 1726 (detailed procedure included herein). This classification underpins the correlation methods described in later sections.

2.3 Moisture Content Measurement

Field moisture content is recorded at the time of sampling, providing baseline data for correlation to laboratory shrink–swell results.

3. Standard Testing Procedures

3.1 Shrink–Swell Testing

Shrink–swell testing is performed on cohesive soils in accordance with the relevant Australian Standard method for determining the shrink–swell index. This test provides the primary Ips value for these soil types.

3.2 Linear Shrinkage Testing

Linear shrinkage testing is carried out in accordance with the Australian Standard method, which determines shrinkage from a soil prepared at its liquid limit. This standard approach typically excludes a proportion of the sandy fraction.

4. Secondary Modified Linear Shrinkage Method

4.1 Rationale

In practice, the relationship between shrink–swell test results and standard linear shrinkage results is often inconsistent, particularly for non-cohesive or marginally cohesive soils. To improve correlation, a secondary modified linear shrinkage method has been developed.

4.2 Modified Moisture Basis

Instead of preparing samples solely at the liquid limit, this method uses a "modified moisture" content representative of upper-range field moisture conditions for each USCS soil type. These values are derived from a dataset of over 2,000 samples collected predominantly during winter or immediately thereafter, representing the highest seasonal moisture levels without crossing into "abnormal moisture conditions" as defined in AS 2870.

4.3 Application to Non-Cohesive Soils

This approach enables reactivity assessment of sandy and silty soils that are unsuitable for shrink–swell testing due to their inability to remain intact during testing, but which still display measurable reactivity.

5. Gravel and Cobble Fraction Adjustments

5.1 Gravel Fraction

For all materials, the sand fraction is retained in testing, and the gravel fraction is re-added into the calculation. Because gravel has negligible moisture absorption, its proportion is used to adjust shrinkage values downwards.

5.2 Cobbles

Where cobbles are present:

- 0–35% cobbles: shrinkage is scaled according to the proportion of soil matrix between cobbles.
- 35% cobbles: shrinkage is considered negligible, as the soil matrix is insufficient to impart meaningful reactivity.

6. Correlation and Calibration

6.1 Dataset Development

Extensive correlation has been undertaken between:

- Standard shrink–swell results
- Standard linear shrinkage results
- Modified linear shrinkage results

6.2 USCS-Based Correlation

Accurate USCS classification is the key input variable. Once correlations are established for each USCS class, Ips values can be assigned to future samples based solely on classification and moisture parameters, without requiring repeated shrink–swell testing.

7. Predictive Modelling and Database Search Method

Enviro-Tech Consultants maintains a large and continuously expanding database of soil test results, including shrink–swell, linear shrinkage, particle size distribution, USCS classification, and detailed field descriptions (e.g., colour, texture, structure).

When assessing a new Site, we search this database for comparable sites using multiple parameters:

- Geology – parent material type and origin
- USCS classification – precise laboratory classification

- Soil colour and descriptive features – matching field logging records
- Particle size distribution – percentage gravel, sand, and fines

This multi-parameter search allows us to identify highly similar soils and adopt Ips values from past testing at those sites with confidence. The approach reduces the need for repeated shrinkage or shrink–swell testing where soils are well represented in the database, while still meeting the requirements for reliable reactivity estimation.

8. Compliance with AS 2870 – Clause 2.3.2 (C2 & C3)

Our predictive approach aligns directly with the requirements of AS 2870 Clause 2.3.2:

c (ii): We maintain and utilise a database of past test results to estimate soil reactivity for sites with similar soil and geological conditions.

C (iii): Testing is repeated at regular intervals to ensure correlations remain valid. At minimum, reactivity testing is conducted once every 50 sites, but in practice we test far more frequently – typically at least once every 20 sites, and rarely more than six months between tests. On average, new verification testing is undertaken approximately monthly.

This compliance ensures that our methods are both technically robust and standards-compliant, providing clients with defensible, high-quality results.

9. Calculation of Profile Movement

9.1 Ips Values per Layer

An Ips value is determined for each soil layer based on test results or correlations.

9.2 Adjustment for Groundwater and Bedrock

Where groundwater or bedrock occurs within the profile, Ips values are reduced for the affected layers in accordance with AS 2870 principles.

9.3 Design Suction Change Depth (Hs)

Given the lack of statewide, high-resolution climatic data for Tasmania, a conservative Hs value of 3.0 m is adopted for all sites, in preference to regionalised values. This ensures a cautious approach where actual depth of suction change cannot be accurately modelled.

9.4 Surface Suction Change (Δus)

A standard surface suction change of 1.2 is applied in calculations, in line with AS 2870.

10. Advantages of the Modified Method

- Allows for reactivity assessment across all soil types, including non-cohesive sands and silts.
- Provides consistent correlation between laboratory and field methods.
- Enables accurate whole-profile movement estimation based on standardised USCS classification.
- Incorporates gravel and cobble fraction corrections for more realistic movement predictions.
- Reduces reliance on repeat laboratory shrink–swell testing for every sample.
- Fully compliant with AS 2870 Clause 2.3.2 (C2 & C3).

11. Limitations

- The method assumes accurate USCS classification and field moisture determination.
- The modified linear shrinkage method requires prior calibration for each USCS type.
- Adoption of a conservative Hs value may slightly overestimate movement in some locations.

12. Conclusion

This methodology blends rigorous Australian Standard test procedures with enhanced, data-driven correlation techniques, enabling Enviro-Tech Consultants Pty. Ltd. to deliver accurate, consistent, and site-specific soil reactivity assessments across Tasmania. The inclusion of >2,000 test results, gravel and cobble adjustments, predictive modelling from a comprehensive database, and modified moisture testing provides a robust basis for predicting profile movement in varied geological conditions, while maintaining strict compliance with AS 2870.

Appendix E Soil and Rock Testing

Dynamic Cone Penetrometer (DCP)

Dynamic cone penetrometer (DCP) testing was conducted according to AS 1289.6.3.2 with the results presented in Appendix B.

Soil Characterisation

Table 4 summarises the soil classification results for each layer encountered, including particle size distribution, plasticity assessment, and the assigned USCS group symbol.

Classifications were undertaken in accordance with AS 1726 – Geotechnical Site Investigations using the methodology provided in the Explanatory Notes section of this report.

Particle size distributions were determined by wet sieve analysis, and fines classifications were based on Atterberg limits where available, or on field index tests (dry strength, dilatancy, toughness) in accordance with AS 1726 Tables 7, 8, 9, and 10.

Full explanatory notes and reference tables are provided in Explanatory Notes section of this report.

Table 4 Summary of the Soil Characterisation

Layer	Soil	Borehole	Depth From (m)	Field Moisture %	Gravel %	Sand %	Fine %	Analysed Plasticity	Assigned USCS
1	Silty SAND	BH01	0	7	0	74.9	25.1		SC
2	Silty Sandy CLAY	BH01	0.4	10.8	0	60.2	39.8	M	CI
3	Sandy CLAY	BH02	0.6	15.8	3.8	50.3	45.9	H	CH
4	Silty Sandy CLAY	BH01	0.5	8.8	0	67.4	32.6	M	SC
5	Silty CLAY	BH02	0.8	9.7	0	5.9	94.1	M	CI

Soil Dispersion (Emerson aggregate test)

Select soil samples were tested for dispersion susceptibility using the Emerson Class number method according to AS1289.3.8.1. The results presented in Table 5 demonstrate that:

- Shallow soil Layer 1 is considered only slightly dispersive (Class 3) to depths of up to 0.2m depth.
- Deeper soil Layers 2 to 5 (greater than 0.2m depth) comprises Emerson Class 1 category soils which are considered severely dispersive

Table 5 Summary of the Emerson class results.

Layer	Soil	Depth	Sample ID	Emersion Class	Date Tested	Water	pH
1	Silty SAND	0	BH01 0.0	Class 3	22/08/2025	DI 13°C	
2	Silty Sandy CLAY	0.4	BH01 0.4	Class 1	22/08/2025	DI 13°C	6.1
4	Silty Sandy CLAY	0.5	BH01 0.5	Class 1	22/08/2025	DI 13°C	6.6
3	Sandy CLAY trace gravel	0.6	BH02 0.6	Class 1	22/08/2025	DI 13°C	4.6
5	Silty CLAY trace sand	0.8	BH02 0.8	Class 1	22/08/2025	DI 13°C	6.1

Soil Aggressivity Testing (Footing Exposure Classification)

Soil samples from across the Site were assessed for potential aggressivity to concrete in accordance with the requirements of AS 2870:2011 – Residential Slabs and Footings (Clauses 5.5.1–5.5.3). Testing was undertaken to determine the salinity exposure class and provide an indicative assessment of sulphate soil potential.

The results are summarised in Table 14, which presents the sampling depth and location, soil texture classification, electrical conductivity (EC1:5), salinity factor (K), calculated saturated extract electrical conductivity (ECe), and the corresponding salinity exposure class (Table 5.1, AS 2870). Soil pH values were also measured and used as a conservative indicator of potential sulphate aggressivity, together with the assigned soil condition class, to derive an indicative sulphate exposure class (Table 5.2, AS 2870).

It is noted that the sulphate assessment has been undertaken on the basis of pH values only, and therefore represents a conservative assumption. Where soils exhibit pH < 5.5 or are otherwise classified within B or C exposure classes, confirmatory laboratory testing of sulphate concentrations may be warranted to refine the exposure classification and confirm appropriate concrete durability requirements.

Salinity testing has been undertaken in accordance with the relevant guidelines and provides a direct basis for assigning salinity exposure classification.

Where aggressive soils are discerned, detailed recommendations for the management of aggressive soils, including concrete strength, curing and reinforcement cover requirements, are presented in Appendix G.

Table 6 Soil Aggressivity Assessment in Accordance with AS 2870:2011

Layer	Location	Depth	Saline Soil Determination					Sulphate Soil Potential^		
		From (m)	USDA Soil Texture Class	EC1:5 mS/cm	K*	Ece dS/m	Exposure Class	pH1:5	Soil Condition Class	Exposure Class
1	BH01	0.0	Loamy sand	0.19	13.0	2.47	A1	6.0	B	A1
2	BH01	0.4	Sandy clay loam	1.09	7.5	8.18	B1	6.1	B	A1
3	BH02	0.6	Sandy clay loam	0.51	7.5	3.83	A1	4.6	B	A2^
4	BH01	0.5	Sandy clay loam	0.3	7.5	2.25	A1	6.6	B	A1
5	BH02	0.8	Silty clay	0.17	5.8	0.99	A1	6.1	B	A1

^ Preliminary findings based on soil pH only. Further sulphate testing required to rule out sulphate soil exposure risks

*Electrical conductivity of the 1:5 soil–water extract (EC1:5) was measured at 25 °C and converted to an equivalent saturated paste extract (ECe) using texture-based conversion factors (ECe = k × EC1:5) following Slavich, P.G. & Patterson, R.A. (1990). Estimating the electrical conductivity of saturated paste extracts from 1:5 soil:water suspensions and texture. Australian Journal of Soil Research, 28, 453–463.

Rock Point Load Testing

Rock samples collected from the Project Area were tested using a digital rock point load tester which has been manufactured in accordance with AS 4133.4.1. The 'lump' sample method and calculation have been used in the tests.

A sandstone rock sample was collected from the Hilltop Dwelling building pad within the Project Area. The Sandstone inferred to have a low rock strength based on interpretation of the point load testing results (Table 7).

Table 7 Point load index testing results.

	Units	BH01
Depth	m	0.700
Layer		6
Test	MPa (IS50)	0.130
Index		L

Appendix F Geotechnical Interpretation

Footing Minimum Target Depths

Footing design for the proposed structures are to consider the depths of limiting layers at the base of potentially problematic soils. Where practical/allowable, thickened beams may be deepened through problematic soil layers according to engineering specifications (Table 8). Table 9 should be referred to where only 50kPa allowable bearing capacity is required.

Table 8 also presents a summary of the estimated soil depths and associated layers where less than 5mm of vertical soil movement can expected due to soil moisture fluctuations from normal seasonal wetting and drying cycles. Where 5mm tolerances are required, concentrated loads including but not limited to slab edge or internal beam or strip footings shall be supported directly on piers in accordance with minimum target layer depths presented in Table 8, with considerations given to required bearing capacities in accordance with Table 9.

All footing depth, soil movement, and bearing capacity calculations presented in this section are based on interpretive I_{PS} or I_{SS} values derived from field and laboratory data, as outlined in the Explanatory Notes section of this report. These values are used to infer soil reactivity in the absence of direct measurement, in accordance with industry best practice.

Table 8 Soil characteristic surface movements and recommended footing minimum target depths

Footing design parameters	BH01	BH02
Ys Calculation Depth	0m^	0m^
Surface movement Ys (mm)	10	25
Soil reactivity class	S	M
Base of problem soil layer (m)*	-	-
Layer at base of problem soil*	-	-
Pier/Footing minimum target depth (m)#	>0.7^	>1.1^
Pier/footing minimum target layer#	6	6
Allowable bearing capacity at min target depth (kPa) #	400	400

- No problem layers encountered

^ Calculations relative to surface of borehole at the time of investigation

~ Calculated based on revised soil profile depth/thickness following indicative cut and fill. Inferred fill reactivity indicated (Iss value) which is typically based on more reactive soils expected to be encountered within inferred cut.

* Base of problematic soil layer depth below top of borehole surface at the time of testing to achieve 100 kPa allowable bearing capacity or greater.

Target soil layer depth where Ys values from normal wetting and drying cycles are estimated at less than 5mm vertical movement. >minimum bored pier depths (see bearing capacity table for bored pier design depths).

Soil and Rock Allowable Bearing Capacity & End Bearing Capacity

Soil allowable bearing capacity was calculated from correlations with DCP blow counts. A recommended safety factor of 3 is applied in accordance with AS2870. Where high clay and silt content is observed in the soil, soil allowable bearing capacity is determined from undrained shear strengths using field vane correlated DCP values. Interpretive bearing capacity values are presented in Table 9.

Table 9 Soil allowable bearing capacities and problematic ground conditions.

Depth below investigation surface (m)	Allowable Bearing Capacity (kPa)	
	BH01	BH02
0	**170***	**280***
0.1	**270**	**300**
0.2	**>400**	**390**
0.3	**>400**	**380**
0.4	**>400**	**380**
0.5	**>400**	**300**
0.6	**SANDSTONE**	**280**
0.7	**SANDSTONE**	**310**
0.8		**>400**
0.9		**>400**
1		**SANDSTONE**

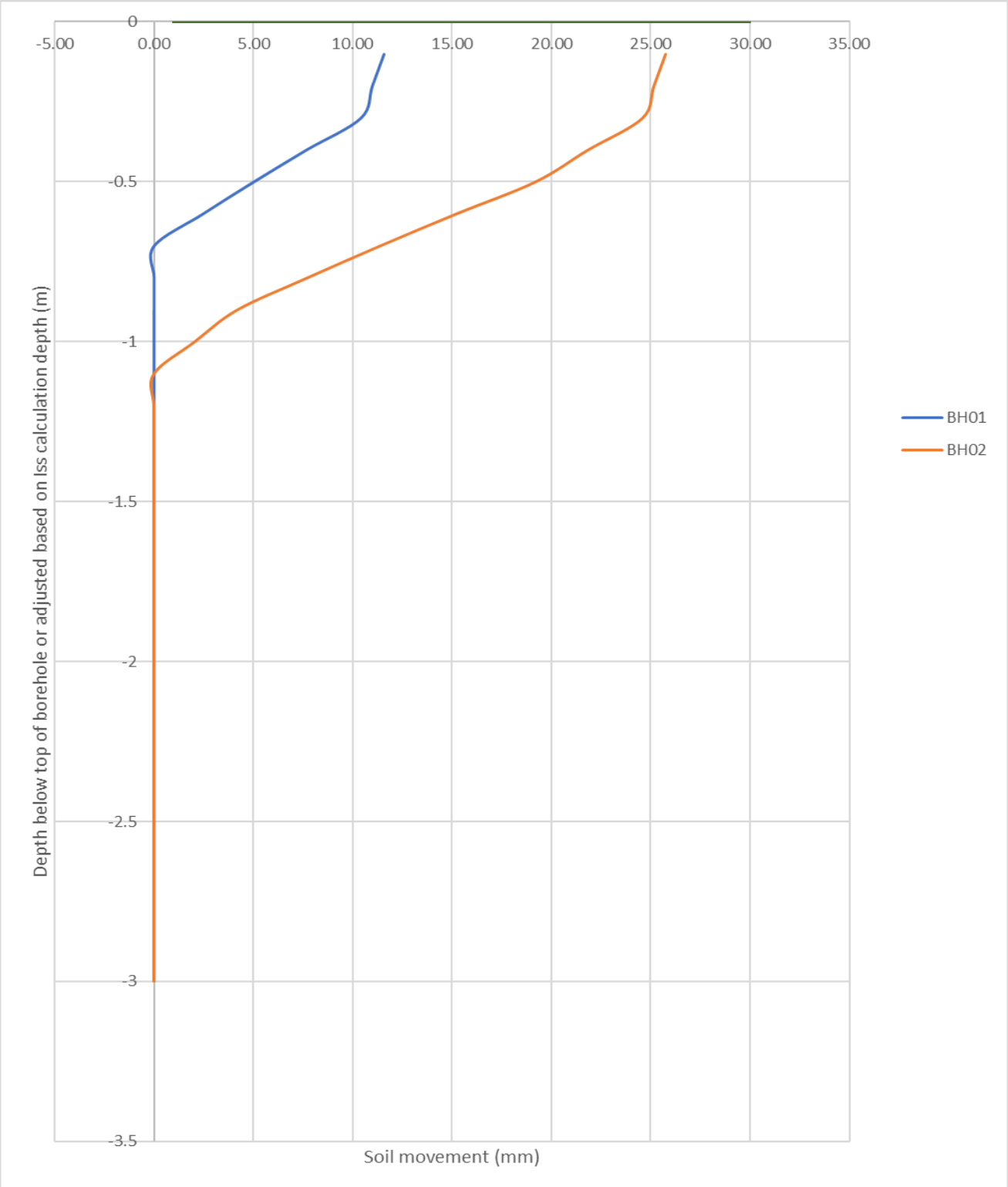
Correlations drawn from DCP and vane shear testing.
REF - Penetrometer Refusal
^ Footings to be founded through the FILL
~ Problematic soil layer attributed to loose, soft, or low allowable bearing capacity soil (<100 kPa)
*Soil layer expected at the base of problematic soil layers at test location (or at surface where problematic soils not encountered) to achieve 100 kPa allowable bearing capacity or greater.

Characteristic Soil Movement (Ys)

The characteristic soil movement (soil reactivity) from wetting and drying cycles is calculated according to AS 2870 Section 2.3. The calculations are based on Iss % testing results or correlations with linear shrink data and are based on complete soil profiles for boreholes drilled within the building Site. In the case of where cut and fill are proposed and building finished floor levels (FFL) are made available, the Iss value is recalculated based on the FFL and estimated cut and fill as per Table 8.

According to AS 2870 Section 2.3, calculations consider the depth of groundwater and bedrock. Soil characteristic movements based on lab testing are presented in Figure 2.

Figure 2 Calculated Characteristic Soil Movement Based on Soil Testing



Footing Exposure Management

The soil aggressivity testing results presented in Table 6 have been interpreted in Table 10 to provide indicative requirements for minimum concrete strength, curing duration and reinforcement cover in accordance with AS 2870:2011. This table builds on the previous classification summary by applying the relevant durability provisions to each individual soil layer encountered across the Site.

From these results presented in Table 10, it is generally discerned that in all investigated areas of the Site:

- Concrete design parameters are limited by salinity more so than soil pH (which may be attributed to the presence of sulphates).
- Although Layer 2 has a B1 class which indicates the need for greater controls (concrete strength, cover and curing length), other soil layers are Class A1, indicating standard practices.
- Engineering advice is required to determine design strengths, cover and curing in this setting.

Table 10 Interpretation of Soil Aggressivity Results – Minimum Concrete Strength, Curing and Cover

Layer	Location	Depth	Exposure Classification		Minimum Concrete	Minimum Days Curing	Cover~
		From (m)	Salinity	Sulphate^	Strength f'c (MPa)^		
1	BH01	0.0	A1	A1	20	3	40
2	BH01	0.4	B1	A1	32	7	50-40#
3	BH02	0.6	A1	A2^	20-25^	3	40-50^ '
4	BH01	0.5	A1	A1	20	3	40
5	BH02	0.8	A1	A1	20	3	40

^Sulphate class is conservatively estimated from soil pH and further testing is required on soil samples to confirm if the low pH is attributed to sulphate or other cations within the soil. If pH conditions are attributed primarily to sulphate, then the indicated exposure classification is expected to reliable but subject to sulphate concentration threshold presented in AS2870.
Where a damp-proofing membrane is installed, the minimum reinforcement cover in saline soils may be reduced to 30 m
' Where a damp-proofing membrane is installed, the minimum reinforcement cover in sulphate soils may be reduced by 10 mm.

The results in Table 10 are presented on a layer-by-layer basis. In practice, some layers may be removed during excavation or replaced as part of site cuts and fills, while others may be incorporated within the building envelope. The information should therefore be regarded as guidance only, and the designer must assess the actual founding conditions and make the final determination of concrete strength, curing and cover requirements.

Appendix G General Advice - Dispersive Soil Management

The Site may be susceptible to tunnel erosion if subsurface drainage is not adequately managed. Tunnel erosion typically initiates in excavated cuts; however, it can also develop where dispersive soils are exposed through excavation, leading to the release of pore water and concentrated groundwater discharge. Additional contributing factors may include broken pipes, ineffective stormwater infrastructure, or unmanaged surface flows. If left unaddressed, these conditions can result in progressive subsoil loss, potentially undermining footings or causing settlement-related damage to the structure.

Tunnel erosion typically progresses upslope, initiated by the dissolution and removal of highly dispersive Class 1 and Class 2 soil layers. As tunnels enlarge, they can undermine surrounding soils that may not be dispersive but are still susceptible to collapse due to loss of subsoil support. If unmanaged, tunnel erosion can extend beyond property boundaries, posing a risk to nearby infrastructure including buildings, roads, and underground services. For further background on the management of Emerson Class 1 soils, refer to the Department of Primary Industries, Parks, Water and Environment (DPIPWE, 2009) guidance document.

Dispersive soils should be managed through a combination of drainage control and ground treatment measures. These may include overland flow management, controlled cut and fill practices, and, in more severe cases, the installation of sand barriers to interrupt subsurface flow paths. Where dispersive soils are exposed—particularly on batters or in excavation faces—chemical treatment using gypsum or lime may be employed to improve soil cohesion and reduce erosion potential. Application rates should be guided by Emerson Class test results, as outlined in Table 11.
Gypsum and hydrated lime are proven effective in mitigating erosion in dispersive soils by displacing sodium ions on clay particles and replacing them with calcium. This cation exchange improves soil structure, increases shear strength, and enhances resistance to tunnel and surface erosion. The effectiveness of treatment is influenced by the soil's properties; higher application rates of gypsum are typically required for soils with greater cation exchange capacity, elevated pH, and lower Emerson Class numbers. Application guidelines should be based on laboratory test results, including Emerson Class assessment, to ensure appropriate treatment dosages.

Table 11 Prescribed gypsum and hydrated lime application rates – see Emerson soil testing results

Dispersive soil Emerson class	Gypsum/Hydrated Lime Application Rate pH < 7.5	Gypsum Application Rate pH > 7.5
Class 3	0 to 0.3 kg/m2	0.2 – 0.5 kg/m2
Class 2	0.5 kg/m2	1.0 kg/m2
Class 1	1.0 kg/m2	1.5 kg/m2

Where practicable, vehicle driveways and parking areas should be located on level or gently sloping terrain to minimise the need for deep excavation and reduce disturbance to dispersive soils identified on Site.

General Recommendations

To minimise disturbance and erosion in areas where Class 1 dispersive soils have been identified, the following measures are recommended:

- **Drainage Control:** Construct soil cut-off mounds or shallow interceptor trenches in non-dispersive soils, no deeper than 0.2 m above the interface with Class 1 dispersive soils. These should be positioned upslope of any proposed cuts to divert surface water before it reaches vulnerable areas.
- **Chemical Treatment:** Apply gypsum or hydrated lime to exposed dispersive soils where surface water movement is expected—particularly on freshly cut embankments, filled areas, service trenches, and zones where topsoil has been removed.
- **Surface Protection:** Cover all severely dispersive soils with either impermeable surfacing (e.g. paving) or a layer of non-dispersive topsoil to reduce erosion and limit moisture ingress.
- **Batter Stabilisation:** Place non-dispersive topsoil over freshly cut batters to protect against surface erosion and reduce the likelihood of tunnel initiation.
- **Remediation of Existing Tunnels:** Where tunnel erosion has already occurred, additional stabilisation of natural or constructed drainage gullies may be required. This may include the use of sand barriers and, in more severe cases, geotextile-wrapped drainage rock structures. When correctly designed, such barriers can intercept subsurface flow, promote controlled surface discharge, and direct water away from at-risk areas.

Key Management Measures for Dispersive Soils in Cut Embankments:

Surface water drainage can erode dispersive soils in embankment cuts. Groundwater discharge may worsen tunnel erosion by accelerating the development of secondary porosity—where subsurface flow progressively enlarges voids within the soil mass, leading to tunnel formation and internal instability. Management considerations:

- **Topsoil Removal Risks:** Earthworks commonly begin with the removal of non-dispersive topsoil, which often acts as a natural protective layer. Once removed, the underlying dispersive soils become highly vulnerable to erosion.
- **Barrier Construction in Cut Slopes:** Where excavation is necessary, erosion can be mitigated through immediate installation of physical barriers:
    - Place a sand layer (sand barrier) over exposed dispersive soil within the cut to interrupt flow paths.
    - Construct an earth retaining wall in front of the cut to contain soil and stabilise the slope face.
- **Timely Implementation:** All erosion control measures must be implemented immediately following excavation to prevent the initiation of tunnel erosion.
- **Use of Retaining Structures:** Low-height retaining walls (e.g., timber sleeper walls) constructed at the base of cut faces can assist in retaining eroding soils and maintaining the effectiveness of sand barriers.

Sand Barriers

To manage dispersive soils exposed in cut slopes, the following layered treatment is recommended:

- **Chemical Stabilisation:** Apply gypsum or hydrated lime at application rates specified in Table 11, based on Emerson Class testing.
- **Sand Layer:** Install a minimum 100 mm thick layer of clean, free-draining sand to act as a barrier and interrupt preferential flow paths.
- **Topsoil Cover:** Place a layer of non-dispersive, free-draining topsoil (such as loam) over the sand barrier to retain the sand in place and facilitate effective revegetation or application of surface treatments.
- **Erosion Control:** Implement surface erosion protection measures as outlined in the Erosion Control section to prevent wash-off and maintain system effectiveness.

Retaining Walls

The following measures are recommended when constructing retaining walls in areas with dispersive soils:

- Retaining walls should be founded on bedrock or non-dispersive soils to reduce the risk of tunnel erosion and structural instability.
- Where walls are constructed in Class 1 dispersive soils, freshly cut surfaces may be treated with gypsum or hydrated lime at application rates specified in Table 11 to reduce erosion potential.

Drainage

Effective drainage is critical in dispersive soil environments to prevent erosion, tunnel formation, and structural damage. The following measures are recommended:

- Divert surface water away from cut and fill slopes to reduce infiltration into dispersive soils.
- A sealed toe drain is essential to prevent water from soaking into freshly cut dispersive soils and migrating through dispersive fill layers beneath paved surfaces.
- For optimal surface drainage over Class 1 soils, install concrete spoon drains in preference to earthen swales to minimise erosion risk.
- Where earthen swale drains are used, stabilise Class 1 soils with gypsum or hydrated lime at a rate adjusted to soil pH. A liner (e.g. 20 mm bentonite layer) beneath topsoil and turf may be used to limit vertical water infiltration.
- Subsurface drains installed in Class 1 soils should be backfilled with a sand mix containing 2% gypsum or hydrated lime to inhibit dispersion and maintain flow pathways.
- Non-perforated drainage pipes should be used to divert water away from identified groundwater discharge points, limiting further erosion.

Filling

The use of dispersive soils as fill presents a significant risk for tunnel erosion, especially where water movement is poorly controlled. The following measures are recommended to reduce risk and ensure long-term stability:

- Dispersive soil used as fill is highly susceptible to tunnel erosion, particularly when exposed to concentrated surface or groundwater flow.
- Groundwater can migrate along the base of and within fill layers, initiating erosion of dispersive materials and undermining overlying structures.
- All proposed filling, especially within or near building footprints, should be carefully managed. This may involve either:
    - Removal of Class 1 dispersive soil from beneath the structure, or
    - Chemical treatment of dispersive fill using gypsum or hydrated lime, applied to the surface of each compacted lift.
    - Preventing water from intercepting dispersive soil by liming the fill or with careful drainage management
- When chemically treating fill:
    - Use 300 mm thick lifts with full application rates as specified in Table 11.
    - For 150 mm thick lifts, halve the application rate accordingly.
- Ensure compaction is achieved close to optimum moisture content, particularly in areas adjacent to footings and structures.
- Paved surfaces over filled areas significantly reduce the risk of tunnel erosion, if cut-off drains are installed to prevent water ingress at the fill base.
- Where feasible, spoon drains and pavement edges at the toe of cut batters should be founded on non-dispersive soil or bedrock to intercept all surface water and eliminate seepage pathways.
- If topsoil is removed prior to filling, and it is classified as slightly dispersive (Class 3) or non-dispersive (Class 4 or higher), it may be replaced with a liner or imported non-dispersive material to protect the dispersive fill beneath.

Roofed and Paved Area Stormwater Management

All captured water on-site, including roof runoff, must be managed to remain at the surface and be evenly dispersed downslope across the Site. Roof runoff must be directed to detention tanks, with overflow discharged via surface irrigation—not into soakage pits. Due to the absence of non-dispersive topsoil, imported loam is required in irrigation areas. Irrigation must either:

1. Be delivered just below the surface, draining directly into the imported loam without contact with dispersive soils; or
2. Be applied via above-ground sprinklers onto imported loam to prevent erosion and maintain surface stability.

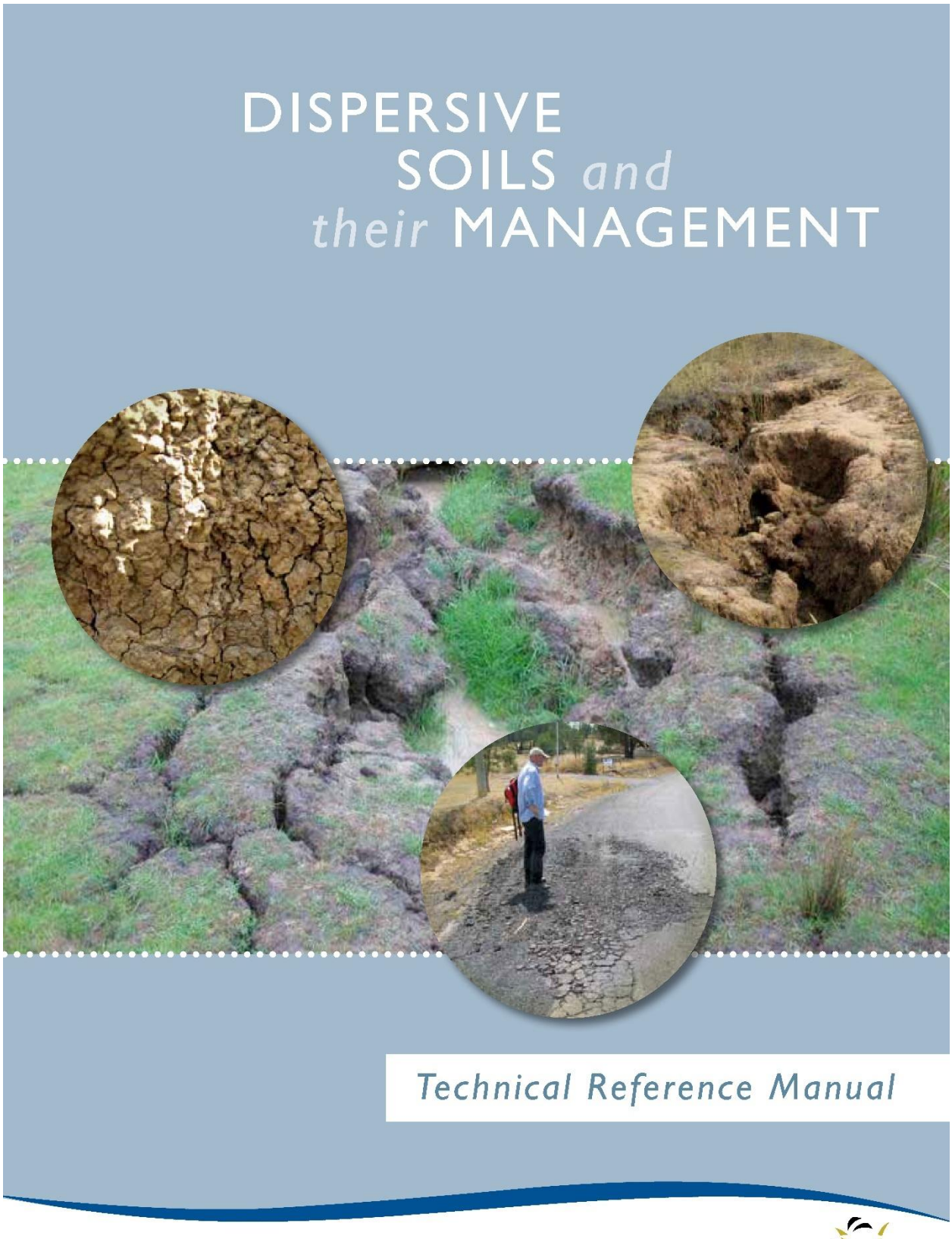
Runoff from pavements and other impervious surfaces must either be captured and redirected into detention tanks for controlled redistribution.

For driveways, runoff should be directed via cross-slope or in-slope alignment into lined side drains or swales. These must convey collected water to designated redistribution areas —such as detention tanks with surface irrigation or into distribution swales. Overflow must be dispersed across imported loam soils which is not located upgradient or downgradient of existing structures and ensuring water is not concentrated near foundations or fill. If distribution swales are used, they must be lined, constructed with low gradients, and designed to promote sheet flow rather than concentrated runoff. Distribution swale overflow must discharge onto non-dispersive imported loam soils.

Service Trenches

An effective measure to prevent stormwater ingress into backfilled service trenches is to ensure the trench surface is well sealed with non-dispersive soils or stable topsoil. As an additional site-specific recommendation, service trenches should be backfilled with compacted sand, which will help prevent water channelisation and reduce the risk of tunnel erosion along trench alignments.

DPIPWE 2009 Dispersive Soils and their Management. Technical Reference Manual. Sustainable Land Use Department of Primary Industries Water and Environment.



4.1 MANAGEMENT OPTIONS FOR TUNNEL EROSION

Past efforts to repair tunnel erosion in agricultural landscapes have relied on mechanical destruction of the tunnel system by deep ripping, contour furrowing, and contour ripping. Unfortunately many of these techniques either failed or resulted in tunnel re-emergence in an adjacent areas (Floyd 1974, Boucher 1995). The use of these 'agricultural' techniques is inappropriate in peri-urban areas where tunnel repair requires a low incidence of re-failure due to the potential for damage to infrastructure. Experience with the construction of earth dams using dispersive clays, demonstrates that repair and prevention of tunnel erosion in urban and peri-urban environments is best achieved using a combination of,

- Identification and avoidance of dispersive soils.
- Precise re-compaction.
- Chemical amelioration.
- Sand blocks and barriers.
- Topsoil, burial and revegetation.

4.2 IDENTIFICATION AND AVOIDANCE OF DISPERSIVE SOILS

The risk of tunnel erosion resulting from construction activities on dispersive soils can often be reduced or eliminated by identifying and avoiding areas containing dispersive soils. The presence and severity of dispersive soils can vary enormously over short distances (Figure 13). In many instances, large scale (ie 10 x 10 or 20 x 20 meter grid) soil survey and screening of soils for dispersion, (using the Emerson crumb test - section 3, Appendix I) can be used to site dwellings and infrastructure away from dispersive soils. Advice should be sought from a suitably qualified and experienced engineer or soil professional.

4.3 COMPACTION

Ritchie (1965) demonstrated that the degree of compaction within the dam wall was the single most important factor in reducing dam failure from piping (tunnel erosion). A high degree of compaction reduces soil permeability, restricting the movement of water and dispersed clay through the soil matrix, which decreases the severity of dispersion and restricts tunnel development (Vacher *et al.* 2004). However, dispersive soils can be difficult to compact as they lose strength rapidly at or above optimum moisture content, and thus may require greater compactive force than other soils (McDonald et *al.* 1981). Bell & Bryun (1997) and Bell and Maud (1994) suggest that dispersive clays must be compacted at a moisture content 1.5 -2% above the optimum moisture content in order to achieve suficent density to prevent piping (Elges 1985).

> Construction of structures such as earth dams and footings for buildings with dispersive soils require geotechnical assessment and advice from a qualified and experienced engineer, in order to determine compaction measures such as the optimal moisture content, number of passes, and maximum thickness of compacted layers.

Normal earth moving machinery including bull-dozers, excavators and graders do not provide sufficient compactive force to reduce void spaces or achieve adequate compaction in dispersive soils. A sheepsfoot roller of appropriate weight is usually required to compact dispersive soils. By comparison a D6 dozer applies only 0.6 kg/cm^2 pressure compared to 9.3 kg/cm^2 for a sheepsfoot roller (Sorensen 1995).

Figure 13. The severity (or sodium content) and depth of dispersive subsoils can vary considerably over short distances. (a). At this site highly dispersive subsoils exist meters away from (b) non-dispersive soils.

4.4 CHEMICAL AMELIORATION

Initiation of tunnel erosion is predominantly a chemical process, so it makes sense to use chemical amelioration strategies when attempting to prevent or repair tunnel erosion in dispersive soils. Despite the widespread use of gypsum and lime to treat sodic soils in agriculture, the use of gypsum and lime to treat tunnel affected areas has been relatively rare (Boucher 1990).

Hydrated lime (calcium hydroxide) has been widely used to prevent piping in earth dams. Rates of application have varied depending on soils and degree of compaction used in construction. Laboratory testing usually indicates that only around 0.5 –1.0% hydrated lime is required to prevent dispersion, however difficulties with application and mixing necessitate higher rates of application (Moore *et al.* 1985). Moore *et al.* (1985) cite examples of the use of hydrated lime to control piping in earth dams at rates between 0.35% (N.S.W. Australia) and 4% (New Mexico). Elgers (1985), and McElroy (1987) recommend no less than 2% hydrated lime (by weight of the total soil material) to prevent dispersion within dam embankments, while Bell and Maud (1994) suggest that 3% - 4% by mass of hydrated lime should be added to a depth of 0.3m on the upper face of embankments. In alkaline (pH >7.0) soils (most sodic subsoils in Tasmania are neutral or alkaline) the effectiveness of hydrated lime is reduced by the formation of insoluble calcium carbonate (Moore *et al.* 1985), such that gypsum is preferred to hydrated lime. It is important to note that agricultural lime (calcium carbonate) is not a suitable substitute for hydrated lime due to its low solubility (McElroy 1987). Also note that excessive applications of lime may raise soil pH above levels required to sustain vigorous plant growth.

Gypsum (calcium sulphate) is more effective than lime for the treatment of dispersive soils as it increases the electrolyte concentration in the soil solution as well as displacing sodium with calcium within the clay structure (Raine and Loch 2003). Gypsum is less commonly used than hydrated lime in dam construction and other works due to its lower solubility, and higher cost. Elges (1985) recommends that in construction, a minimum of 2% by mass of gypsum be used. Bell and Maud (1994) present a means of calculating the amount of gypsum required to displace excess sodium and bring ESP values within desired limits (normally < 5). Be aware that application of excessive amounts of gypsum may cause soil salinity to temporarily rise beyond the desired level for plant growth.

NOTE:

- Use of gypsum in Tasmania is covered under the Fertiliser Act 1993, which has established the allowable limit for cadmium and lead at 10 mg/kg and 5 mg/kg for mercury.
- Gypsum is usually imported into Tasmania from Victoria or South Australia, which have different standards for allowable heavy metal content.
- Purchasers of gypsum should check with suppliers to ensure that gypsum imported into Tasmania is compliant with current regulations.

Alum (aluminium sulphate) has been effectively used to prevent dam failure and protect embankments from erosion. Application rates are not well established. Limited data suggests mixtures of 0.6 –1.0% (25% solution of aluminium sulphate) (Bell and Bruyn 1997, McElroy 1987) to 1.5% (Ouhadi, and Goodarzi 2006) of the total dry weight of soil may be appropriate. Alum is however highly acidic (pH 4-5), and thus alum treated soils will need to be capped with topsoil in order to establish vegetation (Ryker 1987). Soil testing is required to establish appropriate application rates for Tasmanian soils.

Long chain polyacrylamides have been shown to increase aggregate stability, reduce dispersion and maintain infiltration rates in dispersive soils (Levy *et al.* 1992, Raine and Loch 2003). However the effect is highly variable between various polyacrylamide products and the chemical and physical properties of the soil. The benefit of polyacrylamides is generally short due to their rapid degradation (Raine and Loch 2003). Further advice and laboratory testing should be conducted before using polyacrylamides to protect earth dams from piping failure.

Note that appropriate application rates for gypsum, hydrated lime, alum and polyacrylamides have not been established for dispersive soils in Tasmania. Extensive laboratory assessment of materials used for the construction of dams or embankments is required before locally relevant 'rules of thumb' can be established for the use of these products.

4.5 SAND BLOCKS AND SAND BARRIERS

Sand filters were first developed to prevent piping in earth dams. Sand filters prevent dam failure by trapping entrained sand and silt, blocking the exit of the tunnel and preventing further tunnel development (Sherard *et al.* 1977). Following the work of Sherard *et al.* (1977), Richley (1992 and 2000) developed the use of sand blocks to prevent tunnel erosion during installation of an optical fibre cable in highly dispersive soils near Campania, Tasmania. The sand blocks work slightly differently to the sand filters in that they allow the free water to rise to the surface through the sand. The use of sand blocks has recently been modified by Hardie *et al.*, (2007) to prevent re-initiation of tunnel erosion along an optical fibre cable near Dunalley. Modifications to the original technique developed by Richley (1992 and 2000) include (Figure 14 &15);

- Upslope curved extremities to prevent the structure from being by-passed.
- Geotextile on the downslope wall to prevent collapse or removal of sand following settlement or erosion.
- Application of gypsum (around 5% by weight) to ensure infiltrating water contains sufficiently electrolyte to prevent further dispersion.
- Earth mound upslope of the structure to prevent run-on entering the sand blocks.

Figure 15. (a) Installation of sandblock perpendicular to a service trench. Note securing of geotextile to the optical fibre cable to prevent water flowing past the sand block. (b) Sandblock before final topsoiling.

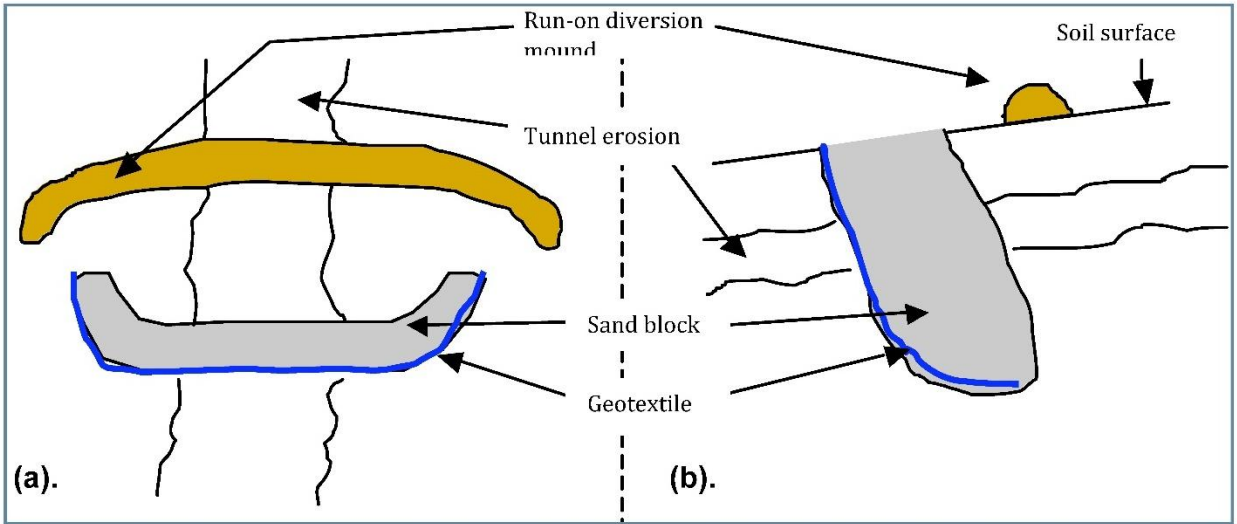


Figure 14. Modified sand block design. (a) plan view, (b) cross section view. The depth of the sand block is determined by the depth of dispersive soils or tunnel erosion. The span length of the structure is determined by the width of the tunnelling.

4.6 USE OF TOPSOIL / BURIAL AND REVEGETATION

Topsoil or burial of exposed dispersive soils reduces the likelihood of subsoil dispersion and initiation of tunnel erosion by;

- Providing a source of salt to increase the electrolyte content of infiltration water.
- Preventing desiccation and subsoil cracking.
- Promoting even infiltration.
- Providing a protective cover from raindrop impact.
- Providing a suitable medium for revegetation.

Topsoil minimises the interaction between water and dispersive clays by providing both a physical and chemical barrier. Topsoil also reduces soil desiccation and development of surface cracks (Sorensen 1995). It is suggested that exposed dispersive subsoils be covered with at least 150mm of non dispersive topsoil and sown with an appropriate mix of grass species. In some cases it will be necessary to protect the topsoil from erosion with 'jute' cloth or similar product.

The suitability of planting trees in tunnel affected areas is influenced by the amount of annual rainfall and frequency of soil cracking resulting from desiccation. Boucher (1995) recommends the preferred option for revegetation of reclaimed tunnel erosion is a widely spaced tree cover in association with a combination of perennial and annual pastures, rather than a dense stand of trees or pasture alone. Experience in Tasmania suggests that in low rainfall areas, or areas in which existing trees or shrubs cause soil drying and cracking, the preferred option for revegetating tunnel affected land is a dense healthy pasture. In high rainfall areas, dense plantings of trees have been successfully used to repair or stabilise tunnel erosion for example Colclough (1973) successfully used Pinus radiata to stabilise tunnel-gully affected land in a moderate rainfall area near Tea Tree, Tasmania.

5.0 ACTIVITIES THAT INCREASE THE RISK OF EROSION ON DISPERSIVE SOILS

ACTIVITIES THAT INCREASE RISK OF INITIATING TUNNEL EROSION, INCLUDE;

- Removal of topsoil.
- Soil excavation or expose of subsoils to rainfall.
- Supply of services via trenches.
- Construction of roads and culverts in dispersive subsoils.
- Installation of sewage and grey water disposal systems in dispersive subsoils.
- Dam construction from dispersive soils.

OPTIONS FOR REDUCING THE RISK OF TUNNEL EROSION DURING CONSTRUCTION AND DEVELOPMENT WORKS ON DISPERSIVE SOILS INCLUDE,

- Where possible do not remove or disturb topsoil or vegetation.
- Ensure that dispersive subsoils are covered with an adequate layer of topsoil.
- Avoid construction techniques that result in exposure of dispersive subsoils.
- Use alternatives to 'cut and fill' construction such as pier and post foundations.
- Where possible avoid the use of trenches for the supply of services ie water & power.
- If trenches must be used, ensure that repacked spoil is properly compacted, treated with gypsum and topsoiled.
- Consider alternative trenching techniques that do not expose dispersive subsoils.
- Ensure runoff from hard areas is not discharged into areas with dispersive soils.
- If necessary create safe areas for discharge of runoff.
- If possible do not excavate culverts and drains in dispersive soils.
- Consider carting non-sodic soil to create appropriate road surfaces and drains without the need for excavation.
- Ensure that culverts and drains excavated into dispersive subsoils are capped with non-dispersive clays mixed with gypsum, topsoiled and vegetated.
- Avoid use of septic trench waste disposal systems; consult your local council about the use of alternative above ground treatment systems.
- Where possible do not construct dams with dispersive soils, or in areas containing dispersive soils.
- If dams are to be constructed from dispersive clays, ensure you consult an experienced, qualified civil engineer to conduct soil tests before commencing construction.
- Construction of dams from dispersive soils is usually possible, using one or a combination of: precise compaction, chemical amelioration, capping with non-dispersive clays, sand filters and adequate topsoiling.

With all forms of construction on dispersive soils, ensure you obtain advice and support from a suitably experienced and qualified engineer or soil professional before commencing work.

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

CSIRO

BTF 18
replaces
Information
Sheet 10/91

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

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

Soil Types

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

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

Causes of Movement

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

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

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

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

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

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

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

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

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

GENERAL DEFINITIONS OF SITE CLASSES

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

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

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

Unevenness of Movement

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

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

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

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

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

Effects of Uneven Soil Movement on Structures

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

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

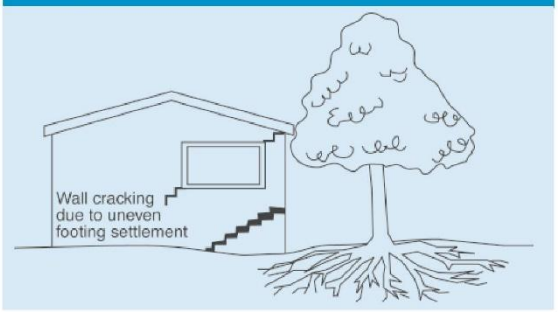
Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

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

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

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

Trees can cause shrinkage and damage



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

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

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

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

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

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

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

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

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

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

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

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

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

Water Service and Drainage

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

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

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

Seriousness of Cracking

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

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

Prevention/ Cure

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

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

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

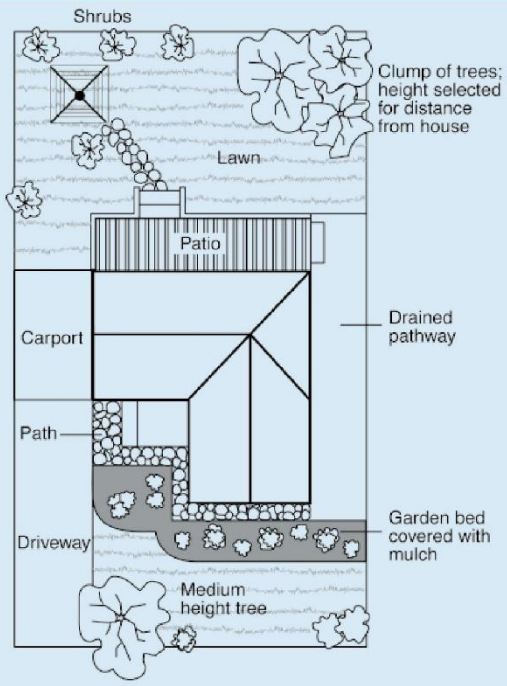
Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

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

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

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

Gardens for a reactive site



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

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

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

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

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

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

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

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

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

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

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

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

Remediation

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

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

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

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CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Prime Design *Owner /Agent*

Shop 9, 105-111 *Address*

Main Road Moonah 7009 *Suburb/postcode*

Qualified person details:

Qualified person: Kris Taylor

Address: 445 Macquarie Street

Phone No: 0476 595 889

Hobart 7004

Fax No:

Licence No: NA

Email address: office@envirotechtas.com.au

Qualifications and Insurance details: Bachelor of Science with Honours in Geology. Lloyd's Underwriting $2,000,000: Site classification. Soil & rock testing. Soil & rock mechanics.

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

Speciality area of expertise: Foundation classification in accordance with AS 2870*

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

Details of work: Foundation Classification

Address: 2 Olympic Avenue

Lot No: 14

Midway Point 7171

Certificate of title No: 183934/14

The assessable item related to this certificate: Classification of foundation Conditions according to AS2870-2011*

(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: Foundation classification - AS 2870 and Stability Report in accordance with Foundation and Footings Society (Tasmania) Code of Practice.*

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

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

(•) building work, plumbing work or plumbing installation or demolition work

OR

( ) a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents: *Enviro-Tech Consultants Pty. Ltd. 2025. Foundation Classification Report for a Proposed Residence, 2 Olympic Avenue - Midway Point. Unpublished report for Prime Design by Enviro-Tech Consultants Pty. Ltd., 19/08/2025.

Relevant calculations:

References:
AS2870-2011 Residential Slabs and Footings
AS1726-2017 Geotechnical site investigations
AS1289-2014 Methods of testing soils for engineering purposes
CSIRO Building technology file – 18.

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

Foundation classification consistent with AS2870-2011.

Scope and/or Limitations

The classification applies to the Site as inspected and does not account for future alteration to foundation conditions as a result of earth works, placement of fill, uncontrolled earthworks, drainage condition changes, variations in site maintenance other than indicated in supplied plans.

*This report contains soil classification information prepared in accordance with AS2870 as well as AS2870 extracts which may be used as general guidance for plumbing design. The hydraulic designer is to use their own judgment in the application of this information and this report must be read in in conjunction with hydraulic plans prepared for the proposed development.

I certify the matters described in this certificate.

Qualified person:	*Signed:*	*Certificate No:*	*Date:*
			19/08/2025

BUSHFIRE HAZARD REPORT

Proposed residential dwelling
2 Olympic Avenue
Midway Point, 7171

Dated 15th September 2025
Report by David Lyne BFP-144

11 Granville Avenue
Geilston Bay, 7015
M: 0421 852 987
dave_lyne@hotmail.com

Contents

Appendix A – Site analysis with Cadastral & Contour Overlay - indicates subject site
Appendix B – Designers site plan and site photos
Appendix C – Bushfire Hazard Management Plan, by David Lyne – certified date 15.09.2025; Certificate of Others (Form 55) 1713/25

1. Introduction

I have been engaged by Prime Design to prepare a bushfire report and plan for a new residential dwelling in the suburb of Midway Point. The intent of this report is to confirm the suitability of the bushfire prone parcel of land to be successfully developed for a new residential dwelling in accordance with the Directors Determination – Bushfire hazard areas v1.2.

The assessment describes the site and surrounding area, classifying the vegetation, assessing the slope and environmental features. This report should be included with approval documentation forming part of the certified documentation intended to satisfy the Directors Determination. The body of the report describes the site and assesses the requirements to be implemented to satisfy the requirements of the Directors Determination.

2. Limitation of Report

This report has been prepared for the above mentioned clients for their use and distribution only. The intent of the report is to provide supporting documentation for the Development Application (specifically vegetation clearance/maintenance distances) and the Building Application. Should submitted Application Plans differ from the Certified Plans in this report then an amended design review should be conducted to determine the suitability of any amendments in relation to the Bushfire Prone Area Requirements of AS3959-2018.

It is also to be noted that the assessment has been conducted according to the site inspection being conducted in September 2025 and does not take into account the possibility of altered site conditions either naturally occurring or where currently maintained or excluded vegetation conditions change due to a lack of ongoing maintenance.

It should be noted that compliance with the recommendations contained in this assessment does not mean that there is no residual risk to life safety or property as a result of bushfire. A residual level of risk remains which recognizes that removing the risk to life and property in absolute terms is not achievable while people continue to build in bushfire prone areas. This limitation is expressed in the following extract from AS 3959 (2018) which states (in the forward), *It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.*

This level of residual risk is inherent in all bushfire standards and also applies to this assessment.

3. Site Description and Background

2 Olympic Avenue Midway Point is an existing land parcel located in the municipality of the Sorell Council. The property is currently predominately managed or low threat vegetation, with neighbouring properties containing mostly low threat vegetation, established residential dwellings and council park lands. There are large areas of grassland to the north-west that is owned by Crown land and Taswater.

The site has access to a sealed public road – Olympic Avenue, which links to Penna Road and in turn to the Tasman Highway. This allotment is provided with a reticulated hydrant water supply for firefighting.

3.1 Property Details

Address: 2 Olympic Avenue, Midway Point

Municipality: Sorell Council

Zoned: General residential

Lot Number: 183934/14

Type of Development: New residential dwelling

Classified BAL: **BAL-12.5**

Appendix A: Photo 1 – Site analysis with cadastral overlay – Subject site highlighted blue.

3.2 Classification of Vegetation

The vegetation affecting the site has been classified in accordance with Clause 2.2.3 of AS 3959-2018. The Bushfire-Prone vegetation affecting the site is predominantly ***Grassland – Group G*** in accordance with AS3959-2018.

In this case, in accordance with Clause 2.2.2 of AS 3959-2018, the relevant Fire Danger Index for Tasmania of 50 (FDI 50).

When considering the definition of Bushfire Prone Area under the Directors Determination it is evident the proposed dwelling location is within 100 metres of greater than 1 hectare of vegetation classified in accordance with AS 3959-2018 and is therefore considered '*Bushfire Prone'*. It should be also noted that Clauses C2.2.3.1 and C2.2.5 of AS3959-2018 state that a sufficient level of distance must be used to determine the vegetation classification and the effective slope which may necessitate the consideration of vegetation out to distances in excess of 100m from the site. As such the classified vegetation and effective slope under the vegetation has been assessed over a distance of 140m of the site.

From the proposed dwelling site a 360° survey has been conducted to determine the vegetation type, proximity and slope under the vegetation which is of the highest hazard rating. In this case the ***Grassland*** is the highest hazard vegetation surrounding the proposed dwelling.

Note: in a bushfire there is a possibility of fire attack from any direction, not just the direction of the highest hazard. Photo 1, above indicates the Bushfire Prone Vegetation described.

3.3 Slope

The Effective slope of the land under the classified vegetation is determined in accordance with Clause 2.2.5 of AS 3959- 2018.

The *effective* slope under the bushfire prone vegetation is generally Upslope/Flatland to south and east; and downslope 0-5° to the south and west of the site.

Refer to Appendix A Image for topographic contour information.

4. Bushfire Assessment

In accordance with Clause 2.2 of AS 3959-2018, the Simplified Procedure has been applied to determine the Bushfire Attack Level (BAL) for the proposed dwelling site. In accordance with the Directors Determination, fire-fighting water supply and vehicle access are also considered and discussed in relation to the proposed dwelling.

It should be noted that AS3959 Table 2.6 only provides BAL ratings for separation distance up to and including 50m from grassland. Therefore, grassland less than 100m but greater than 50m separation from the site has been excluded from assessment.

4.1 Bushfire Attack Level

Considering the current conditions, in accordance with AS3959-2018 the dwelling site is capable of achieving **BAL-12.5** (the minimum required standard being BAL-29 required by the Directors Determination).

The desired BAL rating to be applied in this instance will be **BAL-12.5**. The vegetation within the Hazard Management Area (HMA) is to be continually managed to a low threat level - as per Clause 2.2.3.2 of AS3959-2018.

Table 1 – Bushfire Attack Level Assessment Summary and Notes

Property Details

Applicants Name	Prime Design	**Phone**	03 6228 4575
Municipality	Sorell Council	**Zoning**	General residential
Certificate of Title/Lot No.	183934/14	**Lot Size**	645m²
Address	2 Olympic Avenue, Midway Point 7171		

Type of Building Work

New Class 1a Buildings	x
New Class 10a Building	
New Class 2 Building	
New Class 3 Building	
Alteration/Additions to an existing building	

Description of building work: e.g. *single dwelling with attached garage*
New residential dwelling

Bush Fire Attack Level (BAL)

Relevant fire danger index: (see clause 2.2.2) **FDI 50**

Assess the vegetation within 100m in all directions (tick relevant group)
Note 1: Refer to table 2.3 and figures 2.3 & 2.4 for description and classification of vegetation.
Note 2: If there is no classified vegetation within 100m of the site then the BAL is LOW for that part of the site.

Vegetation Classification (See Table 2.3	North X	South X	East X	West X
	North East	South-West	South-East	North-West
Group -	Grassland	Low threat veg.	Low threat veg.	Low threat veg.

Exclusions (where applicable)	Circle relevant paragraph descriptor from clause 2.2.3.2			
	(a) (b) (c) (d) (e) (f)	(a) (b) (c) (d) (e) (f)	(a) (b) (c) (d) (e) (f)	(a) (b) (c) (d) (e) (f)

Distance of the site from classified vegetation (see clause 2.2.4)

Distance to classified vegetation	Show distances in meters			
	30m	N/A	N/A	N/A

Effective Slope	Upslope			
Slope under the classified vegetation	Upslope/o° X	Upslope/o° X	Upslope/o° X	Upslope/o° X
	Downslope			
	>0 to 5° ☐	>0 to 5° ☐	>0 to 5° ☐	>0 to 5° ☐
	>5 to 10° ☐	>5 to 10° ☐	>5 to 10° ☐	>5 to 10° ☐
	>10 to 15° ☐	>10 to 15° ☐	>10 to 15° ☐	>10 to 15° ☐
	>15 to 20° ☐	>15 to 20° ☐	>15 to 20° ☐	>15 to 20° ☐

BAL value for each side of the site	BAL-12.5	BAL-LOW	BAL-LOW	BAL-LOW
Separation to achieve BAL-29	7-<11m	N/A	N/A	N/A
Separation to achieve BAL-19	11-<16m	N/A	N/A	N/A
Separation to achieve BAL-12.5	16-<50m	N/A	N/A	N/A

Construction Requirements

For this particular development a BAL-12.5 rating would suit all directions of this site, construction will be generally compliant with AS3959 -2018 Sections 3 and 5.

4.2 Road / Vehicle Access

The primary access to the lot is from a sealed public road – Olympic Avenue, which connects to Penna Road and in turn the Tasman Highway. There is an existing hydrant on Olympic Avenue, as such the road would be suitable to be utilised as hardstand.

4.3 Water supply for firefighting

The site is located in a serviced area for reticulated water. There is an existing hydrant located on Olympic Avenue on the front boundary of the property. All parts of the proposed building are within 120 m hose lay of a fire hydrant.

4.4 Hazard management area

The minimum extents of the Hazard Management Area (HMA) are for the entirety of the residential allotment to be managed and treated as HMA. Management prescriptions for the proposed HMA are provided in Table 2.

Table 2 - Hazard Management Area Prescriptions

Within 10m of habitable buildings	• No storage of flammable materials (e.g. firewood); • Avoid locating flammable garden materials near vulnerable building elements such as glazed windows/doors, decks and eaves (e.g. non-fire-retardant plants and combustible mulches); • Non-flammable features such as paths, driveways and paved areas are encouraged around habitable buildings.
Trees within HMA	• Maintain canopy separation of approximately 2.0m; • Ensure no branches overhang habitable buildings;

	• Remove tree branches within 2.0m of the ground level below; • Locate any new tree plantings 1.5 x their mature height from buildings; • Avoid planting trees with loose, stringy or ribbon bark.
Understory vegetation within HMA	• Maintain grass cover at <100mm; • Maintain shrubs to <2.0m height; • Shrubs are to be maintained in clumps so as to not form contiguous vegetation (i.e. clumps up to 10sqm in area, separated from each other by at least 10m); • Avoid locating shrubs directly underneath trees; • Periodically remove dead leaves, bark and branches from underneath trees and around habitable buildings.

5. Conclusion

The site has been classified as **BAL-12.5** as per the assessment processes outlined in AS3959-2018. The separation distances shown above are the areas to be maintained and kept in a way to reduce the fuel loads present in order to achieve lower BAL ratings. For this particular site and for where the proposed building is to be constructed, a **BAL-12.5** rating is easily achieved and would suit all directions of the site.

6. References

Directors Determination – Bushfire hazard areas v1.2.

LIST map version. Aerial Photograph [online]. Available from: http://www.thelist.tas.gov.au/listmap/listmap

Standards Australia 2018, *Construction of buildings in bushfire prone areas*, AS 3959-2018.

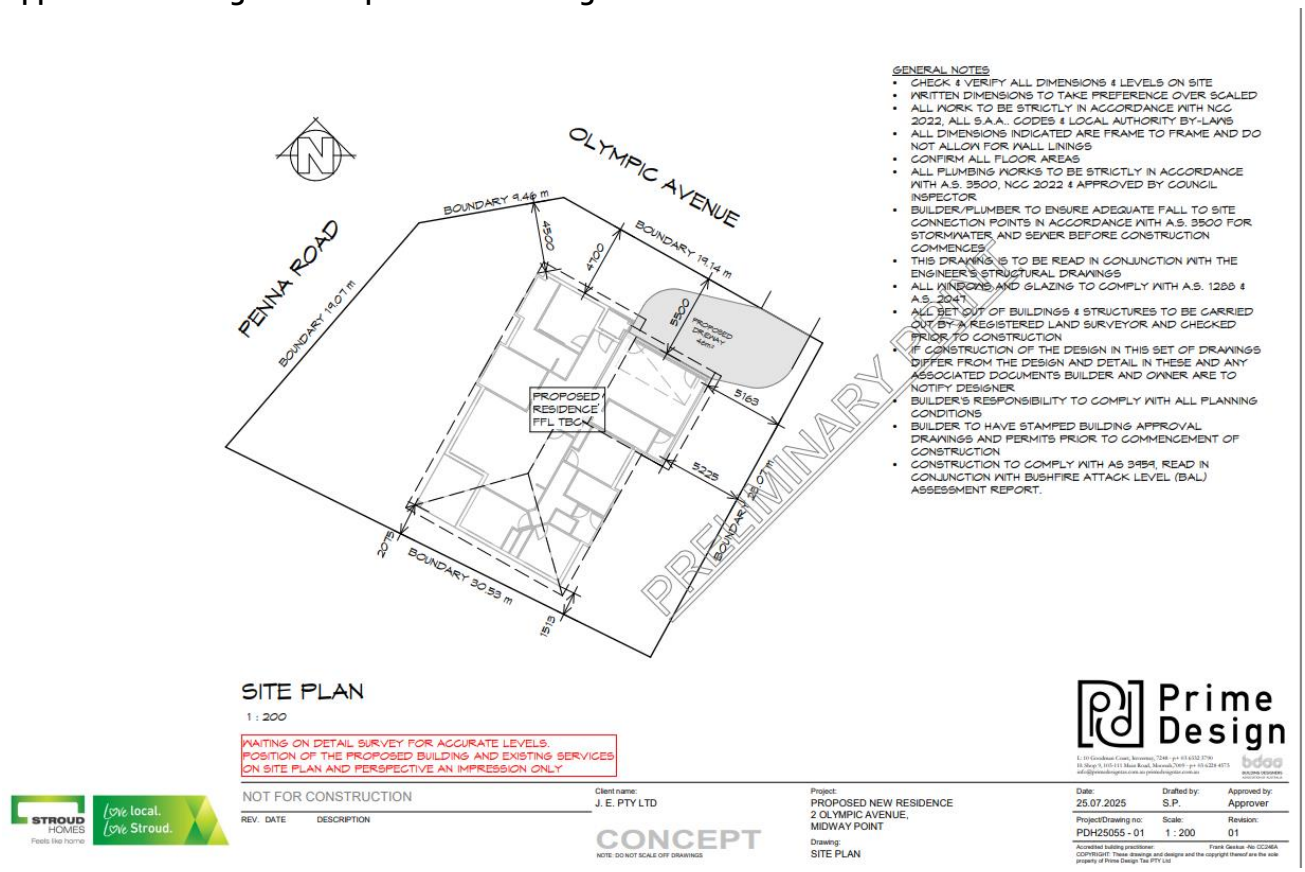
Statement

I have taken all reasonable steps to ensure that the information provided in this assessment is accurate and reflects the conditions on and around the site and allotment on the date of this assessment.
It should be noted that this report does not take into account the possibility of altered site conditions either naturally occurring or where currently maintained or excluded vegetation conditions change due to lack of ongoing maintenance. Compliance with the recommendations contained in this assessment does not mean that there is no residual risk to safety of life or property as a result of bushfire.

Signed: .....

Date: 15/09/2025.....

Appendix B – Designer's site plan and site images



Looking north

Looking south

Looking east

Looking west

HAZARD MANAGEMENT AREAS – HMA

Hazard Management Area includes the area to protect the Building as well as the access and water supplies. In this instance, the entirety of this site should be treated as HMA.
Vegetation in the Hazard Management area is to be managed and maintained in a minimum fuel condition.
The HMA is determined from the unmanaged vegetation on this allotment and neighbouring allotments, and should the level of the unmanaged vegetation increase the BHMP and HMA should be reviewed to determine the ongoing suitability of the BHMP and HMA associated with the development.

MAINTENANCE SCHEDULE

- Removal of fallen limbs, leaf and bark litter;
- Cut lawns short (less than 100mm) and maintain;
- Remove pine bark and other garden mulch;
- Complete under–brushing and thin out the under storey;
- Prune low hanging trees to ensure separation from ground litter;
- Prune larger trees to establish and maintain horizontal and vertical canopy separation;
- Maintain storage of petroleum fuels;
- Maintain access to the dwelling and water storage area Remove fallen limbs, leaf and bark litter from roofs, gutters and around the building;

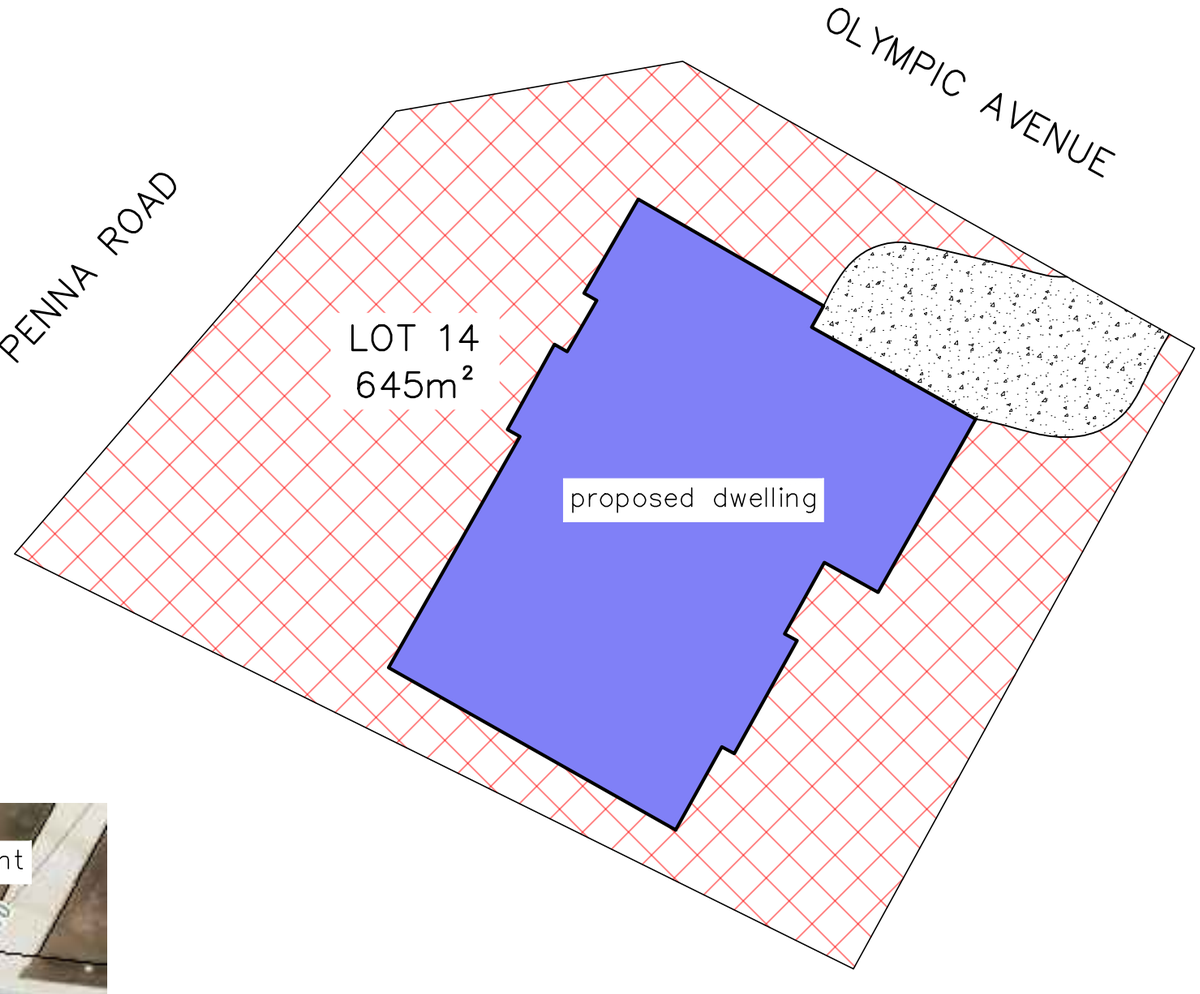
BUSHFIRE PROTECTION MEASURES

To reduce the risk of bushfire attack, continual maintenance of bushfire protection measures including building maintenance, managed vegetation areas, water supply and road construction are to be undertaken by successive owners for perpetuity.

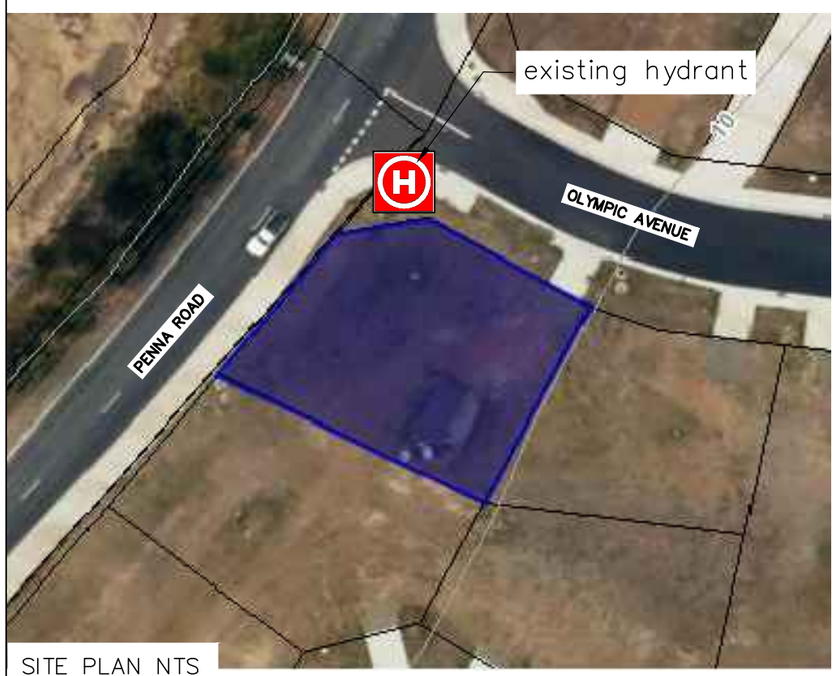
PLAN TO BE READ IN CONJUNCTION WITH BUSHFIRE ATTACK LEVEL (BAL) REPORT

NOTIFY COUNCIL AND CERTIFYING BUSHFIRE PRACTITIONER IF ANY VARIATION IN BUILDING SETOUT OR VEGETATION HAZARDS OCCUR

ENSURE THIS PLAN AND ACCOMPANYING REPORT DO NOT CONFLICT WITH OTHER RELEVANT REPORTS AND ASSESSMENTS



HAZARD MANAGMENT AREA
Low threat, maintained vegetation in accordance with AS 3959 – Clause 2.2.3.2 (e) & (f). Building is to be constructed to meet BAL–12.5 requirements



SITE PLAN NTS

BHMP
SCALE 1:200

2 0 2 4 6 8 10 m
SCALE 1:200

Prepared By David Lyne – BFP 144

Prime Design
2 Olympic Avenue, Midway Point
Tasmania 7171
Job No: 1713

11 GRANVILLE AVENUE
GEILSTON BAY, TASMANIA 7015
PH: 0421 852 987 EMAIL: dave_lyne@hotmail.com
Accredited Designer: David Lyne CC7063

PLEASE READ CAREFULLY

THIS PLAN CERTIFIED CORRECT IS THE ONE REFERRED TO IN THE BUILDING CONTRACT AND I UNDERSTAND CHANGES HEREAFTER MAY NOT BE POSSIBLE.

FINAL PLAN: ANY REQUESTED VARIATIONS TO YOUR HOUSE PLAN WILL INCUR AN AMENDMENT / ADMINISTRATION MINIMUM FEE

SIGNATURES

CLIENT:..... DATE:.....

CLIENT:..... DATE:.....

BUILDER:.....DATE:.....

DWG NO: 1713		SHEET: 01
SCALE AT A3: 1:200		DATE:15.09.2025
DRAWN:DL	CHECK:DL	REV 0

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To: Prime Design *Owner /Agent*

Address

Suburb/postcode

Form **55**

Qualified person details:

Qualified person: David Lyne

Address: 11 Granville Avenue

Geilston Bay TAS 7015

Phone No: 0421 852 987

Fax No:

Licence No: BFP-144

Email address: dave_lyne@hotmail.com

Qualifications and Insurance details: Accredited to report on bushfire hazards under Part IVA of the Fire Service Act 1979

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

Speciality area of expertise: Analysis of hazards in bushfire-prone areas

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

Details of work:

Address: 2 Olympic Avenue

Midway Point 7171

Lot No: 14

Certificate of title No: 183934

The assessable item related to this certificate: Assessment – BAL Ratings

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

Certificate details:

Certificate type: Bushfire Hazard
Bushfire Hazard Management Plan

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

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

◉ building work, plumbing work or plumbing installation or demolition work

OR

○ a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant

Documents:	Bushfire Hazard Report – new residential dwelling Bushfire hazard management plan
Relevant calculations:	• In Accordance with AS3959-2018; and • the Building Regulations (TAS).
References:	• AS3959-2018; • the Building Regulations (TAS); and • Building Code of Australia (BCA).

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

The above mentioned report concludes that a BAL-12.5 rating is achievable and easily maintained for this site

Scope and/or Limitations

The assessment has been conducted according to information provided by the designer/client and freely available historical data and does not take into account the possibility of altered site conditions from the data relied upon.
It should be noted compliance with the recommendations contained in the certified documents does not mean that there is no residual risk to life safety and property as a result of bushfire. The limitation is expressed in the following extract from AS3959-2018, which states:

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

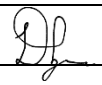
The level of residual risk is inherent in all bushfire standards and also applies to this certification.

The assessment has been undertaken and certification provided on the understanding that; -

1. The certificate only deals with the potential bushfire risk all other statutory assessments are outside the scope of this report.

2. The report only identifies the size, volume and status of vegetation at the time the site inspection was undertaken and cannot be relied upon for any future development.
Impacts of future development and vegetation growth have not been considered.

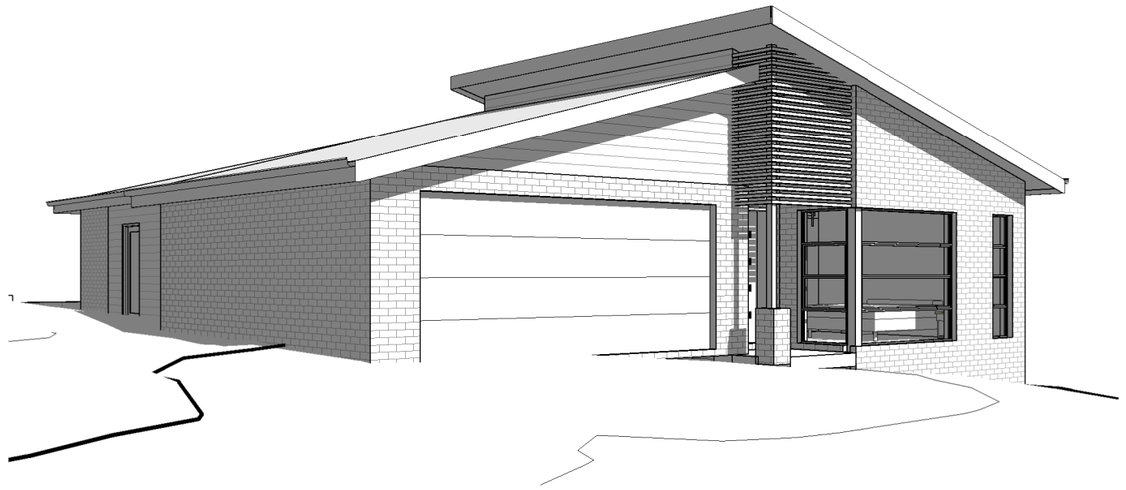
I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		1713/25	15/09/2025

PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

J. E. PTY LTD

PDH25055



BUILDING DRAWINGS

No	DRAWING
01	SITE PLAN
02	SITE DRAINAGE PLAN
03	LOCALITY PLAN
04	FLOOR PLAN
05	DOOR AND WINDOW SCHEDULES
06	ELEVATIONS
07	ELEVATIONS
08	ROOF PLAN
09	PERSPECTIVES

Sorell Council
Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf
Plans Reference: P1
Date Received: 07/10/2025

STROUD HOMES
Feels like home

Love local. Love Stroud.

FLOOR AREA	142.72 m2	(15.36	SQUARES)
ALFRESCO AREA	11.81 m2	(1.27	SQUARES)
GARAGE AREA	39.59 m2	(4.26	SQUARES)
PORCH AREA	2.84 m2	(0.31	SQUARES)
TOTAL AREA	196.96	21.20	

GENERAL PROJECT INFORMATION
TITLE REFERENCE: 14/183934
SITE AREA: 645 m²
DESIGN WIND SPEED: N3
SOIL CLASSIFICATION: P
CLIMATE ZONE: 7
ALPINE AREA: NO
CORROSIVE ENVIRONMENT: HIGH
BAL RATING: BAL-12.5
OTHER KNOWN HAZARDS: WATERWAY AND COASTAL PROTECTION AREA, BUSHFIRE-PRONE AREAS, AIRPORT OBSTACLE LIMITATION AREA

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Accredited Building Practitioner: Frank Geskus -No CC246A
BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

REV.	DATE	DESCRIPTION

OCTOBER 2025

PLANNING

SETBACKS
REFER TO DIMENSIONS AND ELEVATIONS FOR FURTHER DETAILS.

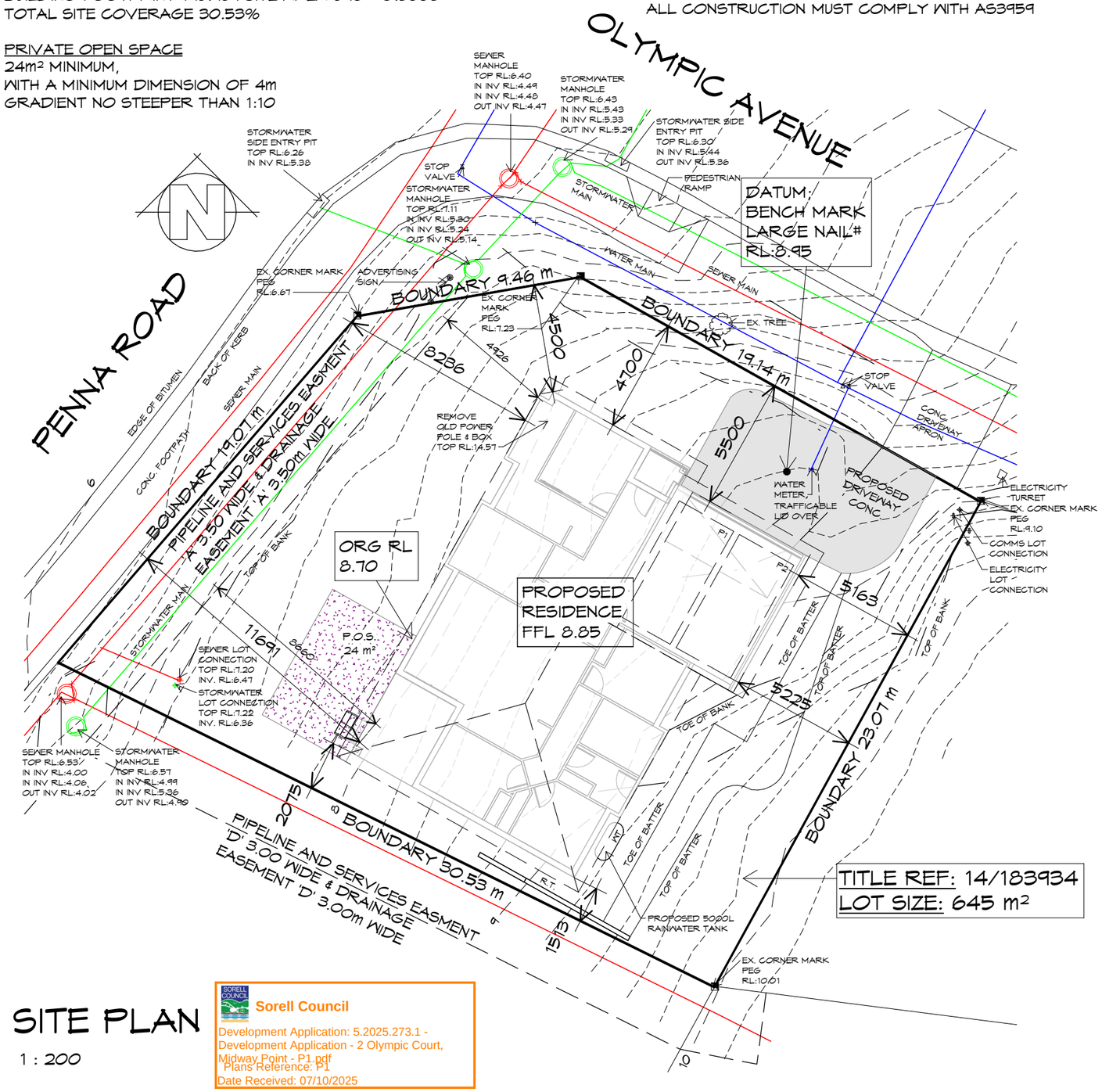
GARAGE IS LOCATED WITHIN 12m OF THE PRIMARY FRONTAGE, OPENING WIDTH IS 5.1m

SITE COVERAGE
BUILDING FOOTPRINT 196.96 /SITE AREA 645 = 0.3053
TOTAL SITE COVERAGE 30.53%

PRIVATE OPEN SPACE
24m² MINIMUM,
WITH A MINIMUM DIMENSION OF 4m
GRADIENT NO STEEPER THAN 1:10

THIS PROJECT HAS BEEN DETERMINED TO HAVE A BUSHFIRE ATTACK LEVEL (BAL) OF **BAL-12.5**
REFER TO ASSESSMENT FOR FURTHER DETAILS.
ALL CONSTRUCTION MUST COMPLY WITH AS3959.

REFER ASSESSMENT PREPARED BY DAVID LYNE.
DWG NO: 1713. FOR BUSHFIRE HAZARD MANAGEMENT AREA DETAILS
ALL CONSTRUCTION MUST COMPLY WITH AS3959



SITE PLAN
1 : 200

Sorell Council
Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf
Plans Reference: P1
Date Received: 07/10/2025

GENERAL NOTES
- CHECK & VERIFY ALL DIMENSIONS & LEVELS ON SITE
- WRITTEN DIMENSIONS TO TAKE PREFERENCE OVER SCALED
- ALL WORK TO BE STRICTLY IN ACCORDANCE WITH NCC 2022, ALL S.A.A.. CODES & LOCAL AUTHORITY BY-LAWS
- ALL DIMENSIONS INDICATED ARE FRAME TO FRAME AND DO NOT ALLOW FOR WALL LININGS
- CONFIRM ALL FLOOR AREAS
- ALL PLUMBING WORKS TO BE STRICTLY IN ACCORDANCE WITH A.S. 3500, NCC 2022 & APPROVED BY COUNCIL INSPECTOR
- BUILDER/PLUMBER TO ENSURE ADEQUATE FALL TO SITE CONNECTION POINTS IN ACCORDANCE WITH A.S. 3500 FOR STORMWATER AND SEWER BEFORE CONSTRUCTION COMMENCES
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ENGINEER'S STRUCTURAL DRAWINGS
- ALL WINDOWS AND GLAZING TO COMPLY WITH A.S. 1288 & A.S. 2047
- ALL SET OUT OF BUILDINGS & STRUCTURES TO BE CARRIED OUT BY A REGISTERED LAND SURVEYOR AND CHECKED PRIOR TO CONSTRUCTION
- IF CONSTRUCTION OF THE DESIGN IN THIS SET OF DRAWINGS DIFFER FROM THE DESIGN AND DETAIL IN THESE AND ANY ASSOCIATED DOCUMENTS BUILDER AND OWNER ARE TO NOTIFY DESIGNER
- BUILDER'S RESPONSIBILITY TO COMPLY WITH ALL PLANNING CONDITIONS
- BUILDER TO HAVE STAMPED BUILDING APPROVAL DRAWINGS AND PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION
- CONSTRUCTION TO COMPLY WITH AS 3959, READ IN CONJUNCTION WITH BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT REPORT.

SURVEYOR'S NOTES:
- THIS PLAN HAS BEEN PREPARED BY SURVEY PLUS FROM A COMBINATION OF EXISTING RECORDS AND FIELD SURVEY FOR THE PURPOSES OF SHOWING THE PHYSICAL FEATURES OF THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
- TITLE BOUNDARIES SHOWN WERE NOT VERIFIED OR MARKED BY SURVEY PLUS AT THE TIME OF THIS SURVEY.
- SERVICES SHOWN ON THIS PLAN WERE LOCATED WHERE POSSIBLE BY FIELD SURVEY. THEY ARE NOT A COMPLETE PICTURE OF SERVICES ON SITE. ALL SERVICE LOCATIONS ARE TO BE VERIFIED BEFORE COMMENCEMENT OF ANY WORK ON SITE, IN PARTICULAR THOSE SERVICES NOT PREVIOUSLY LOCATED THROUGH FIELD SURVEY.
- SURVEY PLUS CAN NOT ACCEPT LIABILITY WHATSOEVER FOR LOSS OR DAMAGE CAUSED TO ANY UNDERGROUND SERVICE WHETHER SHOWN BY OUR SURVEY OR NOT.
- THIS NOTE IS AN INTEGRAL PART OF THIS PLAN/DATA. REPRODUCTION OF THIS PLAN OR ANY PART OF IT WITHOUT THIS NOTE BEING INCLUDED IN FULL WILL RENDER THE INFORMATION SHOWN ON SUCH A REPRODUCTION INVALID AND NOT SUITABLE FOR USE WITHOUT PRIOR AUTHORITY OF SURVEY PLUS.
- HORIZONTAL DATUM IS MGA (GDA94).
- VERTICAL DATUM IS AHD.
- CONTOUR INTERVAL IS 0.2 METRE, INDEX IS 1.0 METRE.
- SURVEY BY ROBOTIC TOTAL STATION AND RTK GPS.
- IMPORTED DATA SHOWN ON THIS PLAN WAS OBTAINED FOR PUBLIC AVAILABLE DATA FROM VARIOUS GOVERNMENT AUTHORITIES. THIS INFORMATION IS PROVIDED FOR GUIDANCE ONLY. THE ACCURACY OF ANY IMPORTED DATA IS PER THE ACCURACY QUOTED BY THE SOURCE AND IS IN NO WAY GUARANTEED BY SURVEY PLUS. USERS MUST NOT RELY ON THIS DATA FOR ON-GROUND LOCATION OF BOUNDARIES AND/OR SERVICES.
- LIST DATA IMPORT
  - TasWater-SewerLateralLine
  - TasWater-SewerMain
  - TasWater-SewerMaintenanceHole
  - TasWater-SewerPressurisedMain
  - TasWater-WaterHydrant
  - TasWater-WaterLateralLine
  - TasWater-WaterMain
- BOUNDARIES ARE COMPILED ONLY FROM SP183934 AND RELEVANT SURVEY INFORMATION OBTAINED FROM LAND TITLES OFFICE AND ARE APPROXIMATE AND SUBJECT TO SURVEY.
- ALL WINDOWS WERE NOT ABLE TO BE LOCATED DUE TO OBSTRUCTION OF LINE OF SIGHT FROM TOTAL STATION.
- WINDOW LOCATIONS ARE APPROXIMATE ONLY DUE TO BEING UNABLE TO BE PERPENDICULAR TO WINDOWS WHEN LOCATING WITH TOTAL STATION.
- 3D DATA TURNED OFF IN LAYER CONTROL.
  - 3D TIN
  - MAJOR CONTOUR 3D
  - MINOR CONTOUR 3D

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BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

REV. DATE DESCRIPTION

Client name: J. E. PTY LTD

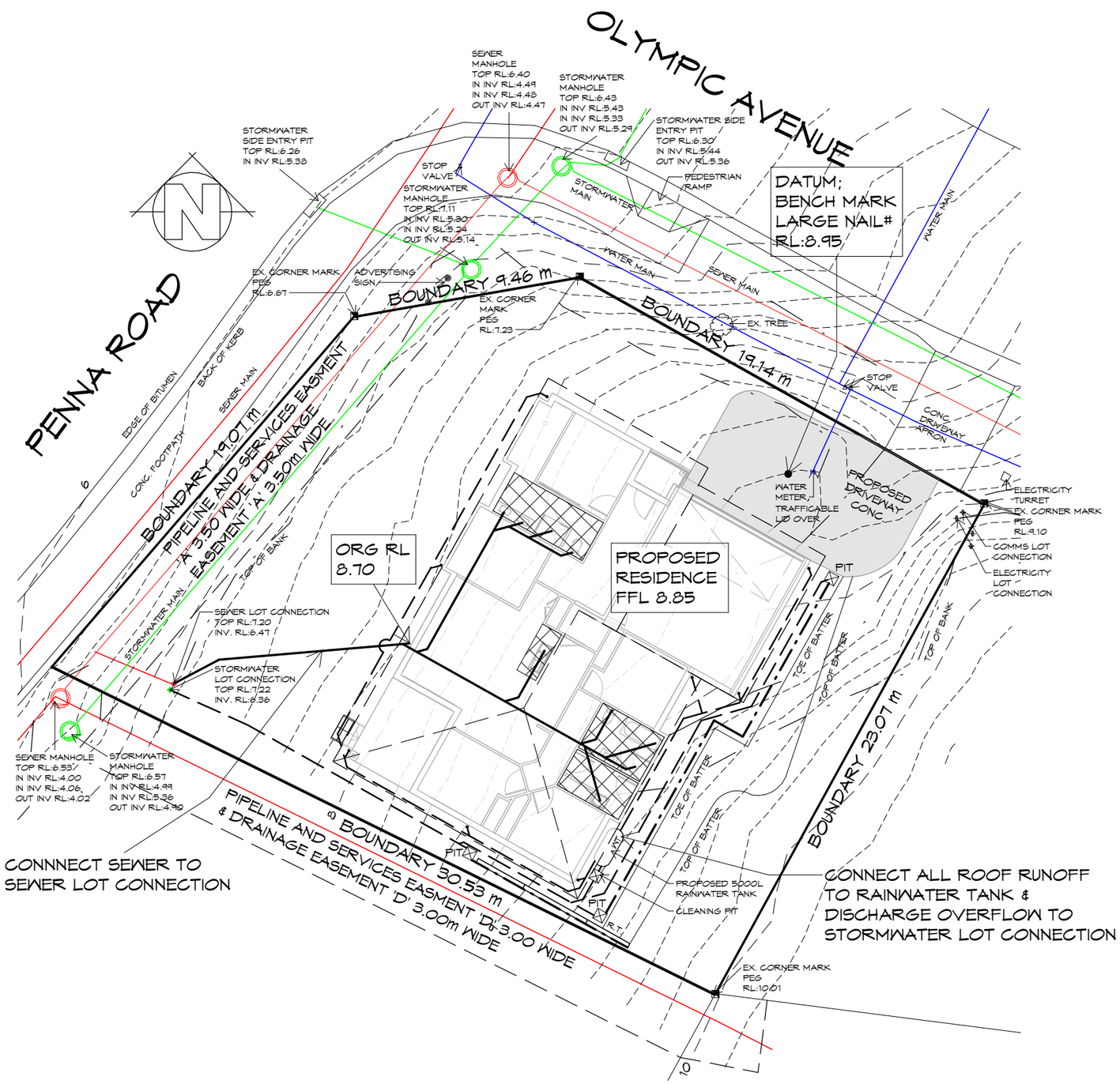
PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project: PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing: SITE PLAN

Date:	Drafted by:	Approved by:
02.10.2025	S.P.	Approver
Project/Drawing no:	Scale:	Revision:
PDH25055 - 01	1 : 200	01

Accredited building practitioner: Frank Geskus -No CC246A



SITE DRAINAGE PLAN

1 : 200

PROPOSED 5000 LITRE WATER TANK WITH MIN. RETENTION STORAGE OF 2000L, WATER SUPPLY TO BE PLUMBED INTO TOILETS SO THAT RE-USE OCCURS WITH TOP-UP FROM RECTICULATED WATER SUPPLY

LEGEND

PIT ⊠	450X 450 SURFACE DRAINAGE PIT
⊠	WET AREAS
——	SEWER LINE
— —	STORMWATER LINE
—·—	100Φ AG DRAIN
WT	PROPOSED 5000 LITRE WATER TANK WITH MIN. RETENTION STORAGE OF 2000L, WATER SUPPLY TO BE PLUMBED INTO TOILETS SO THAT RE-USE OCCURS WITH TOP-UP FROM RECTICULATED WATER SUPPLY

PLUMBING NOTES:
ALL DRAINAGE WORK SHOWN IS PROVISIONAL ONLY AND IS SUBJECT TO AMENDMENT TO COMPLY WITH THE REQUIREMENTS OF THE LOCAL AUTHORITIES.
ALL WORK IS TO COMPLY WITH THE REQUIREMENTS OF AS 3500.2021 & THE TASMANIAN PLUMBING CODE. AND MUST BE CARRIED OUT BY A LICENCED TRADESMAN ONLY.

PITS: ALL GRATED PITS SIZED AND INSTALLED PER AS/NZS 3500.2021 PART 3

ORGS: OVERFLOW RELIEF GULLYS TO BE BRANCHED SEPERATE AND NOT PASS THROUGH. REFER AS/NZS 3500.2021 PART 2

S/W: STORMWATER PIPES TO BE SIZED PER ASNZS 3500.2021 PART 3

VENTS: DRAINAGE VENTS TO BE LOCATED BEFORE LAST FITTING AT THE END OF THE LINE PER AS/NZS 3500.2021 PART 2

SEWER AND WATER SERVICES

- ALL WORKS IN ACCORDANCE WITH WATER SUPPLY CODE OF AUSTRALIA AND TASWATER SUPPLEMENTS
- WORKS TO BE DONE BY TASWATER AT DEVELOPERS COST

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BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

REV. DATE DESCRIPTION

Client name: J. E. PTY LTD

PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project: PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing: SITE DRAINAGE PLAN

Date:	Drafted by:	Approved by:
02.10.2025	S.P.	Approver
Project/Drawing no:	Scale:	Revision:
PDH25055 - 02	As indicated	01

Accredited building practitioner: Frank Geskus -No CC246A

PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

THIS PROJECT HAS BEEN DETERMINED TO HAVE A BUSHFIRE ATTACK LEVEL (BAL) OF **BAL-12.5**
REFER TO ASSESSMENT FOR FURTHER DETAILS.
ALL CONSTRUCTION MUST COMPLY WITH AS3959.

REFER ASSESSMENT PREPARED BY DAVID LYNE.
DWG NO: 1713. FOR BUSHFIRE HAZARD MANAGEMENT AREA DETAILS
ALL CONSTRUCTION MUST COMPLY WITH AS3959

LOCALITY PLAN

1 : 2000

THIS SITE IS ZONED **GENERAL RESIDENTIAL** AND **REQUIRES** A BUSHFIRE ASSESSMENT.
RESIDENCE **IS NOT** OVER **100m** FROM UNMANAGED BUSH/GRASSLANDS GREATER THAN 1 HECTARE.

REFER TO BUSHFIRE ASSESSMENT REPORT FOR MANAGMENT PLAN

REV. DATE DESCRIPTION

Client name:
J. E. PTY LTD

PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project:
PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing:
LOCALITY PLAN

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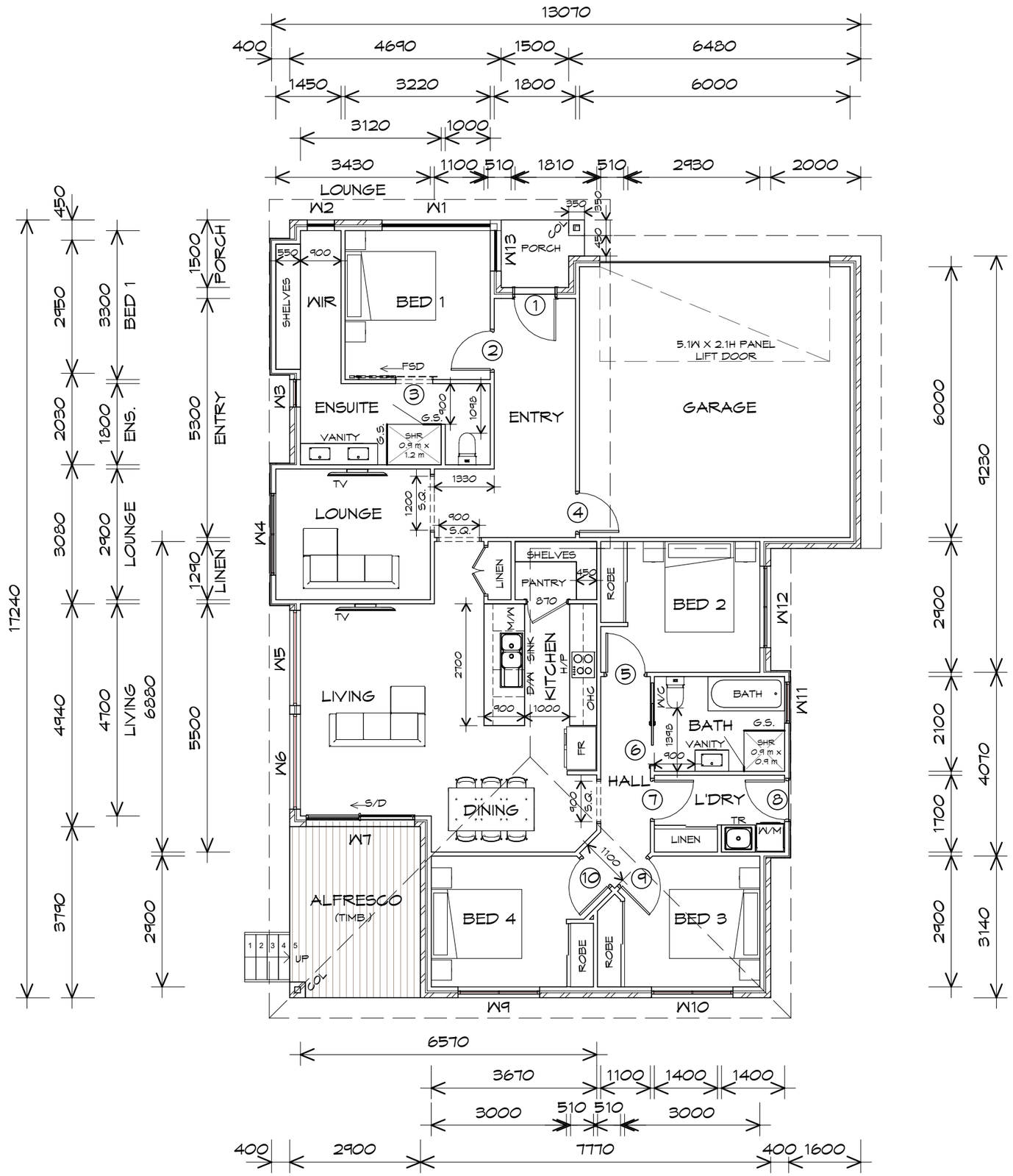
PDH25055 - 03	1 : 2000	01

Accredited building practitioner: Frank Geskus -No CC246A



LEGEND

- CSD CAVITY SLIDING DOOR
- S/D SLIDING DOOR
- S.Q. SQUARE STOP
- G.S. GLASS SCREEN
- COL 350X350 BRICK COLUMN C/W SHS INSIDE

THIS PROJECT HAS BEEN DETERMINED TO HAVE A BUSHFIRE ATTACK LEVEL (BAL) OF **BAL-12.5** REFER TO ASSESSMENT FOR FURTHER DETAILS. ALL CONSTRUCTION MUST COMPLY WITH AS3959.

FLOOR PLAN

1 : 100

FLOOR AREA	142.72	m2	(15.36	SQUARES)
ALFRESCO AREA	11.81	m2	(1.27	SQUARES)
GARAGE AREA	39.59	m2	(4.26	SQUARES)
PORCH AREA	2.84	m2	(0.31	SQUARES)
TOTAL AREA	196.96		21.20	

NOTE:
FLOOR AREAS INCLUDE TO EXTERNAL FACE OF BUILDING AND GARAGE, UNLESS OTHERWISE STATED. DECKS AND OUTDOOR AREAS ARE CALCULATED SEPARATELY.

Sorell Council
Development Application: 5.2025.273.1 - Development Application - 2 Olympic Court, Midway Point - P1.pdf
Plans Reference: P1
Date Received: 07/10/2025

STROUD HOMES Feels like home
Love local. Love Stroud.

REV. DATE DESCRIPTION

Client name: J. E. PTY LTD

PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project: PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing: FLOOR PLAN

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Project/Drawing no:	Scale:	Revision:
PDH25055 - 04	1 : 100	01

Accredited building practitioner: Frank Geskus -No CC246A

DOOR SCHEDULE

MARK	WIDTH	TYPE	REMARKS
1	920	EXTERNAL ENTRY DOOR	
2	870	INTERNAL TIMBER DOOR	
3	820	Barn Door	
4	870	INTERNAL TIMBER DOOR	
5	870	INTERNAL TIMBER DOOR	
6	920	CAVITY SLIDING DOOR	
7	870	INTERNAL TIMBER DOOR	
8	876	GLAZED EXTERNAL DOOR	
9	870	INTERNAL TIMBER DOOR	
10	870	INTERNAL TIMBER DOOR	

WINDOW SCHEDULE

MARK	HEIGHT	WIDTH	TYPE	REMARKS
W1	2100	2400	AWNING WINDOW	
W2	2100	600	AWNING WINDOW	
W3	1800	610	AWNING WINDOW	OPAQUE
W4	1800	1810	AWNING WINDOW	
W5	1800	2110	FIXED WINDOW	
W6	1800	2110	FIXED WINDOW	
W7	2100	2410	SLIDING DOOR	
W9	1200	1810	AWNING WINDOW	
W10	1200	1810	AWNING WINDOW	
W11	1200	910	AWNING WINDOW	OPAQUE
W12	1200	1810	AWNING WINDOW	
W13	2100	900	AWNING WINDOW	

ALUMINIUM WINDOWS **DOUBLE GLAZING** COMPLETE
WITH FLY SCREENS TO SUIT **BAL-12.5** RATING.
ALL WINDOW MEASUREMENTS TO BE VERIFIED ON SITE
PRIOR TO ORDERING

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REV. DATE DESCRIPTION

Client name:
J. E. PTY LTD

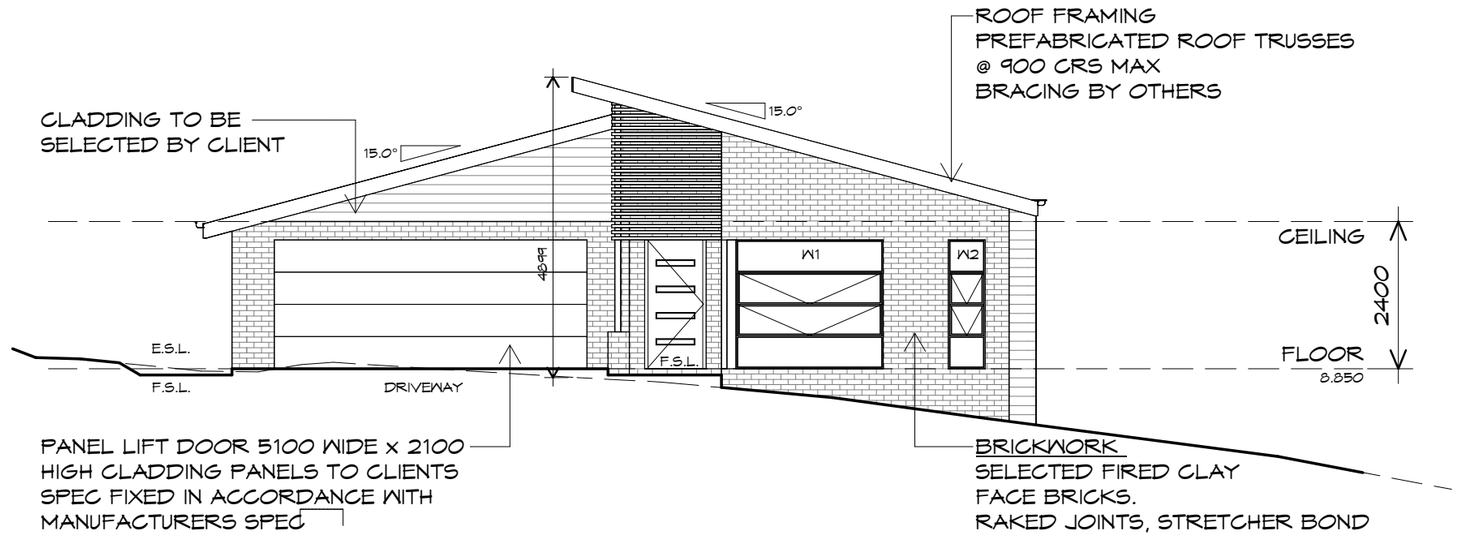
PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project:
PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing:
DOOR AND WINDOW SCHEDULES

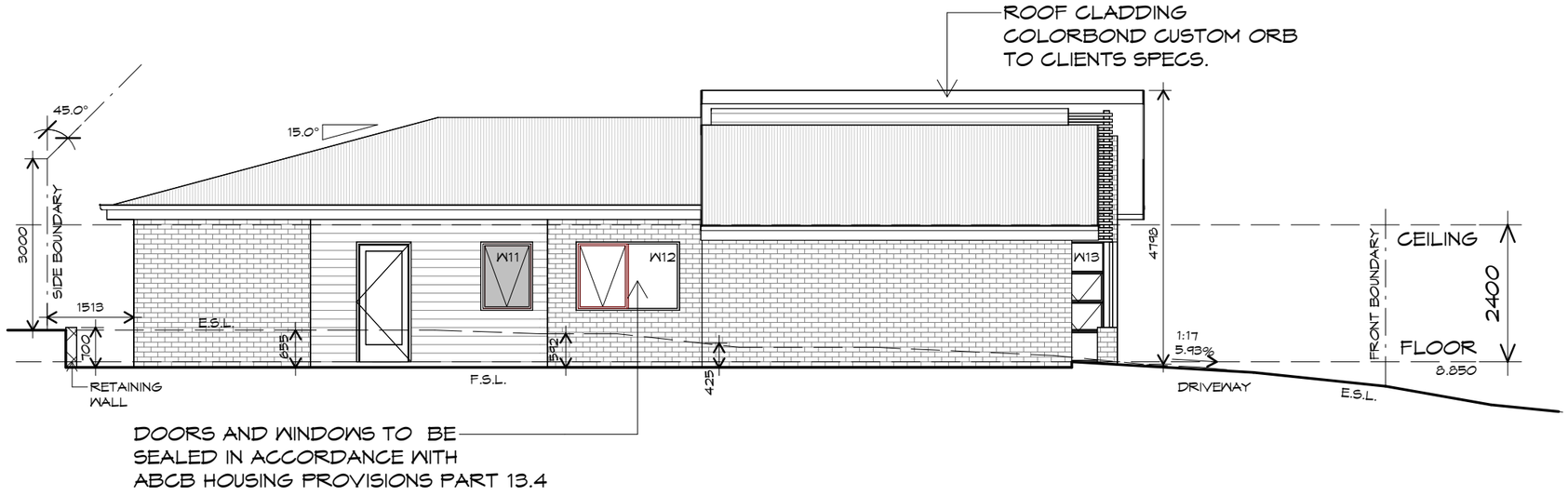
Date:	Drafted by:	Approved by:
02.10.2025	S.P.	Approver
Project/Drawing no:	**Scale:**	**Revision:**
PDH25055 - 05		01

Accredited building practitioner: Frank Geskus -No CC246A



NORTHERN ELEVATION

1 : 100



EASTERN ELEVATION

1 : 100

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PLANNING
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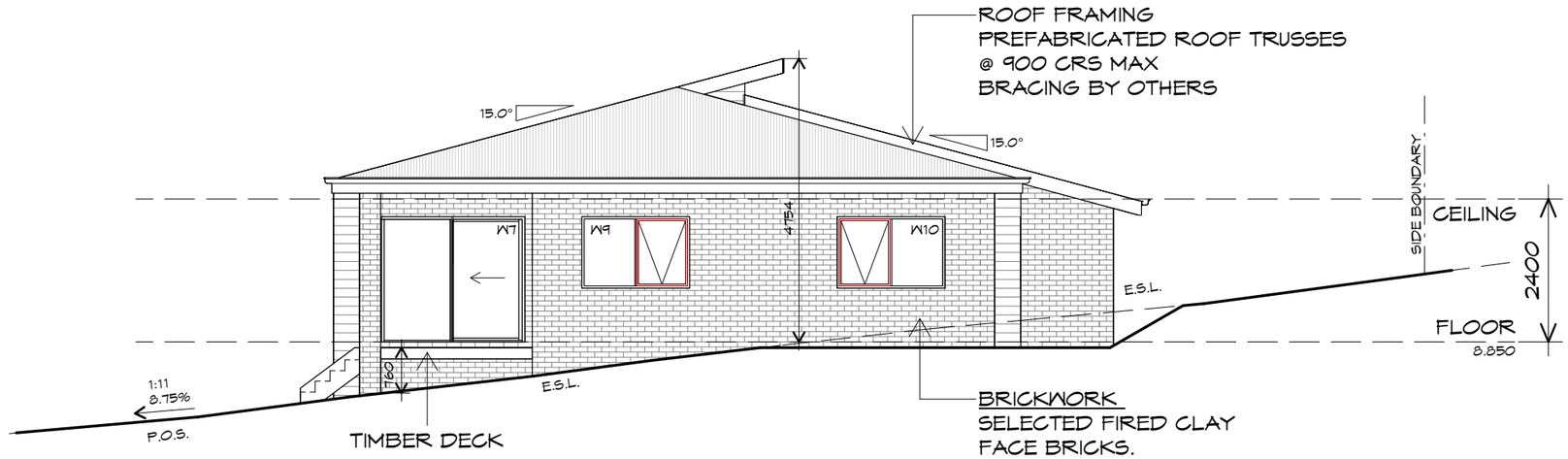
Project: PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing: ELEVATIONS

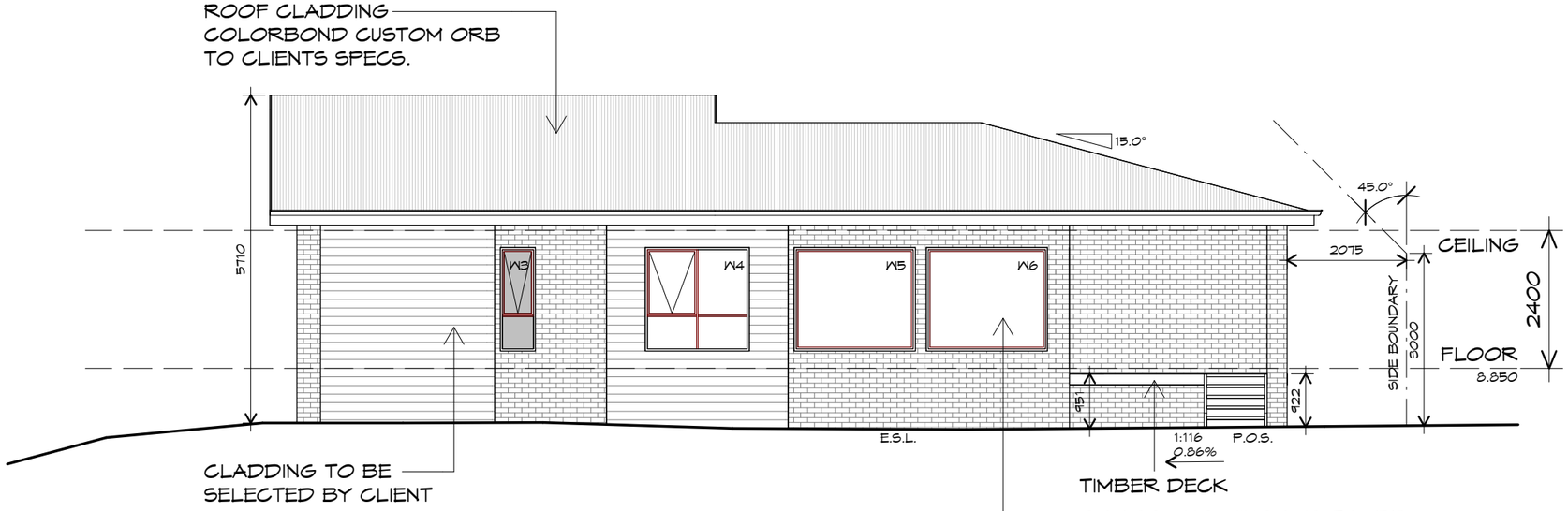
Date:	Drafted by:	Approved by:
02.10.2025	S.P.	Approver
Project/Drawing no:	Scale:	Revision:
PDH25055 - 06	1 : 100	01

Accredited building practitioner: Frank Geskus -No CC246A



SOUTHERN ELEVATION

1 : 100



WESTERN ELEVATION

1 : 100

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J. E. PTY LTD

PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

Project:
PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing:
ELEVATIONS

Date:	Drafted by:	Approved by:
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Project/Drawing no:	**Scale:**	**Revision:**
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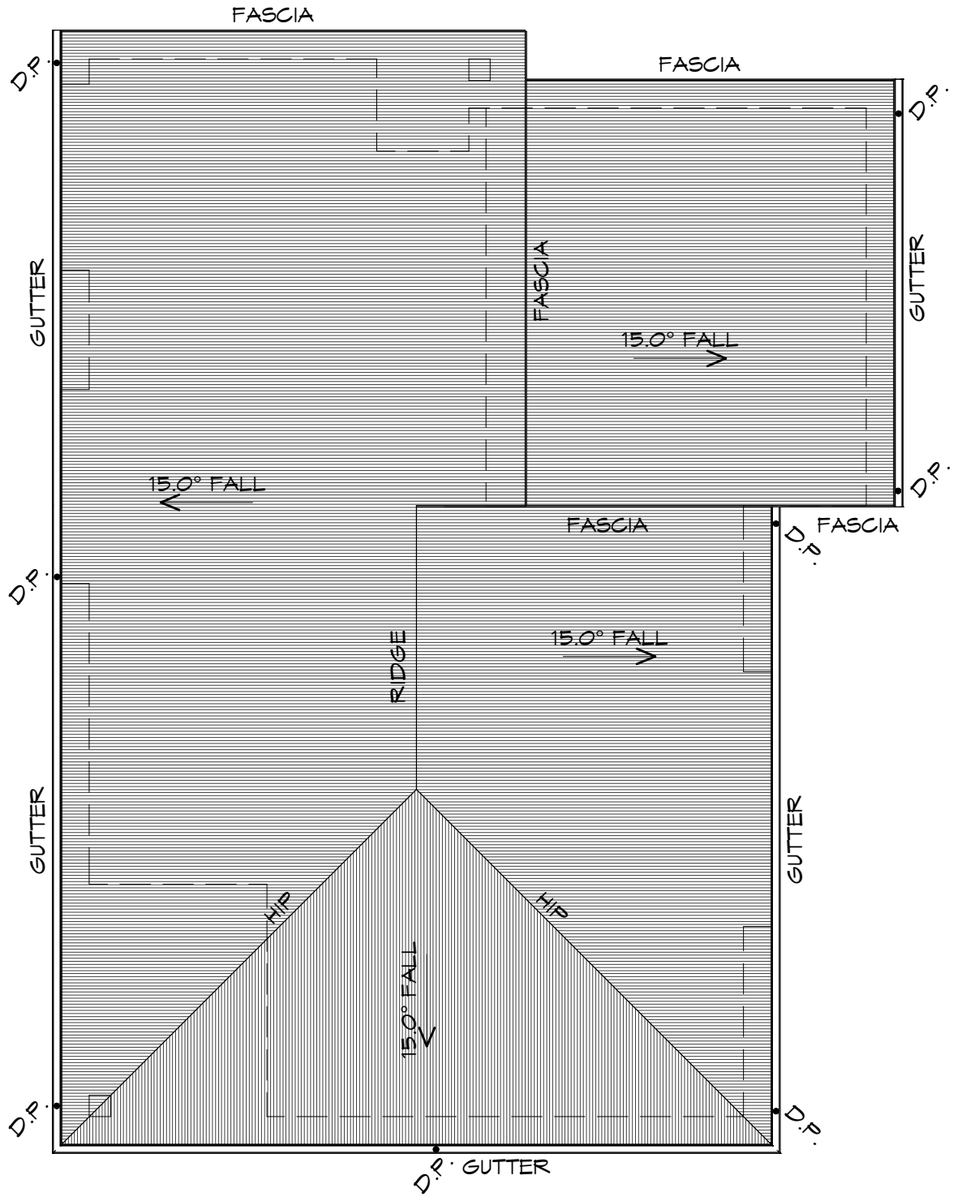

ROOF PLAN

1 : 100

ADDITIONAL ROOF LOAD
NO SOLAR P.V. SYSTEM HAS BEEN ALLOWED FOR,
NO SOLAR HOT WATER HAS BEEN ALLOWED FOR.

ROOF PLUMBING NOTES:

GUTTER INSTALLATION
TO BE IN ACCORDANCE WITH
ABCB HOUSING PROVISIONS PART 7.4.4
WITH FALL NO LESS THAN
1:500 FOR EAVES GUTTER
BOX GUTTERS IN ACCORDANCE WITH
AS33500.3:2021

UNLESS FIXED TO METAL FASCIA
EAVES GUTTER TO BE FIXED
@ 1200 CRS MAX.

VALLEY GUTTERS ON A ROOF WITH A PITCH:
A) MORE THAN 12.5° DEGREES - MUST
HAVE A WIDTH OF NOT LESS THAN
400mm AND ROOF OVERHANG OF NOT
LESS THAN 150mm EACH SIDE OFVALLEY
GUTTER.
B) LESS THAN 12.5° DEGREES, MUST BE
DESIGNED AS A BOX GUTTER.

LAP GUTTERS 75mm IN THE DIRECTION
OF FLOW, RIVET & SEAL WITH AN
APPROVED SILICONE SEALANT.

DOWNPIPE POSITIONS SHOWN ON THIS
PLAN ARE NOMINAL ONLY.
EXACT LOCATION & NUMBER OF D.P'S
REQUIRED ARE TO BE IN ACCORDANCE
WITH ABCB HOUSING PROVISIONS PART 7.4.5
REQUIREMENTS.
SPACING BETWEEN DOWNPIPES MUST NOT
BE MORE THAN 12m & LOCATED AS CLOSE AS
POSSIBLE TO VALLEY GUTTERS

METAL ROOF
METAL SHEETING ROOF TO BE INSTALLED IN
ACCORDANCE WITH ABCB HOUSING PROVISIONS PART
7.2. REFER TO TABLE 7.2.2a FOR ACCEPTABLE
CORROSION PROTECTION FOR SHEET ROOFING,
REFER TO TABLE 7.2.2b-7.2.2e FOR ACCEPTABILITY
OF CONTACT BETWEEN DIFFERENT ROOFING
MATERIALS. FOR FIXING, SHEET LAYING SEQUENCE,
FASTENER FREQUENCY FOR TRANVERSE FLASHINGS
AND CAPPINGS, ANTI CAPILLARY BREAKS, FLASHING
DETAILS REFER TO ABCB HOUSING PROVISIONS PART
7.2.5- 7.2.7. ROOF PENETRATION FLASHING DETAILS.
REFER TO TO ABCB HOUSING PROVISIONS PART
7.2.5- 7.2.7. ROOF SHEETING MUST OVERHANG MIN
35mm AS PER ABCB HOUSING PROVISIONS PART 7.2.8

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REV. DATE DESCRIPTION

Client name: J. E. PTY LTD

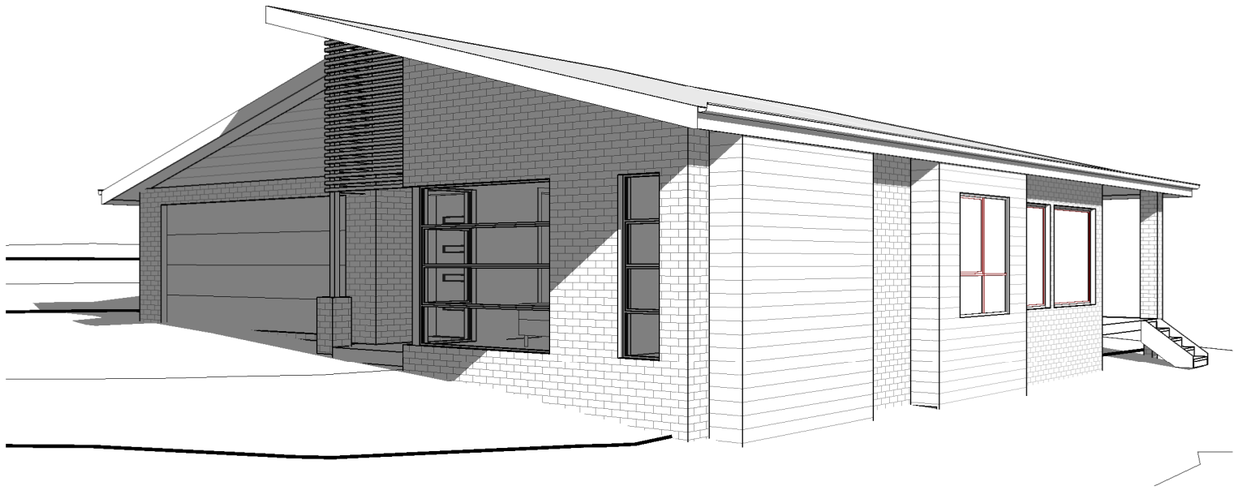
PLANNING
NOTE: DO NOT SCALE OFF DRAWINGS

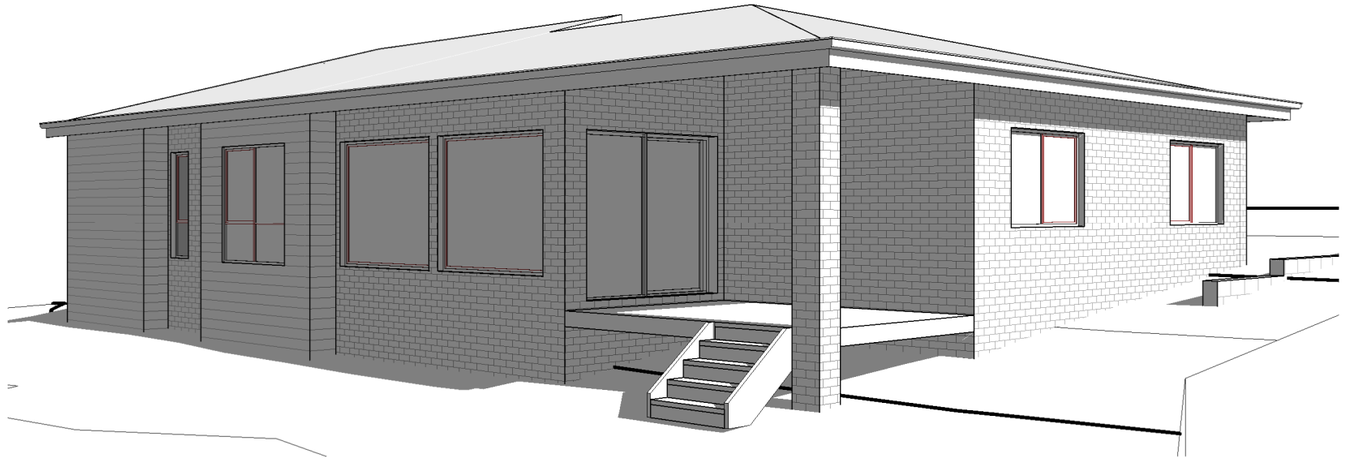
Project: PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing: ROOF PLAN

Date:	Drafted by:	Approved by:
02.10.2025	S.P.	Approver
Project/Drawing no:	Scale:	Revision:
PDH25055 - 08	1 : 100	01

Accredited building practitioner: Frank Geskus -No CC246A





Sorell Council

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Plans Reference: P1

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BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

STROUD HOMES Feels like home

Love local. Love Stroud.

REV. DATE DESCRIPTION

Client name:
J. E. PTY LTD

PLANNING

NOTE: DO NOT SCALE OFF DRAWINGS

Project:
PROPOSED NEW RESIDENCE
2 OLYMPIC AVENUE,
MIDWAY POINT

Drawing:
PERSPECTIVES

Date:	Drafted by:	Approved by:
02.10.2025	S.P.	Approver
Project/Drawing no:	**Scale:**	**Revision:**
PDH25055 - 09		01

Accredited building practitioner: Frank Geskus -No CC246A