

NOTICE OF PROPOSED DEVELOPMENT

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

SITE:**16 CLOVER COURT, CARLTON****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: 5.2025.260.1

DATE: 17/10/2025

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

Full description of Proposal:	Use: Residential
	Development: new dwelling
	<i>Large or complex proposals should be described in a letter or planning report.</i>
Design and construction cost of proposal:	\$ \$650,000

Is all, or some the work already constructed:	No: ☒ Yes: ☐
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Location of proposed works:	Street address: 16 Clover Court
	Suburb: Carlton Postcode: 7173
	Certificate of Title(s) Volume: 175511 Folio: 18

Current Use of Site	vacant land
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Current Owner/s:	Name(s) Caitlin Moffatt
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Is the Property on the Tasmanian Heritage Register?	No: ☒ Yes: ☐	<i>If yes, please provide written advice from Heritage Tasmania</i>
Is the proposal to be carried out in more than one stage?	No: ☒ Yes: ☐	<i>If yes, please clearly describe in plans</i>
Have any potentially contaminating uses been undertaken on the site?	No: ☒ Yes: ☐	<i>If yes, please complete the Additional Information for Non-Residential Use</i>
Is any vegetation proposed to be removed?	No: ☐ Yes: ☒	<i>If yes, please ensure plans clearly show area to be impacted</i>
Does the proposal involve land administered or owned by either the Crown or Council?	No: ☒ Yes: ☐	<i>If yes, please complete the Council or Crown land section on page 3</i>

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/>



Sorell Council

Development Application: 5.2025.260.1 -
 Development Application 16 Clover Court,
 Carlton - P1.pdf
 Plans Reference: P1
 Date Received: 24/09/2025

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 <i>Land Use Planning and Approvals Act 1993</i>, 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. <i>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>	
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 <i>Urban Drainage Act 2013</i>, by making this application I/we also apply for that consent.	
Applicant Signature:	Signature: Date: 24.09.25

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 <i>Land Use Planning and Approvals Act 1993</i>). Please note: - If General Manager consent is 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:

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CERTIFICATE OF TITLE

LAND TITLES ACT 1980



TASMANIA

TORRENS TITLE

VOLUME		FOLIO
175511		18
EDITION	DATE OF ISSUE	
2	19-Jun-2025	
Page 1		of 1

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

Recorder of Titles



DESCRIPTION OF LAND

Town of DODGES FERRY
Lot 18 on Sealed Plan 175511
Derivation : Part of Lot 4202, 15A-2R-0P, Gtd to Thomas Joseph,
Purchaser
Prior CT 143417/100

SCHEDULE 1

N252256 TRANSFER to CAITLIN HAMILTON MOFFATT Registered
19-Jun-2025 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP175511 EASEMENTS in Schedule of Easements
SP175511 FENCING PROVISION in Schedule of Easements



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SCHEDULE OF EASEMENTS	Registered Number SP 1755 11
NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.	

PAGE 1 OF 2 PAGE/S

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.

Lots 13, 14, 15, 16, 17, 18, 19, 20 and 101 are together with a right of carriageway over the land marked Right of Way 'C' on ~~plan 143417~~ *the plan (private) CSP 143416*.

FENCING PROVISION

In respect of each and any lot on the Plan the Vendors (Stephen Roger Jeffes and Robyn Anne Jeffes) shall not be required to fence.



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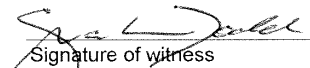
(USE ANNEXURE PAGES FOR CONTINUATION)

SUBDIVIDER: Stephen Roger Jeffes and Robyn Anne Jeffes FOLIO REF: Volume 143417 Folio 100 SOLICITOR & REFERENCE: Cara Lee Hawkins, Simmons Wolfhagen, 171602	PLAN SEALED BY: Sorell Council DATE: <u>19.10.18</u> <u>7.1994.1733</u> REF NO.
 Council Delegate	
NOTE: The Council Delegate must sign the Certificate for the purposes of identification.	

ANNEXURE TO SCHEDULE OF EASEMENTS PAGE 2 OF 2 PAGES	Registered Number SP 1755 11
SUBDIVIDER: Stephen Roger Jeffes and Robyn Anne Jeffes FOLIO REFERENCE: 143417/100	

Signed by STEPHEN ROGER JEFFES in the presence
of:


Signature

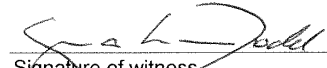

Signature of witness

Graham Dodd City Ranger ccc
Name & Occupation of witness

56 Gordons Hill Road Lindis fernie TAS
Address of witness

Signed by ROBYN ANNE JEFFES in the presence of:


Signature


Signature of witness

GRAHAM Dodd City Ranger ccc.
Name & Occupation of witness

56 Gordons Hill Road Lindis fernie TAS
Address of witness

 Sorell Council Development Application: 5.2025.260.1 - Development Application 16 Clover Court, Carlton - P1.pdf Plans Reference:P1 Date Received:24/09/2025
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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.

175511

FP 26-10-2018

OWNER STEPHEN ROGER JEFFES & ROBYN ANNE JEFFES FOLIO REFERENCE C.T.143417/100 GRANTEE PART OF LOT 4202, 15A-2R-OP THOMAS JOSEPH PURCHASER.		PLAN OF SURVEY BY SURVEYOR CRAIG BRADLEY ROGERSON ROGERSON AND BIRCH SURVEYORS UNIT 1 - 2 KENNEDY DRIVE, CAMBRIDGE PARK PH 6248-5898 MOB.0418-120-796 TOWN OF DODGES FERRY SCALE 1: 750 LENGTHS IN METRES		REGISTERED NUMBER SP175511 APPROVED EFFECTIVE FROM 6 NOV 2018 <i>Alice Kana</i> Recorder of Titles
MAPSHEET MUNICIPAL CODE No. 124	LAST UPI No.	LAST PLAN No. P143417	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN	

Map details: Lots 13 (2056m²), 14 (1950m²), 15 (2302m²), 16 (2052m²), 17 (2771m²), 18 (3646m²), 19 (2148m²), 20 (2098m²). Public Open Space 101 (3000m²). Road 100 (1397m). Clover Court. Right of Way 'C' (Private) (SP143416). Bearings and distances are provided for all boundaries.

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Lolal CG
 COUNCIL DELEGATE
 DATE 19.10.18



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Beachouse

11 RIVER STREET
CARLTON
TASMANIA 7173
ABN: 12938732251
Ph: 03 6265 8295

info@beachouse.net.au
www.beachouse.net.au

Date: 24 September, 2025

To: Sorell Council
Planning Department

DEVELOPMENT APPLICATION FOR PROPOSED NEW DWELLING 16 CLOVER COURT, CARLTON. (PID 9861800– TITLE REF 175511/18)

This document accompanies a development application for a proposed new dwelling that we have prepared and submit on behalf of the property's owner Caitlin Moffatt.

The purpose of this document is to address the requirements of the Tasmanian Planning Scheme – Sorell and demonstrate how the proposal substantially meets those requirements.

The Site

Site address: 16 Clover Court, Carlton

Property ID: 9861800

Title ref: 175511/18

Land Area: 3646 sq. metres

Services: Mains electricity

No mains water supply, stormwater or sewer connection

The site is currently vacant and is within an established residential area with primarily single dwellings occupying surrounding lots.

Access to the property is from the cul-de-sac head of Clover Court via an existing bitumen crossover.

The topography falls from its highest level at the Clover Court frontage in the north-west towards the south and south-east, steepening towards the south as it descends to its southern boundary adjacent to the Carlton River wetland. The upper portion of the property has been cleared and is now vegetated with grass, with a band of native shrub vegetation along the eastern boundary. The southern steeper half of the property is covered with dense native vegetation.

The property is fenced along the northern boundary and the upper portion of the western boundary with relatively new timber fences in good condition.

The Proposal

The proposal is for the construction of a new single dwelling on one floor level with an under-croft carport .

The dwelling will be constructed with a suspended timber floor on columns, timber stud framed walls with fibre cement cladding and timber battens externally and a corrugated metal roof.

The dwelling will sit predominantly above natural ground with minimal disturbance to the existing topography.

The dwelling will include decking to the north as well as verandas to the east, south and west which will be directly accessible from living areas.

A new 3 metre wide gravel driveway will be constructed for vehicles to access the property from an existing bitumen crossover at the Clover Court frontage.

The property falls within the Bushfire Prone Area Code overlay. It has been determined that BAL29 is the appropriate Bushfire Attack Level for the proposal. The dwelling will thus be constructed to comply with BAL29 requirements defined in AS3959 and any additional requirements determined by other statutory authorities.

Tasmanian Planning Scheme - Sorell

Zoning

The subject property falls within the ***Low Density Residential*** zone.

10.2 Use Table

In the Low Density Residential zone a single dwelling is deemed to be '***No Permit Required***'.

10.4 Development Standards for Dwellings

10.4.2 Building Height

A1 A dwelling must have a building height not more than 8.5m.

The proposed building will have a maximum height of 6.6 metres above natural ground level.

The proposal therefore satisfies the *Acceptable Solutions* for this clause.

10.4.3 Setback

A1 Dwellings, excluding protrusions that extend not more than 0.9m into the frontage setback, must have a setback from a frontage not less than 8m.

The setback from the property frontage to the proposed dwelling will be 20.7 metres.

The proposal therefore satisfies the *Acceptable Solutions* for this clause.

A2 Dwellings, excluding outbuildings with a building height of not more than 2.4m and protrusions that extend not more than 0.9m horizontally from the building, must have a setback from side and rear boundaries of not less than 5m.

The proposed dwelling will be set back 5.5 metres from the nearest (western) side boundary and 42.43 metres from the rear boundary.

The proposal therefore satisfies the *Acceptable Solutions* for this clause.

10.4.4 Site Coverage

A1 Dwellings must have a site coverage of not more than 30%.

The proposed dwelling, including decks verandas and stairs will be 202 square metres.

The lot area is 3646 square metres.

Thus the site coverage will be approximately 5.5% of the total lot area.

The proposal therefore satisfies the *Acceptable Solutions* for this clause.

10.4.5 Frontage Fences for all Dwellings

No frontage fence is proposed as part of this application.

The proposal is therefore exempt from this clause.

Specific Area Plans

SOR-S2.0 Southern Beaches On-site Wastewater & Stormwater Specific Area Plan

S2.7.1 On-site wastewater

Please refer to attached Wastewater System Design report by GES which addresses the requirements of this specific area plan.

S2.7.2 Stormwater Management

A1 Development must be capable of connecting by gravity to a public stormwater system.

It is proposed that stormwater collected from roofs be stored on-site for domestic purposes. All overflow from water storage tanks and surface water drainage is to discharge to a stormwater disposal system on site – refer to attached stormwater design by Aldanmark Consulting Engineers.

Codes

C2.0 Parking & Sustainable Transport Code

Table C2.1 states that 2 onsite car parking spaces are required.

One car parking space has been provided in the under-croft carport. An additional space has been provided off the driveway.

C7.0 Natural Assets Code

Although the proposed dwelling does not fall within this code overlay, the associated Bushfire Hazard Management Area will extend into this area.

C7.4 Use or Development Exempt from this Code

C7.4.1 The following use or development is exempt from this code:

- (c) clearance of native vegetation within a priority vegetation area,*
- (ii) if the vegetation is within a private garden, public garden or park, national park, or within State-reserved land or a council reserve,*

provided the native vegetation is not protected by legislation, a permit condition, an agreement made under section 71 of the Act, or a covenant;

The proposed development is therefore exempt from this code in relation to *Priority Vegetation*.

In relation to the Waterway & Coastal Protection overlay, no building or works will be undertaken within this code overlay area. As mentioned above, some vegetation clearing will be required to establish the Bushfire Hazard management Area which extends into this overlay area. This clearance will be a relatively minor extension to the already cleared area of the site.

Please refer to the accompanying Soil & Water Management Plan which defines the strategy to mitigate any impact on the adjacent waterway due to sediment and erosion generated by the proposed development.

C12.0 Flood-Prone Areas Hazard Code

C12.6.1 Buildings and works within a flood-prone hazard area

The proposed building and works are well clear of this code overlay area.

C13.0 Bushfire prone Area Code

Please refer to the attached report by Bushfire Tasmania which addresses the requirements of this code.

As mentioned previously, a Bushfire Attack Level of BAL29 has been deemed appropriate for the proposed development.

C15.0 Landslip hazard Code

Although this overlay applies to the subject property, the proposed development is well clear of this area.

C16.0 Safeguarding of Airports Code

C16.6.1 Buildings and works within an airport obstacle limitation area

Not applicable to this application

I trust that Council will give this proposal due consideration and see fit to grant approval.

Please contact me directly if you require any additional information or further clarification in relation to this matter.

Signed,

A handwritten signature in black ink, appearing to read "M. Shrapnel." with a stylized flourish at the end.

Michael Shrapnel
Beachouse



BUSHFIRE HAZARD ASSESSMENT REPORT

PROPOSED DWELLING
16 CLOVER COURT,
CARLTON

Dated September 2025

Report by Samuel Walters BFP-130

Report Code: B25-1

Bushfire Tasmania

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APPENDICES

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

1. Report Summary

This report provides a retrospective Bushfire Hazard Management Plan (BHMP) and Bushfire Attack Level (BAL) assessment for a proposed class 1a dwelling at 16 Clover Court, Carlton (C.T 175511/18).

Our findings conclude that the potential bushfire hazard for the proposal is tolerable providing the recommendations and findings of this report are followed and implemented in accordance with Australian Standard 3959 2018 (incorporating Amendments 1 & 2) and the Director's Determination – Bushfire Hazard Areas Version 1.2 2024 (Director's Determination).

Table 4(B) within the Director's Determination states a minimum BAL-29 solution must be achieved for a deemed to satisfy outcome.

Bushfire prone D. Scrub, A. Forest and G. Grassland vegetation poses the greatest threat to the development.

A BAL-29 compliant solution can be achieved on all aspects of the proposed dwelling. This is based on the establishment of a hazard management area (HMA) with separation distances of:

- To the property boundary on the western and northern aspect;
- A minimum 16m on the eastern aspect;
- A minimum 21m on the southern aspect.

The HMA must be maintained as low threat and in accordance with Clause 2.2.3.2(d)(e)(f) of AS3959 2018 and in line with report/BHMP recommendations.

The proposal must install a static firefighting water supply point compliant with Table 3B of the Director's Determination.

Property access to a static firefighting water supply point is intended to be <30m and deemed to comply with table 2(A) of the Director's Determination.

2. Introduction

2.1. The Proposal

The proposal involves constructing a new class 1a dwelling at 16 Clover Court, Carlton (C.T 175511/18).

2.2. Scope of Report

Bushfire Tasmania was engaged by Caitlin Moffatt to undertake a Bushfire Hazard Management Plan (BHMP) and BAL assessment to determine vegetation management requirements, water supply requirements, site access requirements and construction requirements to comply with Australian Standard 3959 – Construction of Buildings in Bushfire Prone Areas 2018 (incorporating Amendments 1 & 2) and the Director's Determination – Bushfire Hazard Areas Version 1.2 2024.

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

2.3. Property Information

Address: 16 Clover Court, Carlton

Zoning: Low Density Residential

Municipality: Sorell

Planning Scheme: Tasmanian Planning Scheme Sorell

2.4. Planning Overlays

Based on the Sorell Local Provisions Schedule:

- Bushfire Prone Areas
- Natural Assets Code – Priority Vegetation Area
- Natural Assets Code – Waterway and Coastal Protection Area
- Landslip Hazard Code – Low Landslip Hazard Band
- Safeguarding of Airports Code – Airport Obstacle Limitation Area
- Flood-prone Hazard Areas Code – Flood-prone Areas

3. Site Conditions and Observations

3.1. Site Description

The subject property is located on the down-slope south eastern side of Clover Court, on the toe slopes lining the Carlton River waterways and swamp land to the south. The allotment is a residential property approximately 3646m² in size. Natural site slopes range from approximately 5-10° on the upper and upper middle sections steepening to approximately 10-20° over the middle and lower region of the property. Aspects range from southerly to south easterly.

Current site conditions consist of grasses / reeds on the upper middle and upper slopes changing quickly to remnant coastal scrub over the middle and lower slopes.

There are no existing structures on the property. The site is accessed directly off Clover court via a sealed cross-over.

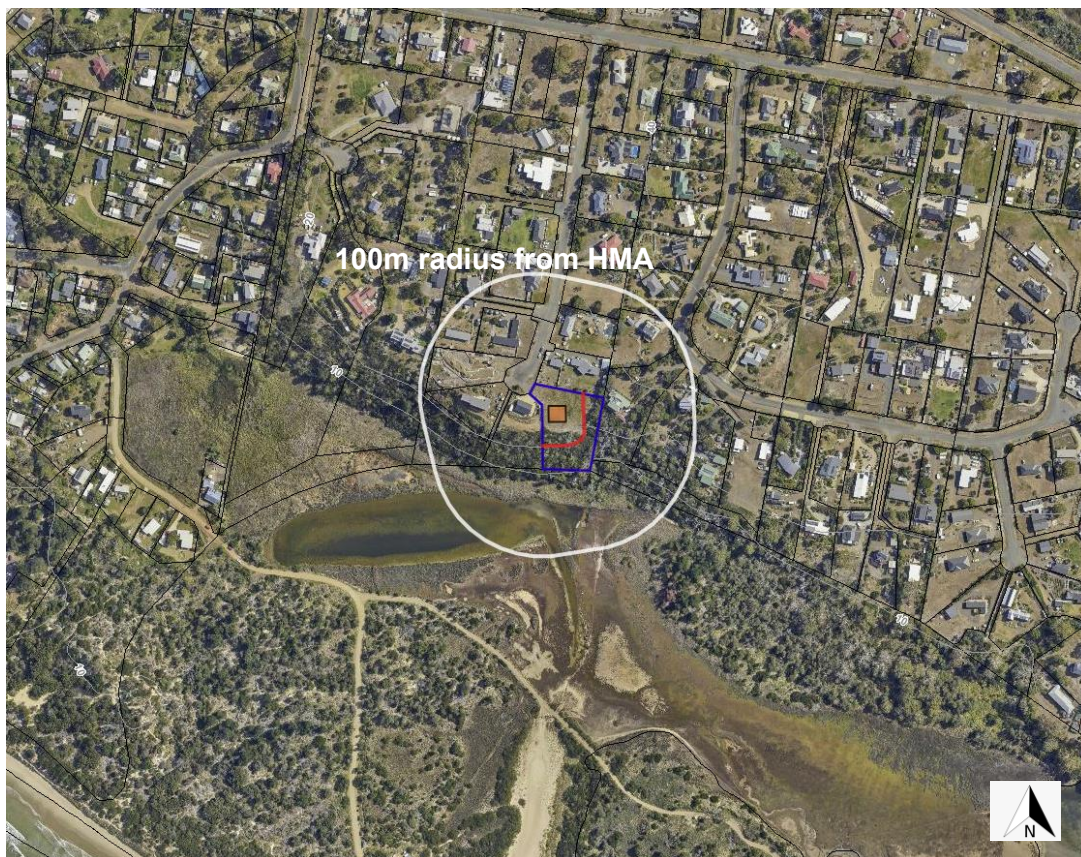


Figure 1: contoured listmap. www.thelist.tas.gov.au. Subject dwelling in orange and black. 100m radius is from proposed HMA (red line).

3.2. Surrounding Area

The subject site is located within a larger low density residential zoned area that includes all properties surrounding up to approximately 650-1000m to the east, 450-500m to the north and 800-1000m to the west. Immediately adjoining land to the south east is zoned environmental management.

Properties immediately surrounding the proposal on the eastern, northern and western aspects are of a similar size and nature with dwellings, sheds and managed gardens consisting of shrubs as well as some sparse remnant trees.

This low density residential zone is located toward the eastern end of Carlton Beach and is surrounded by a combination of rural, agriculture, environmental management and rural living zoned land.

Environmental management zoned land is under the control of NRE and includes large areas of Carlton River waterway and swamp land that line the river on the northern side. This extends for approximately 400-450m to the northern edge of the river.

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

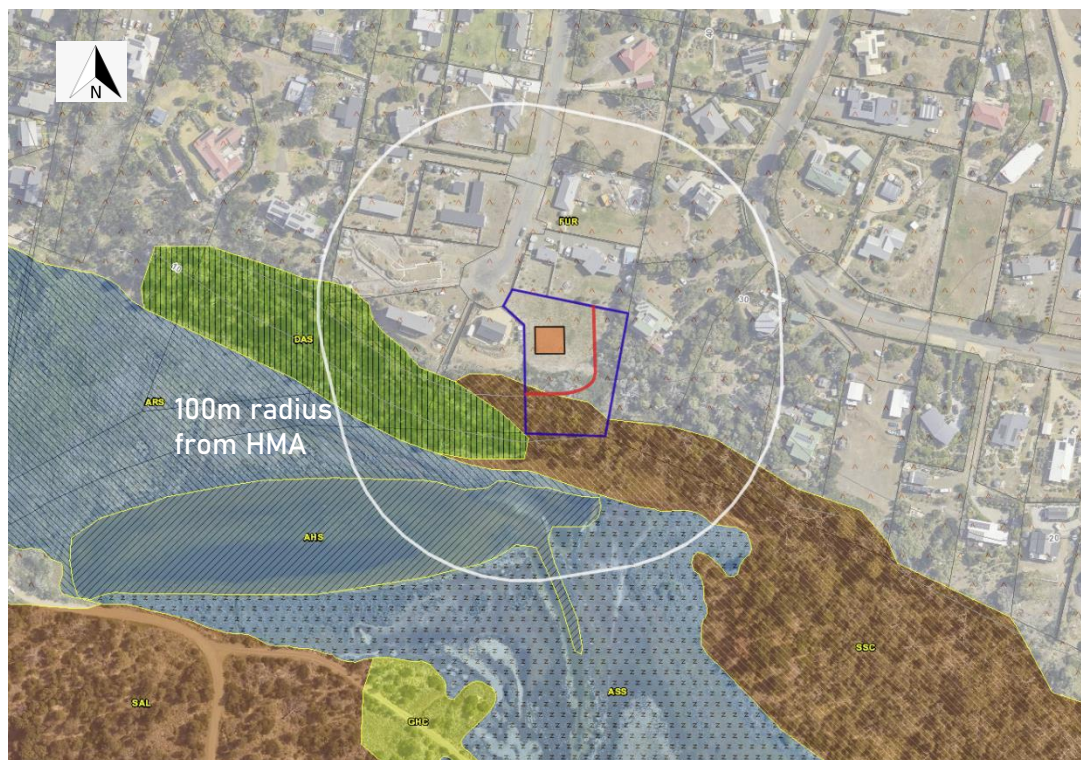


Figure 2: contoured TasVeg4.0 listmap. www.thelist.tas.gov.au. Proposed dwelling in orange and black. 100m radius is from proposed HMA (red line).



Figure 3: contoured aerial listmap. www.thelist.tas.gov.au. Proposed dwelling in orange and black. Red shading shows forest bushfire prone vegetation within 100m of the proposal, yellow shading grassland bushfire prone vegetation and purple scrub. Red line is proposed HMA.

3.3. Additional Information

Construction not expected to be staged.

Bushfire activity in the area according to fire history records on thelist.tas.gov.au shows no fire event impacting the proposal but 2 large fires within reasonable proximity to the subject site.

Notable fires include the destructive 2013 accidental escape Inala Road Forcett fire that burned considerable land from the Copping area down to the Tasman Peninsula. It is shown to have burned to within approximately 1.8-3kms of the proposal to the north east, east and south east.

The 2nd fire of note is the large 1967 fires that burned to within approximately 9kms from the site to the north.

A smaller fire is mapped on Sandy Point at the end of Seven Mile Beach, approximately 4.2kms away to the north west.

See Figure 4 below for these events on a listmap.



Figure 4: Fire History listmap. www.thelist.tas.gov.au Fire events denoted by hashed areas with dates inserted.

4. Bushfire Attack Level Assessment

4.1. Vegetation

According to TasVeg4.0 the proposal is situated within vegetation classified as (FUR) urban areas. This classification of vegetation is shown to be present on all low density residential land.

Low density residential zoning is essentially managed gardens surrounding dwellings and sheds. A few remnant Eucalyptus and other trees remain on some properties but are isolated, whilst some small stands of Eucalyptus remain toward the southern end of (FUR) adjacent to environmental management zoning.

Vegetation of greatest threat to the proposal is found on land to the south and to a lesser extent to the west and east.

Immediately south of the site is coastal scrub classified as (SSC) Coastal Scrub as well as (ASS) succulent saline herbland, (AHS) Saline aquatic herbland and (ARS) Saline sedgeland / rushland vegetation.

The latter saline classifications are located on a natural saline swamp area impacted by coastal tidal flow as well as providing a drainage basin for surrounding run-off. Within this area are significant areas of surface water.

(SSC) comprises typical coastal scrub species such as coast wattle, prickly box, hopbush, silver wattle, banksia and sheoaks. Ground coverage underlying consists of saggs, bracken, pigface and Spanish heath. This vegetation is present on the steeper slopes falling toward the wetlands of Carlton River. It is a relatively thin strip of land that extends for several hundred meters to both the east and west.

Remnant Eucalyptus are scattered throughout this classification but are very sparse, becoming more dense to the east south east and further to the west. Tall tree species become more prevalent to the east south east and whilst not entirely Eucalyptus, changes the area from scrub to forest. This starts approximately 35-40m across-slope from the proposed dwelling.

A small stand of remnant (DAS) Eucalyptus *amygdalina* forest and woodland on sandstone exists further to the west, starting approximately 110m from the proposed site and makes up an area of approximately 3000-4000m² in size.

Effective slopes for the steepest section of land immediately south of the dwelling ranges from 15-20°, extending for approximately 35-40m before meeting flat swamp land. The upper most section of this slope is the steepest and is incorporated into the HMA for the dwelling. The HMA includes approximately 12m of existing scrub which is to be maintained. This reduces flame width to approximately 25m before meeting grassland on the swamp flats and waterway abutting to the south.

Fire Behaviour

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

- An up-slope flanking/head fire from the south west, south and south east through scrub vegetation, fanned by westerly to south westerly to southerly to south easterly wind directions. Fire behaviour and intensity will be dictated by the strength of prevailing wind conditions as well as the fire danger index,
- An across-slope flanking/head fire from the east south east fanned by easterly to south easterly winds burning through coastal forest,
- Ember attack and smoke from fires further afield to the west and south east fanned by corresponding winds.

These types of fire events would result in ember attack/spot fires and potentially thick smoke ahead of any fire, with the possibility/likelihood of these being unpredictable depending on wind conditions. Extreme and catastrophic fire danger conditions would increase the risk exponentially.

It is highly recommended occupants develop and rehearse a bushfire survival plan and follow this in case of nearby fire (within 20kms). If evacuating, it is highly recommended this be done well ahead (6hrs+) of any imminent threat if safe to do so.

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

Table 1: Predominant bushfire-prone scrub vegetation on southern aspect.

Vegetation Height	Species
Canopy	N/A
Middle Growth	<i>Banksia marginata</i> (Silver Banksia) <i>Acacia longifolia</i> subsp <i>sophorae</i> (Coast Wattle) <i>Acacia dealbata</i> (Silver Wattle) <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> (Broadleaf Hopbush) <i>Bursaria spinosa</i> (Prickly Box) <i>Allocasuarina littoralis</i> (Black Sheoak)
Ground Cover	Native and improved pastures <i>Pteridium esculentum</i> (Bracken) <i>Lomandra longifolia</i> (Sagg) <i>Erica lusitanica</i> (Spanish Heath)

Table 2: Predominant bushfire-prone forest vegetation on east aspect.

Vegetation Height	Species
Canopy	<i>Eucalyptus amygdalina</i> (Black Peppermint) <i>Sparse Pinus radiata</i> (Radiata Pine) <i>Acacia dealbata</i> (Silver Wattle) <i>Acacia melanoxylon</i> (Blackwood)
Middle Growth	<i>Acacia melanoxylon</i> (Blackwood) <i>Banksia marginata</i> (Silver Banksia) <i>Acacia longifolia</i> subsp. <i>sophorae</i> (Coast Wattle) <i>Acacia dealbata</i> (Silver Wattle) <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> (Broadleaf Hopbush) <i>Bursaria spinosa</i> (Prickly Box) <i>Allocasuarina littoralis</i> (Black Sheoak)
Ground Cover	<i>Pteridium esculentum</i> (Bracken) <i>Lomandra longifolia</i> (Sagg) <i>Erica lusitanica</i> (Spanish Heath)

Vegetation on the eastern aspect is assessed as A. Forest and vegetation on the southern aspect is assessed as D. Scrub.

See photographs in appendix A for an indication of the surrounding vegetation.

4.2. Slope

Majority of land below forest bushfire-prone vegetation ranges between approximately 5-15° across-slope from the proposal with a south-south west aspect.

Majority of land below scrub bushfire-prone vegetation ranges between approximately 15-20° down-slope from the proposal with a southerly to south easterly aspect.

4.3. Separation Distances

Refer to Table 3 indicating the minimum defensible space distances required from the nearest bushfire prone vegetation of greatest threat in order to achieve a minimum BAL-29.

Table 3: Defendable Space Table

	North	East	South	West
Vegetation Type	Managed [AS3959 clause 2.2.3.2(d)(e)(f)]	A. Forest	D. Scrub	D. Scrub
Surrounding land relative to site	Up-slope / Across/flat	Up-slope / Across/flat	Down-slope 15-20°	Down-slope 5-10°
Minimum Defendable Space Required to achieve BAL-29	≥100m	≥16m	≥21m	≥17m
Defendable Space Achieved with HMA	≥100m	≥16m	≥21m	≥17m

Note: Grassland on the low-lying swamp land was not considered the greatest threat to the proposal on the southern aspect. However, some risk must be attributed more so as a possible ignition source for scrub up-slope.

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

Separation distances are achieved with an HMA to:

- To the property boundary on the western and northern aspects;
- A minimum 16m on the eastern aspect;
- A minimum 21m on the southern aspect.

With the implementation of the HMA, site and vegetation circumstances will allow compliance for a BAL-29 compliant building solution for all aspects of the proposed dwelling.

To satisfy HMA vegetation requirements, grass must be regularly mown/slashed to a nominal 100mm or less height as per AS3959 2018 clause 2.2.3.2(f) and shrubs/trees within HMA to be planted/removed in line with below as a guide as well as the TFS building for bushfire booklet 2020:

General Vegetation Management Information:

New vegetation may be planted and existing vegetation may be retained within the HMA but must satisfy low threat conditions in accordance with AS3959 2018 clause

2.2.3.2(d)(e)(f). As a general rule/guide:

Note: dwelling refers to habitable class 1a building and any class 10a building within 6m of a class 1a.

Vegetation 0.1-1m in height may be planted/retained not closer than 2m from a dwelling. Shrubs 1-2m in height can be planted/retained either individually or in single rows but must be spaced with a minimum 6m between foliage and should not be within 6m of a dwelling.

Large plants 4m or more in height can be planted/retained and should have low and mid-level growth up to 2m in height trimmed and maintained over time. Spacing between crowns is to be a minimum of 25m.

Vegetation 2m or more in height should not be planted within 12m of a dwelling.

All vegetation 1-2m in height should be spaced from large vegetation (>4m) at least 8m from tree crown (measured vertically) and vegetation 2-4m in height should be at least 10m from tree crowns.

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

It is highly recommended owners refer to the TFS guidelines for HMA's contained within the building for bushfire booklet dated June 2020 at www.fire.tas.gov.au.

4.4. BAL

Based on all the assessed variables, the BAL rating can be seen in Table 4. This is in accordance with Table 2.6 of AS3959 2018. Table 3.1 of AS3959, 2018 (incorporating Amendments 1 & 2) describes BAL-29:

Table 4: BAL Ratings

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

5. Construction Requirements

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

6. Access and Water

6.1. Property Access

Property access to a static firefighting water supply point will be <30m and deemed to comply with Table 2(A) of Director's Determination.

An indicative firefighting water supply point location is shown on the BHMP in Appendix C.

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

Table 2 - Requirements for Property Access

Column 1 Element		Column 2 Requirement
A.	Property access length is less than 30 metres, or access is not required for a fire appliance to access a firefighting water point.	There are no specified design and construction requirements.
B.	Property access length is 30 metres or greater, or access is required for a fire appliance to access a firefighting water point.	The following design and construction requirements apply to property access: (a) all-weather construction; (b) load capacity of at least 20 tonnes, including for bridges and culverts; (c) minimum carriageway width of 4 metres; (d) minimum vertical clearance of 4 metres; (e) minimum horizontal clearance of 0.5 metres from the edge of the carriageway, excluding gate posts; (f) cross falls of less than 3 degrees (1:20 or 5%); (g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle; (h) curves with a minimum inner radius of 10 metres; (i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and (j) terminate with a turning area for fire appliances provided by one of the following: (i) a turning circle with a minimum outer radius of 10 metres; (ii) a property access encircling the building; or (iii) a hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.
C.	Property access length is 200 metres or greater.	The following design and construction requirements apply to property access: (a) complies with requirements for B above; and (b) passing bays of 2 metres additional carriageway width and 20 metres length provided every 200 metres.
Column 1		Column 2
D.	Property access length is greater than 30 metres, and access is provided to 3 or more properties.	The following design and construction requirements apply to property access: (a) complies with requirements for B above; and (b) passing bays of 2 metres additional carriageway width and 20 metres length must be provided every 100 metres.
E.	Additional requirements for Certain Class 9 Buildings	Refer to NCC Vol. 1 – Part G5 (incorporating TAS G5P1 and TAS G5P2) and Specification 43.

6.2. Water Supply

The proposal must install a static firefighting water supply point that is compliant with Table 3B of the Director's Determination.

This states it must be a minimum 10,000L within a 90m hose lay to the furthest part of the proposal and be within 3m of the site access/road as well as hardstand.

In this case the intention is to install a remote offtake on the side of property access immediately inside the roadside boundary. Property access can act as access and hardstand. Indicative firefighting water supply point location shown on BHMP in Appendix C.

Refer to Table 3B below:

Table 3B - Requirements for Static Water Supply for Firefighting

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

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

7. Regulations

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

- Tasmania Building Act 2016
- Tasmania Building Regulations 2016
- Director's Determination – Bushfire Hazard Areas Version 1.2 2024
- Tasmania Planning Scheme – State Planning Provisions 2023
- National Construction Code – 2022
- AS3959 (2018) (incorporating Amendments 1 & 2) – Construction of buildings in bushfire prone areas
- The ABCB Performance Standard for Private Bushfire Shelters Part 1

8. Report Limitations and General Information

This report aims to provide sound advice, best practice strategies and measures in accordance with AS3959 2018 (incorporating Amendments 1 & 2), Tasmania Planning Scheme – State Planning Provisions 2023 and the Director's Determination – Bushfire Hazard Areas Version 1.2 2024.

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

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

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

Of particular note and importance from AS3959:

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

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

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

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

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

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

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

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

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

9. Recommendations

- In accordance with Table 2.6 in AS3959 2018:
A hazard management area (HMA) is required with separation distances of:
 - To the property boundary on the western and northern aspects;
 - A minimum 16m on the eastern aspect;
 - A minimum 21m on the southern aspect.

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

- With the implementation of the HMA, site and vegetation circumstances will allow compliance for a BAL-29 building solution for all aspects of the proposed dwelling and decks. Construction must comply with construction standards as detailed by AS3959, 2018 sections 3 and 7, specifically Clauses 7.2 to 7.8 for BAL-29.
- Property access to a static firefighting water supply point will be <30m and deemed to comply with Table 2(A) of Director's Determination.
- The proposal must install a static firefighting water supply point that is compliant with Table 3B of the Director's Determination.
This states it must be a minimum 10,000L within a 90m hose lay to the furthest part of the proposal and be within 3m of the site access/road as well as hardstand. The intention is to install a remote offtake on the side of the property access immediately inside the roadside boundary. Property access can act as access and hardstand. Indicative firefighting water supply point location shown on BHMP in Appendix C.

10. Conclusion

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

Water supply to comply with Table 3B of the Director's Determination. Property access deemed to comply with Table 2(A) of Director's Determination.

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

The site has been assessed in accordance with Australian Standard 3959 – *Construction of Buildings in Bushfire Prone Areas 2018* (incorporating Amendments 1 & 2) and the Director's Determination – Bushfire Hazard Areas Version 1.2 2024.



Samuel Walters B.Agr Sc.; BFP-130

Bushfire Tasmania

11. References

- AS3959-2018 Construction of buildings in bushfire prone areas, Standards Australia, Sydney (incorporating Amendments 1 & 2).
- Wiltshire,R and Jordan,G. *Treeflip*, School of Plant Science, University of Tasmania, 2009.
- Wiltshire,R and Potts,B. *Eucaflip*, School of Plant Science, University of Tasmania, 2007.
- National Construction Code 2022.
- Tasmania Planning Scheme – State Planning Provisions 2023.
- Director's Determination – Bushfire Hazard Areas Version 1.2 2024.
- Tasmania Building Act 2016.
- Tasmania Building Regulations 2016.
- From Forest to Fjaeldmark, *Descriptions of Tasmania's Vegetation*. Department of Primary Industries, Water and Environment, 2005.
- Tasmanian Planning Scheme Sorell.
- www.thelist.tas.gov.au
- Chladil, M and Sheridan, J. *Fire Resisting Garden Plants for the urban fringe and rural areas*. Tasmania Fire Service, 2017.
- TasVeg4.0 Tasmanian Vegetation Monitoring and Mapping Program, Biodiversity Conservation Branch, DPIPWE, 2013.
- Bushfire Planning Group, *Guidelines for Development in Bushfire Prone Areas of Tasmania*, Tasmania Fire Service, Hobart, 2017.
- www.fire.tas.gov.au
- TFS *Bushfire Emergency Planning Guidelines* Version 3.0, November 2021. Tasmania Fire Service.
- TFS *Building for Bushfire booklet*, Tasmania Fire Service, June 2020.
- TFS *Water Supply Signage Guideline* Version 1.0, Tasmania Fire Service, February 2017.
- TFS Firefighting Water Supplies booklet, Tasmania Fire Service.

Appendix A – Site Photographs

Photograph 1 – Looking south east from Clover Court toward subject site.



Photograph 2 – Looking west across cul-de-sac of Clover Court from out the front of subject site.



Photograph 3 – Looking north along Clover Court from out the front of subject property.



Photograph 4 – Looking east north east from same location as photo 3 toward neighbouring 14 Clover Court and beyond.



Photograph 5 – Looking west from proposed dwelling site toward neighbouring 18 Clover Court.



Photograph 6 – Looking south west toward neighbouring 18 Clover Court from western boundary.



Photograph 7 – Looking south-south east from immediately down-slope of proposed dwelling toward scrub vegetation.



Photograph 8 – Looking south into scrub vegetation on the southern aspect.



Photograph 9 – Looking south from scrub toward swamp and waterway of Carlton River.



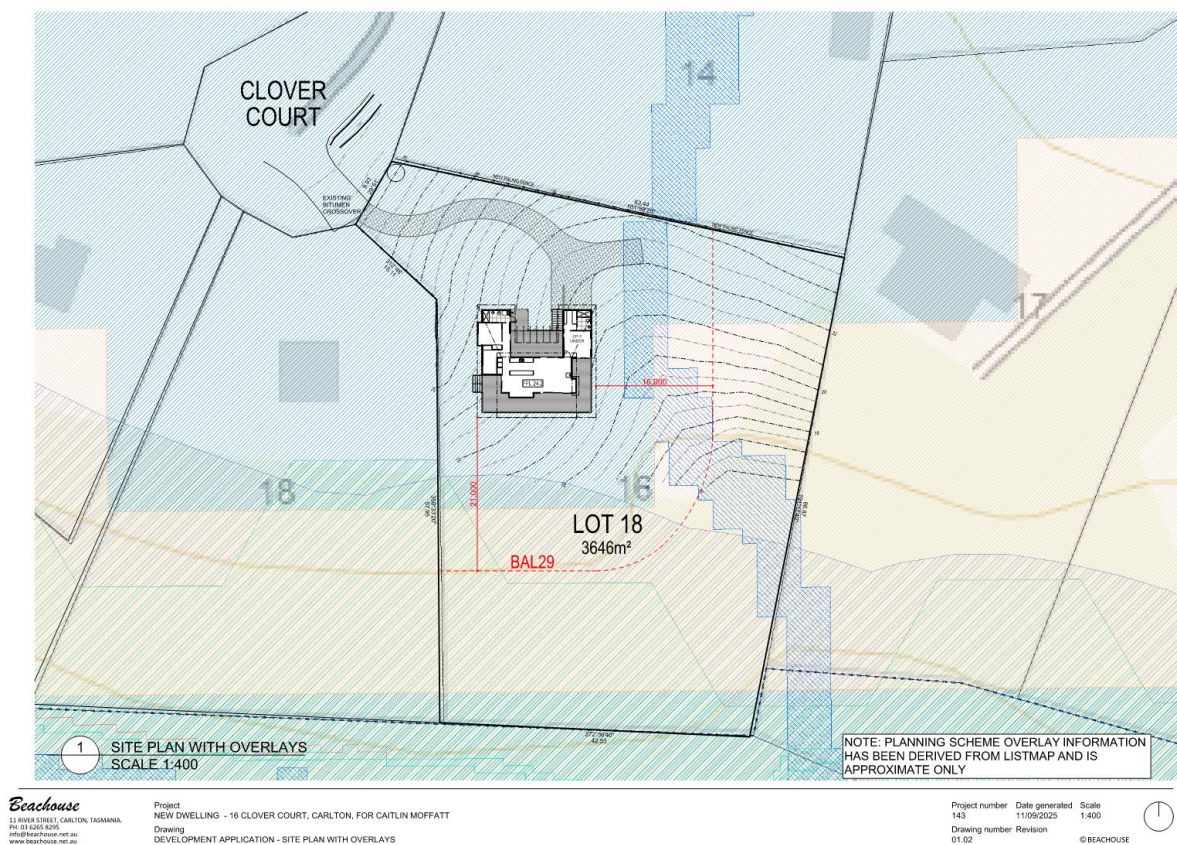
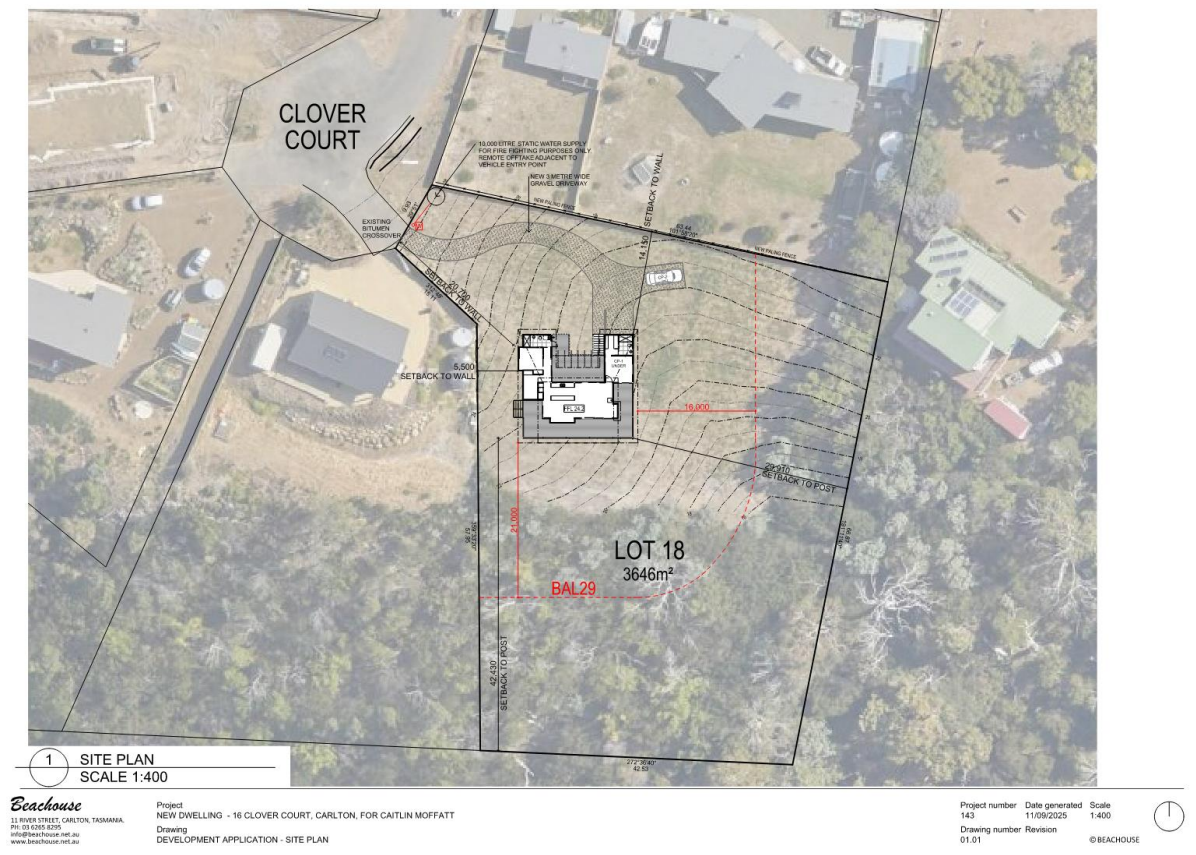
Photograph 10 – Looking south from edge of scrub toward grassland and surface water adjoining Carlton River.



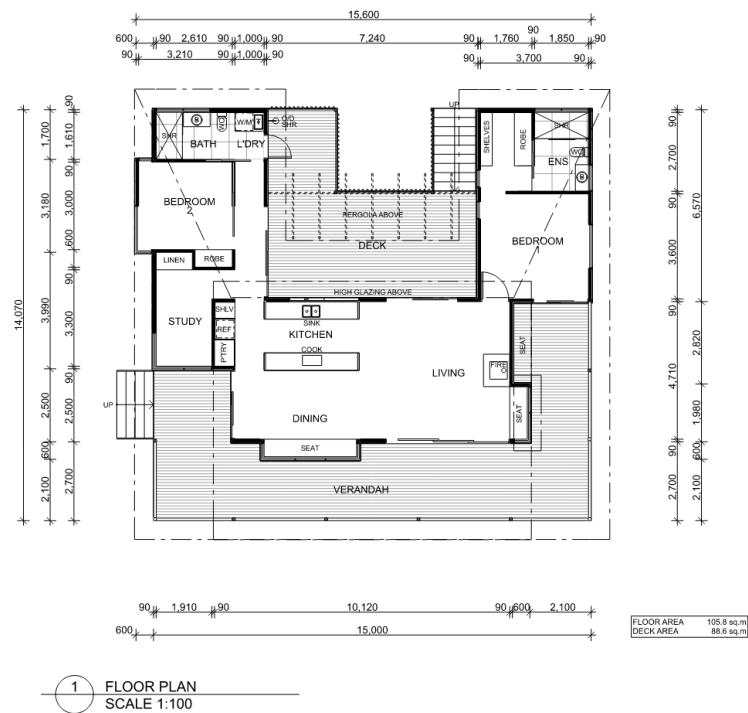
Photograph 11 – Looking east south east into across-slope forest on the east south eastern aspect.



Appendix B – Architectural/Designer Plans



Bushfire Hazard Assessment Report
16 Clover Court, Carlton



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Project
NEW DWELLING - 16 CLOVER COURT, CARLTON, FOR CAITLIN MOFFATT

Drawing
DEVELOPMENT APPLICATION - FLOOR PLAN

Project number
143

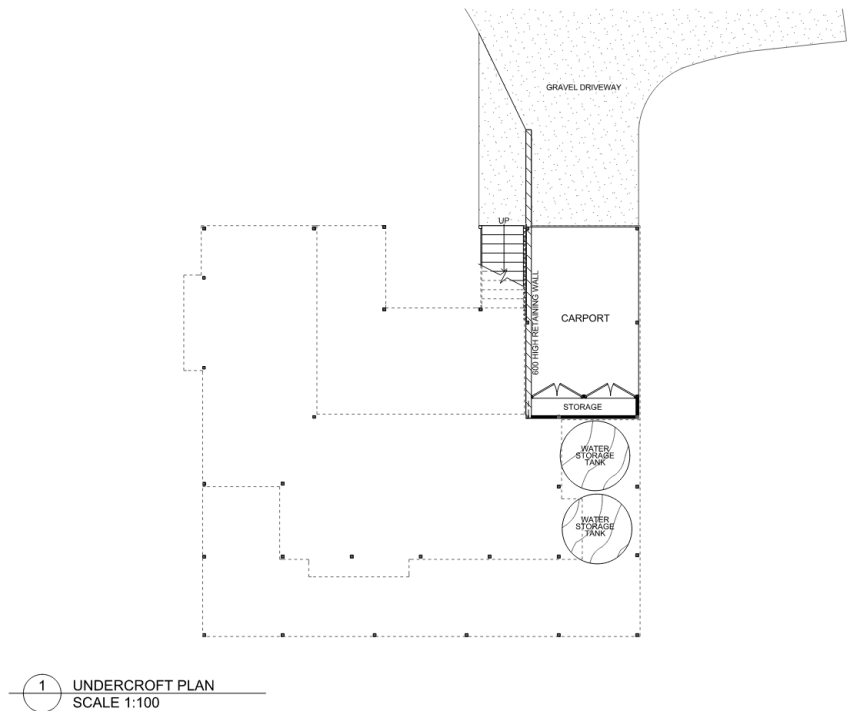
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Drawing
DEVELOPMENT APPLICATION - UNDERCROFT PLAN

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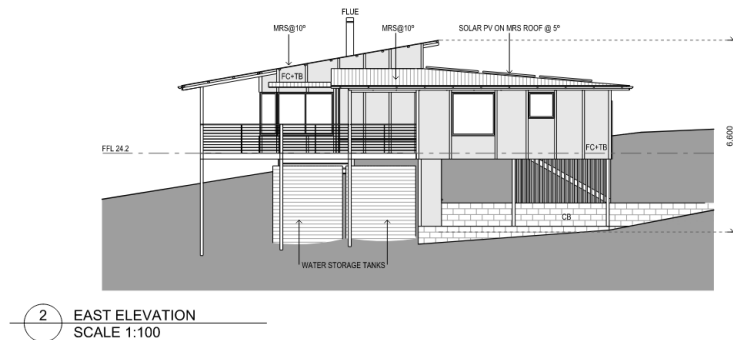
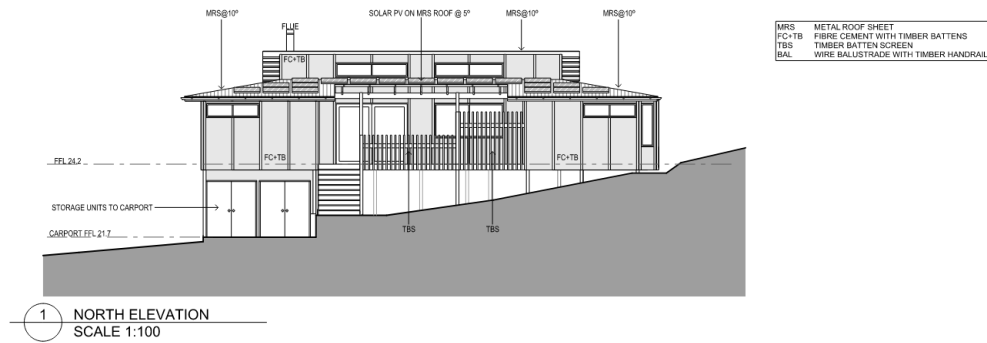
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Bushfire Hazard Assessment Report

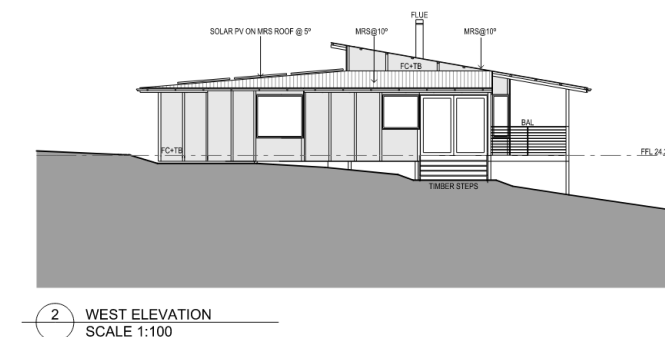
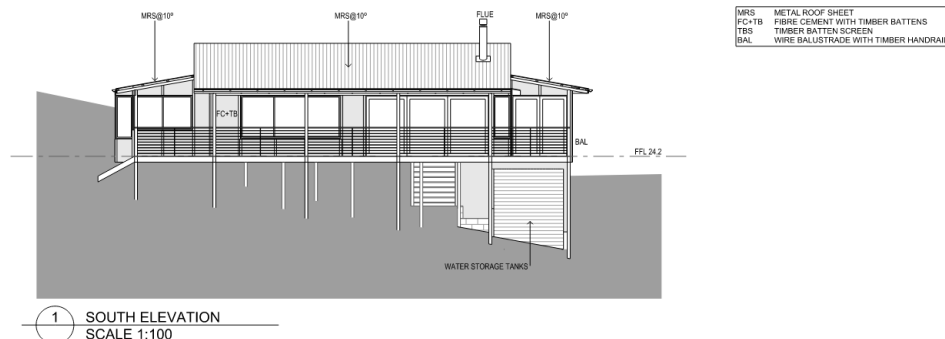
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Project
NEW DWELLING - 16 CLOVER COURT, CARLTON, FOR CAITLIN MOFFATT
Drawing
DEVELOPMENT APPLICATION - ELEVATIONS

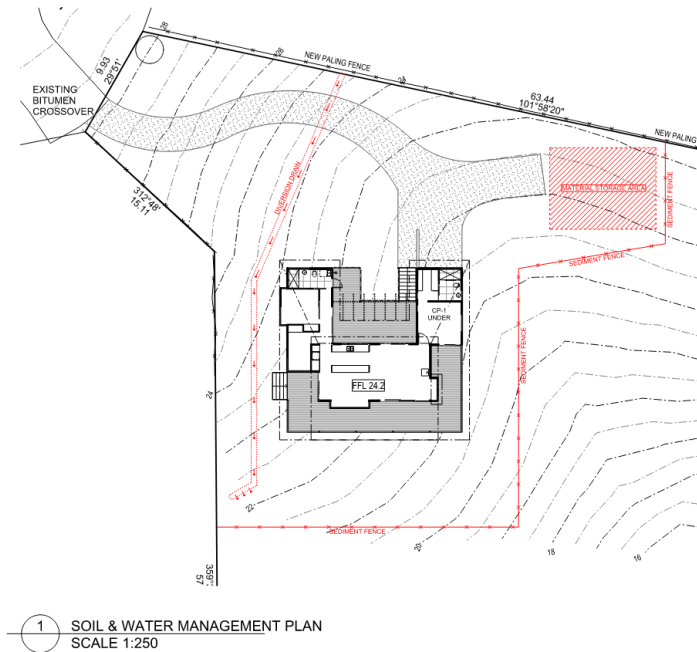
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Drawing
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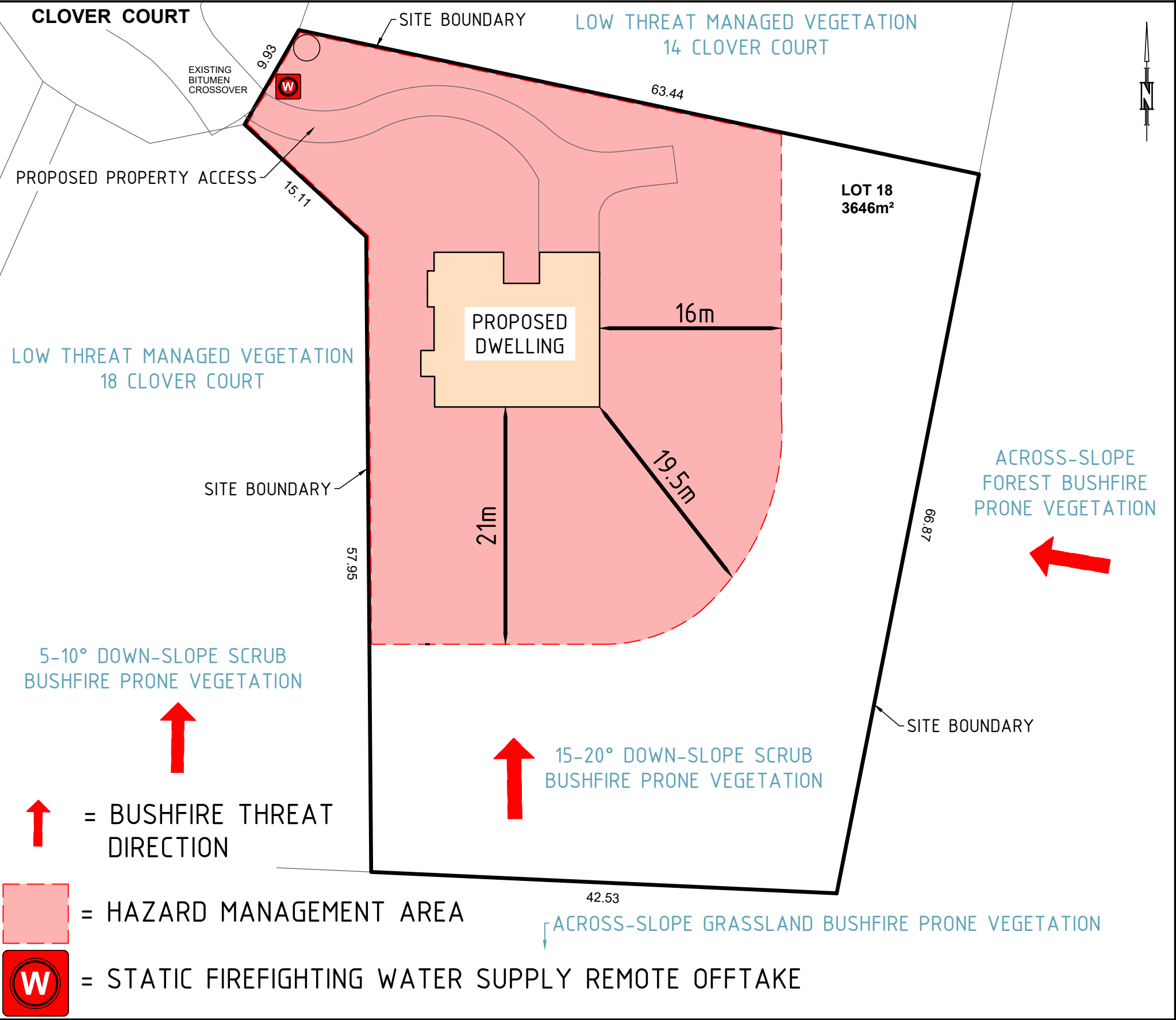


1 SOIL & WATER MANAGEMENT PLAN
SCALE 1:250

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Appendix C – Bushfire Hazard Management Plan

See attached



VEGETATION:
IN ACCORDANCE WITH TABLE 2.6 IN AS3959, 2018.
FROM THE PROPOSED DWELLING, SEPARATION DISTANCES ARE REQUIRED TO CREATE A HAZARD MANAGEMENT AREA (HMA) WITH DIMENSIONS OF:

- TO THE PROPERTY BOUNDARY ON THE WESTERN AND NORTHERN ASPECTS;
- A MINIMUM 16m ON THE EASTERN ASPECT;
- A MINIMUM 21m ON THE SOUTHERN ASPECT.

TO SATISFY HMA VEGETATION REQUIREMENTS, GRASS MUST BE REGULARLY MOWN TO A NOMINAL 100mm OR LESS HEIGHT AS PER AS3959 2018 CLAUSE 2.2.3.2(F). HMA TO BE MAINTAINED IN LINE WITH BELOW AS A GUIDE IN CONJUNCTION WITH TFS BUILDING FOR BUSHFIRE BOOKLET (2020).

GENERAL VEGETATION MANAGEMENT INFORMATION:
NEW VEGETATION MAY BE PLANTED AND EXISTING VEGETATION MAY BE RETAINED WITHIN THE HMA BUT MUST SATISFY LOW THREAT CONDITIONS IN ACCORDANCE WITH AS3959 2018 CLAUSE 2.2.3.2(D)(E)(F). NOTE: DWELLING REFERS TO ANY CLASS 1A BUILDING AND/OR CLASS 10A BUILDING WITHIN 6m OF A CLASS 1A BUILDING. AS A GENERAL RULE/GUIDE:
VEGETATION 0.1-1m IN HEIGHT MAY BE PLANTED WITH SPACING BETWEEN FOLIAGE OF AT LEAST 1.5m AND NOT BE CLOSER THAN 2m FROM ANY DWELLING. SHRUBS 1-2m IN HEIGHT CAN BE PLANTED EITHER INDIVIDUALLY OR IN SINGLE ROWS BUT MUST BE SPACED WITH A MINIMUM 6m BETWEEN FOLIAGE AND SHOULD NOT BE WITHIN 6m OF A DWELLING.
LARGE PLANTS 4m OR MORE IN HEIGHT CAN BE PLANTED AND SHOULD HAVE LOW AND MID-LEVEL GROWTH UP TO 2m IN HEIGHT TO BE TRIMMED AND MAINTAINED OVER TIME. SPACING BETWEEN CROWNS IS TO BE A MINIMUM OF 25m. VEGETATION 2m OR MORE IN HEIGHT SHOULD NOT BE PLANTED WITHIN 12m OF A DWELLING.
ALL VEGETATION 1-2m IN HEIGHT SHOULD BE SPACED FROM LARGE VEGETATION (>4m) AT LEAST 8m FROM TREE CROWN (MEASURED VERTICALLY) AND VEGETATION 2-4m IN HEIGHT SHOULD BE AT LEAST 10m FROM TREE CROWNS. PLANT DEBRIS SHOULD BE REGULARLY CLEARED/REMOVED AND FIREWOOD BE STORED APPROPRIATELY EITHER UNDERCOVER, PROTECTED FROM POSSIBLE EMBER ATTACK OR STACKED MORE THAN 6m FROM DWELLING. HIGHLY RECOMMENDED THE HMA IS DESIGNED AND MAINTAINED IN LINE WITH ADVICE FROM THE TFS BUILDING FOR BUSHFIRE BOOKLET (JUNE 2020).

PROPERTY ACCESS:
PROPERTY ACCESS WILL NOT PROVIDE ACCESS TO A FIREFIGHTING WATER SUPPLY AND DEEMED TO COMPLY WITH TABLE 2(A) OF DIRECTOR'S DETERMINATION - BUSHFIRE HAZARD AREAS VERSION 1.2 2024.

WATER SUPPLY:
ENTIRE PROPOSAL MUST BE WITHIN A 90m HOSE LAY FROM A STATIC FIREFIGHTING WATER SUPPLY IN ACCORDANCE WITH TABLE 3B OF DIRECTOR'S DETERMINATION - BUSHFIRE HAZARD AREAS VERSION 1.2 2024. A REMOTE OFFTAKE IS PROPOSED AS SHOWN.

RECOMMENDATIONS:
MINIMUM SEPARATION DISTANCES TO BE MAINTAINED AS LOW THREAT AND IN ACCORDANCE WITH CLAUSE 2.2.3.2 OF AS3959 2018, BHMP AND BHMP REPORT. THE HMA CREATED BY THESE SETBACKS WILL ALLOW A BAL-29 COMPLIANT BUILDING SOLUTION FOR ALL ASPECTS OF THE PROPOSED DWELLING AND DECKS.

WE RECOMMEND ANY LANDSCAPING USE PLANTS OF LOW FLAMMABILITY RATINGS AS LISTED IN THE TASMANIA FIRE SERVICE BOOKLET FIRE RESISTING GARDEN PLANTS FOR THE URBAN FRINGE AND RURAL AREAS, 2017. EXAMPLE OF A LOW THREAT MANAGED GARDEN/HMA IN THE TFS BUILDING FOR BUSHFIRE BOOKLET (JUNE 2020) AT WWW.FIRE.TAS.GOV.AU

CONSTRUCTION REQUIREMENTS FOR THE PROPOSED DWELLING AND DECKS MUST COMPLY WITH CONSTRUCTION STANDARDS AS DETAILED BY AS3959, 2018 SECTIONS 3 AND 7, SPECIFICALLY CLAUSES 7.2 TO 7.8 FOR BAL-29.

BUSHFIRE HAZARD MANAGEMENT PLAN					
SCALE 1:350					
 21 Dysart Street Clifton Beach 0438 559 371 sam@bushfiretasmania.com.au		CLIENT: CAITLIN MOFFATT	SHEET: BUSHFIRE HAZARD MANAGEMENT PLAN	DRAWN: SW	
		ADDRESS: 16 CLOVER COURT	PROJECT: PROPOSED CLASS 1a DWELLING	SCALE: 1:350	SIZE: A3
		CARLTON	ISSUE: BUILDING APPROVAL	DATE: 12/09/2025	DATE: 12/09/2025
				PROJECT No. B25-1	SHEET No. A
A BUILDING APPROVAL		12/09/2025			
REV.	DESCRIPTION	DATE			

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Owner /Agent
 Address
 Suburb/postcode

Qualified person details:

Qualified person:
Address: Phone No:
 Fax No:
Licence No: Email address:
Qualifications and Insurance details: (description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)
Speciality area of expertise: (description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: Lot No:
 Certificate of title No:
The assessable item related to this certificate: (description of the assessable item being certified)
Assessable item includes –

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

Certificate details:

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

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

☒ building work, plumbing work or plumbing installation or demolition work

OR

☐ a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Assessment Report for 16 Clover Court, Carlton dated September 2025 Rev 1, Report code B25-1 and Bushfire Hazard Management Plan for 16 Clover Court, Carlton dated 12/09/2025 Rev A
Relevant calculations:	
References:	Australian Standard 3959, 2018 Director's Determination - Bushfire Hazard Areas Version 1.2 2024 National Construction Code 2022

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

Bushfire Hazard Assessment report that includes bushfire attack level assessment to AS3959 2018 and Director's Determination - Bushfire Hazard Areas Version 1.2 2024.

Conclusion: Proposed dwelling can achieve a BAL-29 compliant building solution on all aspects with the creation and management of a HMA with separation distances to the property boundary on the northern and western aspects as well as a minimum 16m on the eastern aspect and 21m on the southern aspect.

Property access to a firefighting water supply point is <30m and deemed to comply with Table 2(A) of the Directors Determination.

Entire proposal must be provided with a static firefighting water supply point that complies with Table 3B of the Directors Determination. In this case it is proposed a remote offtake will be installed on the side of the property access immediately inside the roadside boundary, refer to BHMP for indicative location.

Scope and/or Limitations

Scope: to provide assessment of potential hazard relating to bushfire and classifying of bushfire prone vegetation in relation to the site. All recommendations and conclusions in this report are in accordance with, and subject to compliance with AS 3959-2018, Directors Determination – Bushfire Hazard Areas Version 1.2 2024, NCC 2022 and the Building Code of Australia.

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

I certify the matters described in this certificate.

Qualified person:

Signed:



Certificate No:

B25-1 001

Date:

23.09.2025

GEO-ENVIRONMENTAL ASSESSMENT

16 Clover Court

Carlton

September 2025



Sorell Council

Development Application: 5.2025.260.1 -
Development Application 16 Clover Court,
Carlton - P1.pdf
Plans Reference:P1
Date Received:24/09/2025



GEO-ENVIRONMENTAL
SOLUTIONS

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

Investigation Details

Client:	Caitlin Moffatt
Site Address:	16 Clover Court, Carlton
Date of Inspection:	04/08/2025
Proposed Works:	New house
Investigation Method:	Geoprobe 540UD - Direct Push
Inspected by:	C. Cooper

Site Details

Certificate of Title (CT):	175511/18
Title Area:	Approx. 3646 m ²
Applicable Planning Overlays:	Bushfire-prone areas, Landslip Hazard, Airport obstacle limitation area, Waterway and Coastal Protection Areas, Southern Beaches On-site Waste Water and Stormwater Management Specific Area Plan, Priority vegetation area, Flood Prone Areas
Slope & Aspect:	9° S facing slope
Vegetation:	Grass & Weeds
Ground Surface:	Undisturbed

Background Information

Geology Map:	MRT 1:250000
Geological Unit:	Quaternary Sediments & Triassic Sandstone
Climate:	Annual rainfall 500mm
Water Connection:	Tank
Sewer Connection:	Unserviced-On-site required
Testing and Classification:	AS2870:2011, AS1726:2017 & AS1547:2012

Investigation

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

Soil Profile Summary

TH 1 Depth (m)	TH 2 Depth (m)	TH 3 Depth (m)	USCS	Description
0.00-0.90	0.00-1.00	0.00-1.00	SP	Silty SAND: Pale brown-grey, slightly moist, medium dense.
0.90-1.80	1.00-2.40	1.00-2.00	SP	Silty SAND: Brown, slightly moist, dense (TH3 no refusal).
1.80-2.10	2.40-2.50		SC	Clayey SAND: Orange-brown, slightly moist, very dense to refusal on weathering sandstone.

Site Notes

The soils encountered on site were generally consistent throughout bore holes drilled, which were deep sand deposits overlying clayey sand developing from weathering Triassic Sandstone.

Site Classification

The site has been assessed and classified in accordance with AS2870:2011 “*Residential Slabs and Footings*”.

The site has been classified as:

Class A

Y^s range: 0mm

Notes: The site has been classified as Class A, which is an unreactive sand site and isn’t expected to exhibit any ground surface movement due to moisture fluctuations. Design and construction should be made in accordance with this classification.

Wind Loading Classification

According to “AS4055:2021 - Wind Loads for Housing” the house site is classified below:

Wind Classification:	N3
Region:	A
Terrain Category:	2.0
Shielding Classification:	PS
Topographic Classification:	T1
Wind Classification:	N3
Design Wind Gust Speed – m/s ($V_{h,u}$):	50

Wastewater Classification & Recommendations

According to AS1547-2012 (on-site waste-water management) the natural soil is classified as **Sand (category 1)**. The site is unsuited to the installation of a traditional septic tank and trenches due to separation to surface water. Secondary treatment of effluent will be required, and it is proposed to install an in ground absorption bed with Eljen sand filter modules to provide secondary treatment of effluent. A Design Loading Rate (DLR) of 40L/m²/day has been assigned for this site.

The proposed two-bedroom dwelling has a calculated maximum wastewater output of 480L/day. This is based on a tank water supply and a maximum occupancy of 4 people (120L/day/person).

All fixtures will need to connect to a dual-purpose septic tank (min 3000L) with outlet filter. A treatment area of at least 16m² will be required. This can be accommodated by a raised absorption bed with overall dimensions of 8m x 2m x 0.6m containing 1 row of 6 eljen modules.

Due to the highly permeable topsoils a cut-off drain will not be required. A 100% reserve area should be set aside for future wastewater requirements.

To comply with the Southern Beaches On-site Waste Water and Stormwater Management Specific Area Plan of the Sorell Local Provisions Schedule:

SOR-S2.7.1 On-site waste water

Acceptable Solutions	Comment
A1 Development must: (a) not cover more than 20% of the site; (b) not be located on land shown on an overlay map, as within: (i) a flood-prone hazard area; (ii) a landslip hazard area; (iii) a coastal erosion hazard area; (iv) a waterway and coastal protection area; or (v) a coastal inundation hazard area; (c) be located on a site with a soil depth of at least 1.5m; (d) be located on a site where the average gradient of the land does not exceed 10%; and (e) in the case of a dwelling, provide 65m² of land for wastewater land application area per bedroom which is located at least 1.5m from an upslope or side slope boundary and 5m from a downslope boundary.	Non-compliance with A1 (e &d) See P1

Performance Criteria	Comment
P1 The site must provide sufficient area for management of on-site waste water, having regard to: (a) the topography of the site; (b) the capacity of the site to absorb wastewater; (c) the size and shape of the site; (d) the existing buildings and any constraints imposed by existing development; (e) the area of the site to be covered by the proposed development; (f) the provision for landscaping, vehicle parking, driveways and private open space; (g) any adverse impacts on the quality of ground, surface and coastal waters; (h) any adverse environmental impact on surrounding properties and the locality; and (i) any written advice from a suitably qualified person (onsite waste water management) about the adequacy of the on-site waste water management system.	Complies

A. Design provisions have been made to address site constraints and manage risk including the use of secondary treatment and subsurface application, assigning a conservative DLR and the designation of a 100% reserve area. It is therefore concluded that there is a low and acceptable risk of environmental impact and impact on human health from wastewater management on the site for the current proposal.

The following setback distances are required to comply with the Building Act 2016:

Upslope or level buildings:	3m
Downslope buildings:	4.25m
Upslope or level boundaries:	1.5m
Downslope boundaries:	10.5m
Downslope surface water:	33m

Compliance with Building Act 2016 Guidelines for On-site Wastewater Management Systems is outlined in the attached table.

During construction GES will need to be notified of any variation to the soil conditions or wastewater loading as outlined in this report.



Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD
Director

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Assessment Report

Site assessment for on-site waste water disposal

Assessment for	Caitlin Moffatt	Assess. Date	1-Sep-25
		Ref. No.	
Assessed site(s)	16 Clover Court, Carlton	Site(s) inspected	4-Aug-25
Local authority	Sorell	Assessed by	John Paul Cumming

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and system sizing and design issues. Site Capability and Environmental sensitivity issues are reported separately, where 'Alert' columns flag factors with high (A) or very high (AA) limitations which probably require special consideration for system design(s). Blank spaces on this page indicate data have not been entered into TRENCH.

Wastewater Characteristics

Wastewater volume (L/day) used for this assessment = 480 (using the 'No. of bedrooms in a dwelling' method)
 Septic tank wastewater volume (L/day) = 160
 Sullage volume (L/day) = 320
 Total nitrogen (kg/year) generated by wastewater = 1.5
 Total phosphorus (kg/year) generated by wastewater = 1.0

Climatic assumptions for site

(Evapotranspiration calculated using the crop factor method)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	41	36	36	45	36	29	46	47	40	48	44	56
Adopted rainfall (R, mm)	41	36	36	45	36	29	46	47	40	48	44	56
Retained rain (Rr, mm)	33	29	29	36	29	23	37	38	32	38	35	45
Max. daily temp. (deg. C)												
Evapotrans (ET, mm)	130	110	91	63	42	29	32	42	63	84	105	126
Evapotr. less rain (mm)	97	81	62	27	13	6	-5	4	31	46	70	81

Annual evapotranspiration less retained rain (mm) = 514

Soil characteristics

Texture = Sand Category = 1 Thick. (m) = 2
 Adopted permeability (m/day) = 3 Adopted LTAR (L/sq m/day) = 40 Min depth (m) to water = 3

Proposed disposal and treatment methods

Proportion of wastewater to be retained on site: All wastewater will be disposed of on the site
 The preferred method of on-site primary treatment: In a package treatment plant
 The preferred method of on-site secondary treatment: In-ground
 The preferred type of in-ground secondary treatment: Evapotranspiration bed(s)
 The preferred type of above-ground secondary treatment: None
 Site modifications or specific designs: Not needed

Suggested dimensions for on-site secondary treatment system

Total length (m) = 8
 Width (m) = 2
 Depth (m) = 0.6
 Total disposal area (sq m) required = 16
 comprising a Primary Area (sq m) of: 16
 and a Secondary (backup) Area (sq m) of:

Sufficient area is available on site

Comments

The calculated DLR for the Category 1 soil present is 40L/m²/day therefore a 16 square meter absorption bed have the capacity to cope with predicted climatic and loading events.

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Site Capability Report

Site assessment for on-site waste water disposal

Assessment for Caitlin Moffatt

Assess. Date

1-Sep-25

Ref. No.

Assessed site(s) 16 Clover Court, Carlton

Site(s) inspected

4-Aug-25

Local authority Sorell

Assessed by John Paul Cumming

This report summarises data relating to the physical capability of the assessed site(s) to accept wastewater. Environmental sensitivity and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) site limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation		Remarks
					Trench	Amended	
AA	Expected design area	sq m	500	V. high	High	Moderate	Other factors lessen impact
	Density of disposal systems	/sq km	20	Mod.	Moderate		
	Slope angle	degrees	9	High	Moderate		
	Slope form	Straight simple		High	Low		
	Surface drainage	Good		High	Very low		
	Flood potential	Site floods <1:100 yrs		High	Very low		
	Heavy rain events	Infrequent		High	Moderate		
	Aspect (Southern hemi.)	Faces S		V. high	Very high		
	Frequency of strong winds	Common		High	Low		
	Wastewater volume	L/day	480	High	Low	Moderate	
	SAR of septic tank effluent		1.7	High	Low		
	SAR of sullage		2.6	High	Moderate		
	Soil thickness	m	2.0	V. high	Very low		
	Depth to bedrock	m	2.0	V. high	Low		
	Surface rock outcrop	%	0	V. high	Very low		
	Cobbles in soil	%	0	V. high	Very low		
	Soil pH		5.5	High	Low		
	Soil bulk density	gm/cub. cm	1.4	High	Very low		
	Soil dispersion	Emerson No.	8	V. high	Very low		
	Adopted permeability	m/day	3	Mod.	Very high	Moderate	Other factors lessen impact
	Long Term Accept. Rate	L/day/sq m	40	High	Very high	Moderate	Other factors lessen impact

Comments

The site has the capability to accept onsite wastewater.

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Environmental Sensitivity Report

Site assessment for on-site waste water disposal

Assessment for Caitlin Moffatt

Assess. Date

1-Sep-25

Ref. No.

Assessed site(s) 16 Clover Court, Carlton

Site(s) inspected

4-Aug-25

Local authority Sorell

Assessed by John Paul Cumming

This report summarises data relating to the environmental sensitivity of the assessed site(s) in relation to applied wastewater. Physical capability and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation		Remarks
					Trench	Amended	
A	Cation exchange capacity	mmol/100g	30	High	High		
A	Phos. adsorp. capacity	kg/cub m	0.3	High	High		
	Annual rainfall excess	mm	-514	High	Very low		
	Min. depth to water table	m	3	High	Very low		
	Annual nutrient load	kg	2.5	High	Very low		
	G'water environ. value	Agric non-sensit		V. high	Low		
	Min. separation dist. required	m	3	High	Very low		
	Risk to adjacent bores	Very low		V. high	Very low		
	Surf. water env. value	Agric non-sensit		V. high	Low		
A	Dist. to nearest surface water	m	55	V. high	High		
	Dist. to nearest other feature	m	34	V. high	Moderate	No change	
	Risk of slope instability	Very low		V. high	Very low		
AA	Distance to landslip	m	2	V. high	Very high		

Comments: Secondary treatment of wastewater lessens risk of environmental harm on surface water. There is therefore low risk of environmental harm associated with onsite wastewater disposal at this site.

APPENDIX 2 - PSP Results Table

Perth Sand Penetrometer (PSP) Conversion to Californian Bearing Ratio
(ref: Australian Standard AS 1289.6.3.3 - 1997)

PSP Location BH1

Depth (mm)	PSP	PSP	PSP Resistance	Allowable Bearing Capacity	CBR (Rounded Up)
	(Blows/100mm)	(mm/Blow)	(mPa)	(kPa)	
0-100	1	100.0	0.3	37	2
100-200	2	50.0	0.6	74	4
200-300	3	33.3	0.9	110	6
300-400	2	50.0	0.6	74	4
400-500	2	50.0	0.6	74	4
500-600	3	33.3	0.9	110	6
600-700	2	50.0	0.6	74	4
700-800	3	33.3	0.9	110	6
800-900	5	20.0	1.6	184	10
900-1000	5	20.0	1.6	184	10
1000-1100	9	11.1	2.8	331	20
1100-1200	13	7.7	4.1	478	30
1200-1300	15	6.7	4.7	551	35
1300-1400	20	5.0	6.3	735	48
1400-1500	20	5.0	6.3	735	48

Demonstration of wastewater system compliance to *Building Act 2016 Guidelines for On-site Wastewater*

Acceptable Solutions	Performance Criteria	Compliance
A1 Horizontal separation distance from a building to a land application area must comply with one of the following: a) be no less than 6m; or b) be no less than: (i) 3m from an upslope building or level building; (ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building; (iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building.	P1 a) The land application area is located so that (i) the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.; and (ii) is setback a sufficient distance from a downslope excavation around or under a building to prevent inadequately treated wastewater seeping out of that excavation	Land application area will be located with a minimum separation distance of 3m off an upslope or level building. Land application area will be located with a minimum separation distance of 4.25m off a downslope building.
A2 Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b) (a) be no less than 100m; or (b) be no less than the following: (i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or (ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water.	P2 Horizontal separation distance from downslope surface water to a land application area must comply with all of the following: a) Setbacks must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A2 (a) Land application area located with a minimum separation of 33m from downslope surface water

A3 Horizontal separation distance from a property boundary to a land application area must comply with either of the following: (a) be no less than 40m from a property boundary; or (b) be no less than: (i) 1.5m from an upslope or level property boundary; and (ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or (iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.	P3 Horizontal separation distance from a property boundary to a land application area must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A3 (b) (i) Land application area will be located with a minimum separation distance of 1.5m from an upslope or level property boundary Complies with A3 (b) (iii) Land application area will be located with a minimum separation distance of 10.5m of downslope property boundary.
A4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient.	P4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable	Complies with A4 No bore or well identified within 50m

A5 Vertical separation distance between groundwater and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.6m if secondary treated effluent	P5 Vertical separation distance between groundwater and a land application area must comply with the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable	Complies with A5 (b) No groundwater encountered
A6 Vertical separation distance between a limiting layer and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.5m if secondary treated effluent	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R.	Complies with A5 (b)
A7 nil	P7 A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties	Complies

AS1547:2012 – Loading Certificate

Sand Filter Design

This loading certificate sets out the design criteria and the limitations associated with use of the system.

Site Address: 16 Clover Court, Carlton

System Capacity: 4 persons @ 120L/person/day

Summary of Design Criteria

DLR: 40mm/day.

Absorption area: 16m²

Reserve area location /use: Assigned

Water saving features fitted: Standard fixtures

Allowable variation from design flows: 1 event @ 200% daily loading per quarter

Typical loading change consequences: Expected to be minimal due to secondary treated effluent and high permeability of soil.

Overloading consequences: Continued overloading may cause hydraulic failure of the absorption area and require upgrading/extension of the area. Risk considered acceptable due to visible signs of overloading and owner monitoring.

Underloading consequences: Lower than expected flows will have minimal consequences on system operation unless the house has long periods of non occupation. Under such circumstances additional maintenance of the system may be required. Long term under loading of the system may also result in vegetation die off in the irrigation areas and additional watering may be required. Risk considered acceptable due to owner monitoring.

Lack of maintenance / monitoring consequences: Issues of underloading/overloading and condition of the absorption area require monitoring and maintenance, if not completed system failure may result in unacceptable health and environmental risks. Monitoring and regulation by the property owner required to ensure compliance.

Other considerations: Owners/occupiers must be aware of the operational requirements and limitations of the system, including the following; the absorption area must not be subject to traffic by vehicles or heavy stock and should be fenced if required. The absorption area must be kept with adequate grass cover to assist in evapotranspiration of treated effluent in the absorption trenches. The grease trap and filtration tank must also be cleaned regularly (approx. every 6 months depending upon usage). Foreign materials such as rubbish and solid waste must be kept out of the system.

Other considerations: Owners/occupiers must be made aware of the operational requirements and limitations of the system by the installer/maintenance contractor.

Date:	1-Sep-25	Client Name:	Caitlin Moffatt	
Site Address:	16 Clover Court Carlton		Council Area:	Sorell
Designer:	Vinamra Gupta	Designer Phone Number:	62231830	Is this new construction Y or N:
Plumber:	Cameron Ward	Plumber Phone Number:	407782308	Plumber License Number:
				1110675

Note: This design program is a guide only. All design constraints and limitations must be addressed by the designer prior to design and installation.

System Design Information		Design Notes and Comments
Design Occupancy (Number of persons):	4	 2/9/2025
Daily Design Flow (L/Person/Day):	120	
Total Daily Design Flow (L/Day):	480	
Trench or Bed	Bed	
Soil Category <i>(Note: Soil Categories 4-6 May Require additional design consideration. Please reference AS/1547 2012 when designing in these soil types.)</i>	1 - Gravels and Sands	
Site Design Loading Rate (L/mm/day):	30	
System Area Slope (%):	16%	
System Area Slope (converted from % slope to degrees slope):	9.09	
System Basal Area Bore Log Depth: <i>(Note: Must be greater than 600 mm)</i>	600	
Maximum System Length Based on Site Constraints:	20	
Desired Rows or Trenches in System	1	
Distribution Type (G = Gravity - P = Pump to Gravity - LPD = Low Pressure Distribution):	G	
System Dimensions		
Would you like to use a specific width?		
Specific Width (m)		
	Treatment Zone	Dispersal Zone Extension
Length (m)	7.62	
Width (m)	2.10	
Sand Height (m)	0.15	
Sand Area (m ²)	16.00	
System Capacity		
Total Daily Design Flow (L/Day):	480	
Minimum Number of A42 Units Required	6	
Units per Row	6	
Length of Rows with 0.15 m Sand Extension	7.62	
End to End Space Between Modules (TRENCH ONLY)		
Materials		
Minimum Number of A42 Units Required	6	
The system requires a high vent. Are using 50mm or 100mm pipe?		
Low vent	1 x 100mm vent	
Effluent Filter	1	
Inspection Ports	2	
Pipe Required (m)	7.62	
Estimate of System Sand Required (tonnes)	11.01	

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

To: Owner name
 Address
 Suburb/postcode

Form **35**

Designer details:

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

Details of the proposed work:

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

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

Description of work:

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

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

Certificate Type:	Certificate	Responsible Practitioner
	☐ Building design	Architect or Building Designer
	☐ Structural design	Engineer or Civil Designer
	☐ Fire Safety design	Fire Engineer
	☒ Civil design	Civil Engineer or Civil Designer
	☐ Hydraulic design	Building Services Designer
	☐ Fire service design	Building Services Designer
	☐ Electrical design	Building Services Designer
	☐ Mechanical design	Building Service Designer
	☐ Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	☐ Other (specify)	

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

Other details:

septic tank and geotextile sand filter absorption bed

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Geo-Environmental Solutions	Date: Sep-25
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Geo-Environmental Solutions	Date: Sep-25
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by: Geo-Environmental Solutions	Date: Sep-25
Test reports:	Prepared by: Geo-Environmental Solutions	Date: Sep-25

Standards, codes or guidelines relied on in design process:

AS1547:2012 On-site domestic wastewater management.

AS3500 (Parts 0-5)-2013 Plumbing and drainage set.

Any other relevant documentation:

Geo-Environmental Assessment - 16 Clover Court Carlton - Sep-25

Attribution as designer:

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

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

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

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Vinamra Gupta		03/09/2025
Licence No:	685982720		

Assessment of Certifiable Works: (TasWater)

Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.

If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.

TasWater must then be contacted to determine if the proposed works are Certifiable Works.

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

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

Certification:

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

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

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Vinamra Gupta		03/09/2025

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Owner /Agent
 Address
 Suburb/postcode

Qualified person details:

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

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

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

Details of work:

Address: Lot No:
 Certificate of title No:
The assessable item related to this certificate: (description of the assessable item being certified)
Assessable item includes –
- a material;
- a design
- a form of construction
- a document
- testing of a component, building system or plumbing system
- an inspection, or assessment, performed

Certificate details:

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

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

building work, plumbing work or plumbing installation or demolition work ☒
or

a building, temporary structure or plumbing installation: ☐

In issuing this certificate the following matters are relevant –

Documents:	The attached soil report for the address detailed above in 'details of work'
Relevant calculations:	Reference the above report.
References:	AS2870:2011 residential slabs and footings AS1726:2017 Geotechnical site investigations CSIRO Building technology file – 18.

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

Site Classification consistent with AS2870-2011.

Scope and/or Limitations

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

I, John-Paul Cumming certify the matters described in this certificate.

Qualified person:

Signed:

Certificate No:

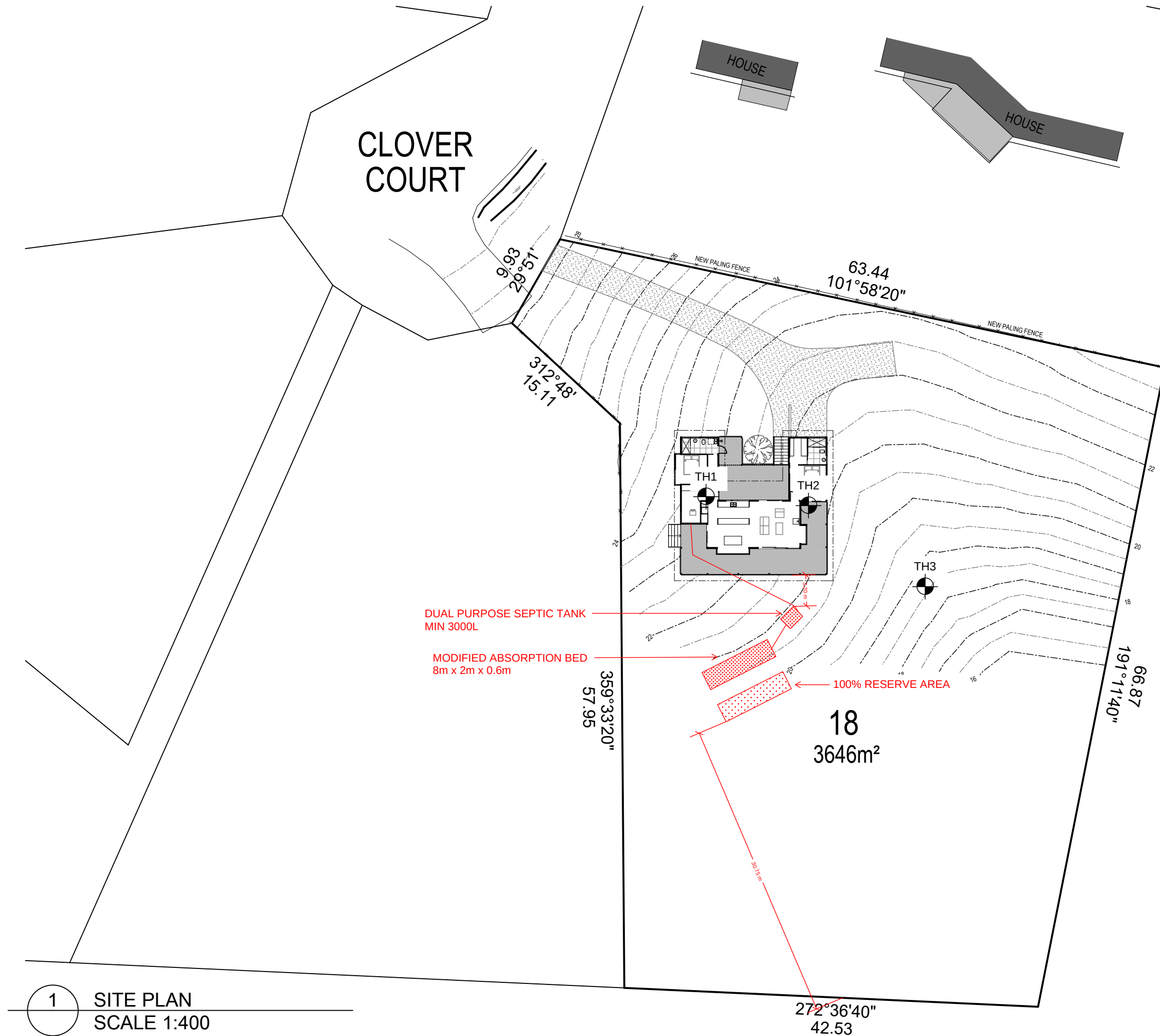
Date:

J11978

03/09/2025



A handwritten signature in black ink, appearing to be "John Paul Cumming", written over a light grey circular background.



Wastewater system:

Dual-purpose septic tank (min 3000L)

Modified absorption bed with Eljen
geo-textile sand filter - 16m²
eg. 8m x 2m x 0.6m

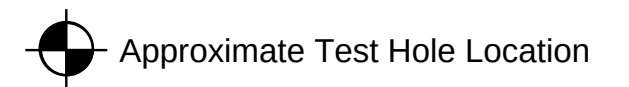
Min 3m from upslope buildings
Min 4.25m from downslope buildings
Min 1.5m from upslope or level boundaries
Min 10.5m from downslope boundaries
Min 33m from downslope surface water

Refer to GES report

GES
GEO-ENVIRONMENTAL
SOLUTIONS
29 Kirkcubray Place Battery Point
TJ 62231839 E| office@geosolutions.net.au

Dr. John Paul Cumming
Building Services Designer-
Hydraulic
CCC774A

3/09/2025



1 SITE PLAN
SCALE 1:400

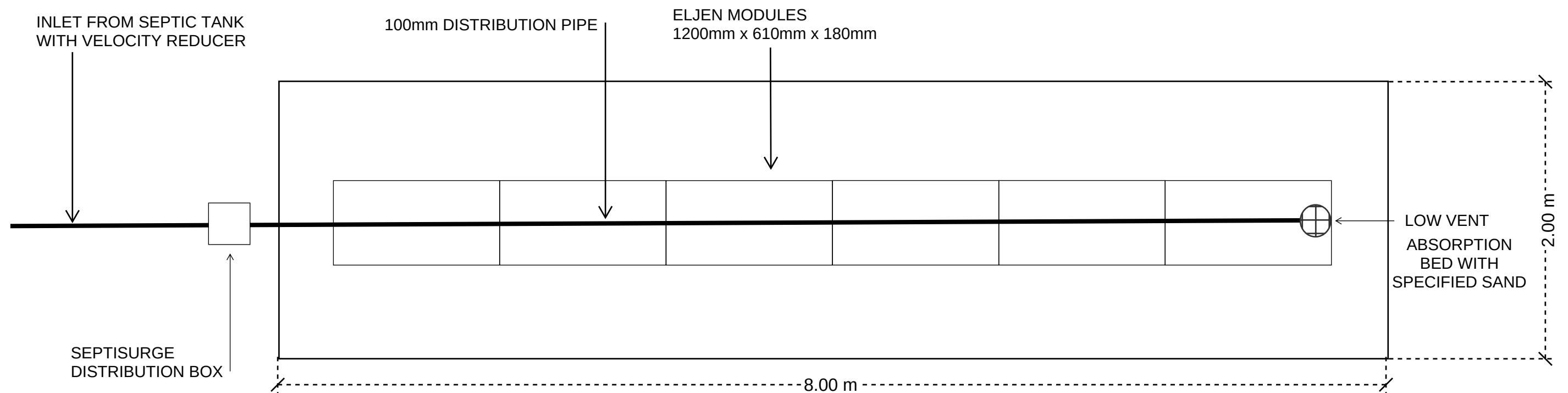




GEO-ENVIRONMENTAL

S O L U T I O N S

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



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

Eljen Bed Plan - 16m²
1 row of 6 units
8m x 2m

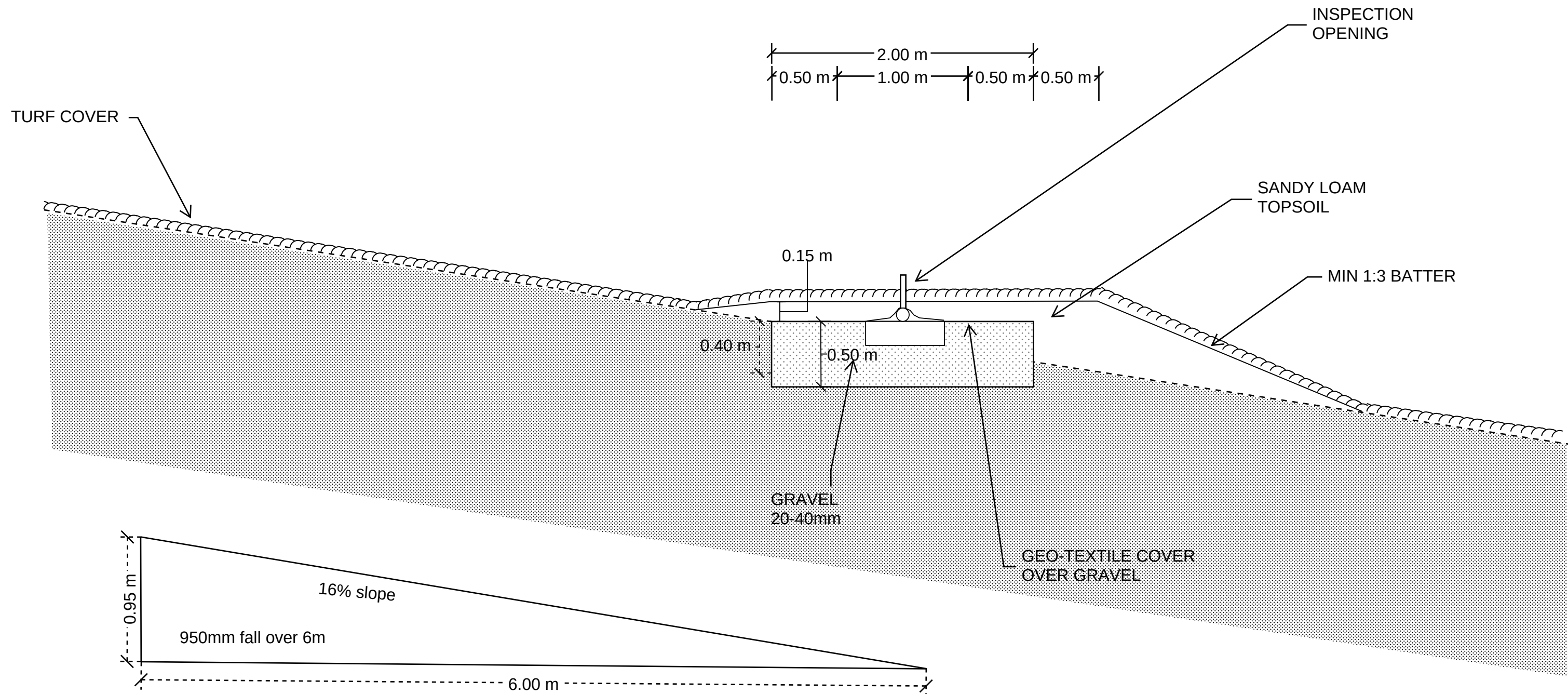


GEO-ENVIRONMENTAL

SOLUTIONS

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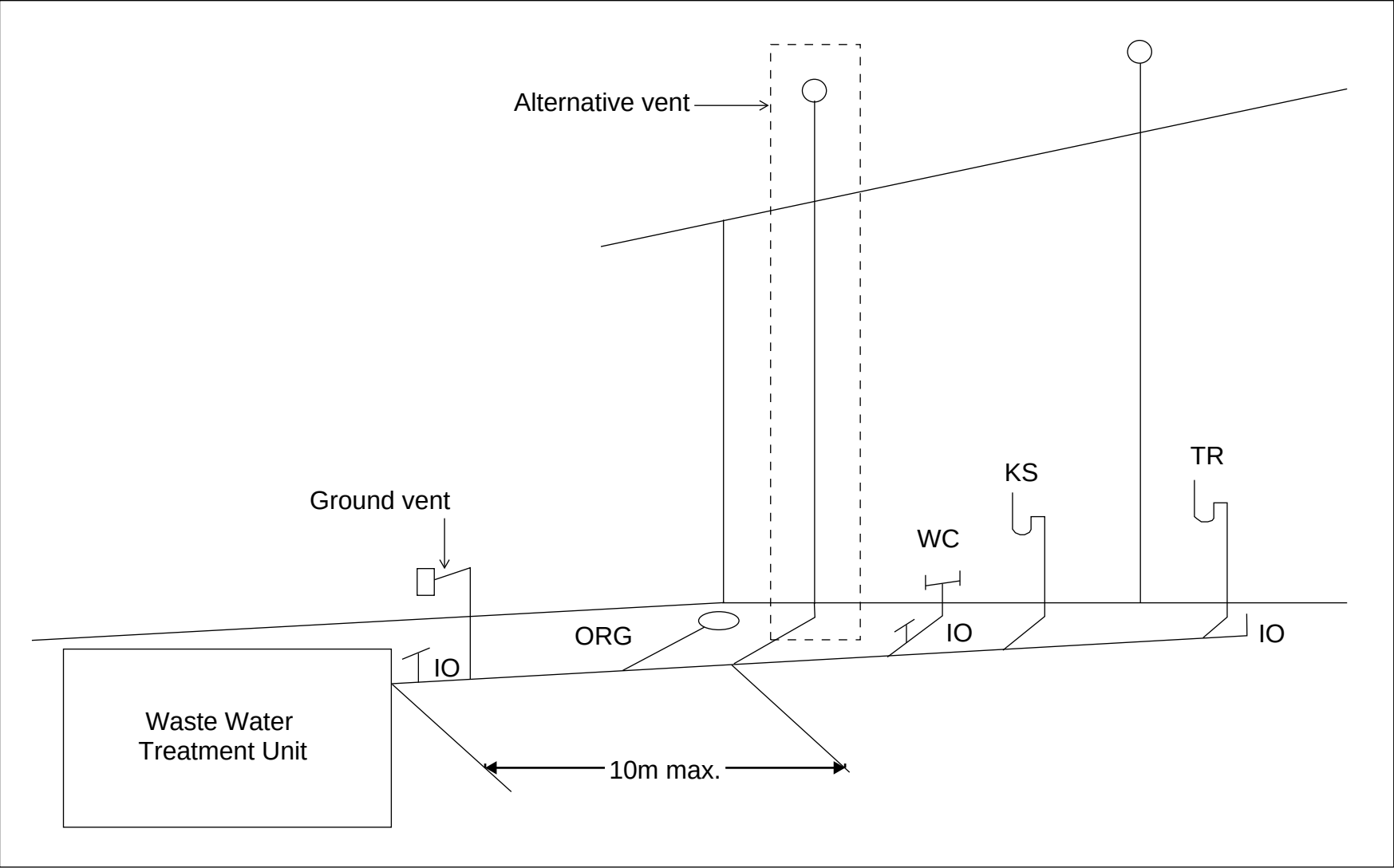
Note: min 0.5m required between end of
absorption bed and batter



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

On-site Wastewater Cross-Section

Sheet 1 of 1



Tas Figure C2D6 Alternative Venting Arrangements

Vents must terminate in accordance with AS/NZS 3500.2

Alternative venting to be used by extending a vent to terminate as if an upstream vent, with the vent connection between the last sanitary fixture or sanitary appliance and the on-site wastewater management system. Use of a ground vent in not recommended

Inspection openings must be located at the inlet to an on-site wastewater management system treatment unit and the point of connection to the land application system and must terminate as close as practicable to the underside of an approved inspection opening cover installed at the finished surface level

Access openings providing access for desludging or maintenance of on-site wastewater management system treatment unites must terminate at or above finished surface level

Performance Solution Report

Eljen Geotextile Sand Filter



Sorell Council

Development Application: 5.2025.260.1 -
Development Application 16 Clover Court,
Carlton - P1.pdf

Plans Reference: P1

Date Received: 24/09/2025

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1. Introduction

Established in 1970, Eljen Corporation created the world's first prefabricated drainage system for foundation drainage and erosion control applications. In the mid-1980s, Eljen introduced the Geotextile Sand Filter (GSF) products for the passive advanced treatment of onsite wastewater in both residential and commercial applications. Eljen products have been installed for wastewater applications in Australia since 2015. The Eljen GSF is currently accredited in Queensland, NSW, South Australia and the Northern Territory.

The Eljen GSF was previously accredited by Consumer, Building and Occupational Services (CBOS) Tasmania as an on-site wastewater system. This approval expired on the 19th November 2019 and was not renewed due to the inability to test to AS1546.3:2017 during the 2020 Covid 19 outbreak. Further testing for compliance with AS1546.3:2017 was undertaken by Arris at the Hahndorf testing facility in South Australia in 2023-2024 and certification granted by SAI global on the 20th of May 2024.

The Eljen GSF system is a secondary treatment Land Application System associated with an approved primary treatment system (i.e. septic tank) and can be designed and installed in Tasmania as a performance solution. This will require the submission of a signed Form 35 from a suitably qualified person ensuring that the system complies with the National Construction Code (NCC) items C3P1-P9 and a signed letter from the property owner consenting to a performance solution.

This report demonstrates that the Eljen GSF complies with each of these NCC requirements; it primarily relies upon test results from SAI Global for compliance testing to AS1546.3:2017. The certification provided for the product by SAI Global demonstrates that the Eljen GSF system can meet the effluent quality guidelines required for classification as a secondary treatment land application system.

2. NCC Compliance

2.1. Directors Guidelines

The Tasmanian Directors Guidelines for On-site Wastewater Management Systems V2 Section 4.1 Demonstrating Compliance states:

"Other relevant published reference documents (from other Australian States and Territories or from an international organisation such as the US EPA" ... "may be used for designing a wastewater treatment unit or land application area if the deemed to satisfy provisions of AS/NZS1547 are not appropriate"

Attachments 1 and 2 to this report show that the ELJEN GSF is certified to comply with the requirements in AS1546.3:2017 for advanced secondary treated effluent:

- Attachment 1 – SAI Global Certificate
- Attachment 2 – ARRAS AS1546.3.2017 test report

Based on the Tasmanian Directors guidelines, the ELJEN is certified in Australia to comply with the requirements for both secondary treated effluent and advanced secondary treated effluent and therefore is deemed to comply with the NCC requirements.

2.2. C3P1 Health Impacts

On-site wastewater management systems must protect public health by ensuring that:

- (a) risks associated with the discharge of treated wastewater and/or the end product from a composting toilet to the environment are minimized; and*
- (b) foul air and gasses are prevented from accumulating within or entering into buildings; and*
- (c) the likelihood of contamination of the drinking water supply is avoided.*

Items (a), (b) and (c)

The Eljen GSF system has been tested to demonstrate that it consistently treats domestic septic tank effluent to a level which complies with Advanced Secondary Treatment criteria as defined by AS/NZS1547:2012. (BOD5 <10mg/L & TSS <10mg/L 90% of the tests. Max BOD5 <15mg/L & TSS <10mg/L). The system design is completed by an accredited professional in accordance with AS/NZS1547-2012 and the Directors Guidelines for onsite wastewater management in Tasmania with appropriate setbacks from water supply and storage, groundwater and surface waters. All design and installation of the system complies with venting requirements in AS3500 and sanitary drainage venting requirements in C2D6.

As the Eljen GSF meets these requirements, Items C3P1 Sections (a), (b) and (c) are satisfied.

2.3. C3P2 Environmental Impacts

On-site wastewater management systems must protect the environment by ensuring that:

- (a) surface water and ground water are not polluted; and*
- (b) soil productivity is maintained or enhanced; and*
- (c) The likelihood of contamination of soils, ground water and waterways is avoided.*

Items (a), (b) and (c)

The Eljen system is designed to comply with the setback requirements specified by CBOS to ensure no contamination of drinking water, ground wastewater or waterways. Septic tank effluent is treated to secondary treated standard within the Eljen system prior to application to the surrounding soil.

2.4. C3P3 Community Systems

On-site wastewater management systems must minimise the impacts on and maintain and enhance community amenity. They must ensure that the on-site wastewater management system design and its implementation contribute to improving and sustaining aesthetic values within individual properties and groups of properties.

The Eljen system and septic tank is installed below ground with only a small amount of infrastructure such as the low vent is visible which could impact on visual amenity. The correct operation of the system designed and installed by appropriately accredited persons and approved within the confines of the Building and Plumbing regulations by the permit authority ensures environmental values and community amenity is maintained.

2.5. C3P4 Discharge to a Network Utility Operator Sewer

Where an on-site wastewater management system discharges to the point of connection of a Network Utility Operator's sewer system, the connection must comply with the Network Utility Operator requirements.

C3P4 is Not Applicable for stand alone on-site wastewater systems.

2.6. TAS C3P5 General requirements

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must be designed and constructed:

- (a) with required treatment and storage capacity for the volume and make up of waste and frequency of discharge for disposal; and*
- (b) with required size, strength and rigidity for the nature, flow rates, volume of wastes and/or waste products which must be processed; and*
- (c) using materials which are impervious both to the waste for which disposal is required and to water; and*
- (d) to avoid the likelihood of surface water and stormwater entering the system; and*
- (e) so that access or inspection openings provided for desludging and maintenance terminate at or above finished surface level.*
- (f) so that the installation throughout its serviceable life will continue to satisfy the requirements of C3P1 to C3P9*

Item (a)

Each new system design requiring a new Septic Tank will have a minimum size of 3000L as specified in AS/NZS1547:2012. Should the property already have an existing septic tank that is in good condition however smaller than that specified in AS/NZS1547:2012, then the designer can assess sludge build up based upon occupancy and specify the desludging time required in years.

The land application area and Eljen GSF absorption bed design is based upon basal area permeability of the underlying soil. There is additional storage capacity within the design utilizing the bedding sand, pipework and Eljen modules all have additional storage capacity.

Item (b)

The land application area is sized according to conform with AS/NZS1547:2012 Table L1 and Table N1.

Item (c)

All materials are resistant to water and the pipes have a 15-year warranty.

Item (d)

The system is protected from stormwater ingress as there is normally a cut-off drain on sloping sites which ensures that stormwater is diverted from the absorption area.

Item (e)

The ELJEN treatment system has two inspection points installed to ensure sampling and fault finding can occur. Please refer to the attached Eljen design and installation manual for further details

Item (f)

Each system is appropriately designed by an accredited designer and has a 15-year warranty based upon correct design, installation and service.

2.7. C3P6 Land Application Systems

1. On-site wastewater management systems and associated land application systems must:

- a. complete the treatment, uptake and absorption of the final effluent within the boundaries of the approved area; and*
- b. protect against internal contamination; and*
- c. provide ventilation to avoid the likelihood of foul air and gases from accumulating in the system.*

2. On-site wastewater management systems and associated land application systems must:

- a. avoid the likelihood of the creation of unpleasant odours or the accumulation of offensive matter; and*
- b. avoid the likelihood of stormwater run-off entering the system; and*
- c. avoid the likelihood of root penetration or ingress of ground water entering the system; and*
- d. avoid the likelihood of unintended or uncontrolled discharge; and*
- e. avoid the likelihood of blockage and leakage; and*
- f. avoid the likelihood of damage from superimposed loads or ground movement.*

Item (a)

The discharge LAA is sized to conform with AS/NZS1547:2012, Table 2 L1 or N1 to ensure absorption and uptake of treated effluent within the design area of the system.

Item 1(b)

A filter is required on the outlet of the septic tank to prevent solids entering the land application area. Unless the household discharges prohibited items or substances, there will be no internal contamination into the associated land application area.

Item 1(c)

The system is vented to avoid accumulation of gases in the system and ensure aerobic conditions throughout the ELJEN pipe treatment area. Water, foul air or gases are will not enter the building due to compliance with Tasmanian wastewater guidelines recommended setbacks and appropriate high-level venting.

Item 2(a)

Unless the household discharges prohibited items or substances, there will be no internal contamination into the associated land application area.

Item 2(b)

Stormwater is collected by an appropriate cut off drain if required and diverted away from the land application area.

Item 2(c)

The system is designed with the required setbacks to groundwater in AS/NZS1547-2012 to prevent groundwater ingress into the land application area.

Permit authorities require clearance from trees, especially where tree protection zones are present to prevent root ingress into the system. All designs incorporate the recommended setbacks.

Item 2(e)

The system is not susceptible to internal blockage in normal operation as it comprises large (100mm) diameter sewer pipes. Inspection points are provided to allow for fault finding of systems. The distribution pipe can easily be removed should restoration of the pipe or modules be required.

Item 2(f)

A standard design will have no superimposed loads and being a flexible treatment pipe, is not affected by ground movement. The land application area is required to be clear of driveways, concreted areas and any structures.

2.8. C3P7 Access for Maintenance

1. *On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must:*
 - a. *provide vehicle access for collection, if necessary; and*
 - b. *avoid the likelihood of unauthorized access by people; and*
 - c. *permit cleaning, maintenance, measurement and performance sampling.*
2. *Land application systems must:*
 - a. *provide access, as required, for maintenance; and*

- b. incorporate provisions, as required, for effective cleaning.*

Item 1(a)

Access to the septic tank for maintenance and pumping is part of the system design.

Item 1(b)

The septic tank cannot be accessed by unauthorised personnel as the system is installed below finished ground level. The septic tank and any associated pump chamber are sealed with secure access panel(s) in accordance with AS1546.1:2008.

Item 1(c)

The accredited septic tank installed for primary treatment has adequate inspection ports and openings for cleaning, maintenance measurement and for performance sampling in accordance with AS1546.1:2008.

Item 2(a) and (b)

The ELJEN treatment system has two inspection points installed to ensure sampling, fault finding, and cleaning of internal distribution pipes can occur. Please refer to the attached Eljen design and installation manual for further details.

2.9. C3P8 Uncontrolled Discharge

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must avoid blockage or uncontrolled discharge.

Provided that the system is correctly designed, installed and operated as per the ELJEN instruction manual, the Eljen GSF minimises the risk of uncontrolled discharge via land application area overflow, by uniformly applying secondary treated effluent to the base of the land application area at a rate consistent with the DLRs provided in Tables L1 and N1 of AS/NZS1457.2012. It is also ideally configured to promote application to the overlying, backfilled soil profile by capillary movement in all directions, including vertically through the system sand in which it is installed. This improves accessibility by surface vegetation to maximise evapotranspiration, supplementing basal area infiltration.

The ELJEN land application area configuration, using ELJEN approved system sand as a distribution medium, is consistent with Clauses L6.2 (Discharge control trench etc) and Appendix N (Mounds) of AS/NZS1547.2012, which both provide for the use of a sandfill media with the same specifications as Eljen GSF sand to ensure uniform vertical and horizontal distribution by capillary flow of treated effluent to the land application area surfaces.

2.10. C3P9 Identification

On-site wastewater management systems that facilitate on-site storage, treatment, disposal or re-use of wastewater must permit the manufacturer model, serial number and designed capacity to be easily accessed and identifiable after installation.

Identification plate is available for installation on the low vent of each system.

3. Conclusion

The ELJEN wastewater treatment system has been tested Internationally and by SAI global in Australia to comply with the requirements for secondary treated effluent.

The system comprises a standard septic tank, which provides primary treatment of wastewater and a series of proprietary treatment pipes in specified sand that produces secondary treated effluent.

Provided that the Eljen GSF has been designed, installed and operated correctly, the system will produce a consistent, secondary treated quality effluent prior to discharge to the natural soil.



Vinamra Gupta
Civil Engineer
Tasmania License 685982720

Attachment 1 – SAI Global Accreditation Certificate

Attachment 2 – Arras AS1546.3.2017 Test Report

Attachment 3 – Eljen Design Manual

Attachment 4 – Eljen Homeowners Manual

Intertek SAI Global hereby grants: **Eljen Corporation**

90 Meadow Road, Windsor, CT United States

StandardsMark Licence

Manufactured to:

AS 1546.3:2017 - On-site domestic wastewater treatment units - Secondary treatment systems

"the StandardsMark Licensee "the right to use the STANDARDMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Certificate No:
SMK41040

Originally Certified:
17 July 2021

Current Certification:
20 May 2024

Issued:
20 May 2024

Expires:
16 July 2026



Calin Moldovean

President, Business Assurance

SAI Global Certification Services Pty. Ltd.
Level 7 Suite 7.01 45 Clarence Street
Sydney NSW 2000 Australia

*** For details of manufacture, refer to the licensee**

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SCHEDULE TO STANDARDSMARK LICENCE

Intertek SAI Global hereby grants:

Eljen Corporation

90 Meadow Road, Windsor, CT United States

Manufactured to:

AS 1546.3:2017 - On-site domestic wastewater treatment units - Secondary treatment systems

Model identification of the goods on which the STANDARDSMARK may be used:

Brand Name & Model ID	Treatment Capacity (Litre / Day)	Treatment Type	Compliance Type	Disinfection Method	Tank Types and Capacities	Service Interval	Date Endorsed
A42 GSF	1200	Sand Filter	Advanced Secondary	None	Approved/Certified septic tank with baffle of 4000 L capacity with an outlet bristle filter with a gravity fed sand filter with at least 1000L emergency storage capacity	3 years as nominated by the manufacturer	20 May 2024

End of Record

Certificate No: SMK41040

Issued Date: 20 May 2024

This schedule supersedes all previously issued schedules

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Report on performance testing of the Eljen GSF advanced secondary wastewater treatment system according to AS 1546.3:2017



Sorell Council

Development Application: 5.2025.260.1 -
Development Application 16 Clover Court,
Carlton - P1.pdf
Plans Reference:P1
Date Received:24/09/2025

For: Jim King – Eljen Corporation



Version	Date	Author/s	Reviewed	Issued By
FINAL	30/04/2024	Dr. Michael Short, Shan Huang	Jim Kelly (Arris)	Jim Kelly
R1	17/05/2024	Dr. Michael Short, Shan Huang	Jim Kelly (Arris)	Jim Kelly

Created by	Arris Pty Ltd	Building WT51, Gate 2c Hartley Grove URRBRAE SA 5064 T 08 8313 6706 F 08 8313 6752 ACN 092 739 574
Client	Jim King	
Name of Organisation	Eljen Corporation	
Name of Project	Hahndorf AS 1546.3:2017 wastewater systems compliance testing	
Name of Document	Report on performance testing of the Eljen GSF advanced secondary wastewater treatment system according to AS 1546.3:2017	
Project Number		
Document Version	Final	
Cover		
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Abbreviations

Abbreviation	Unit	Description
BOD ₅	mg/L	Five-day biochemical oxygen demand
cfu	/100 ml	Colony Forming Units
DO	mg/L	Dissolved oxygen
dBA	decibel	Weighted or adjusted decibel
<i>E. coli</i>	-	<i>Escherichia coli</i>
EP	-	Equivalent persons
kWh	-	Kilowatt hours
NH ₄ -N	mg/L	Ammonium nitrogen
pH	-	Hydrogen ion concentration
STS	-	Secondary treatment system
TN	mg/L	Total nitrogen
TP	mg/L	Total phosphorus
TSS	mg/L	Total suspended solids

Summary

This report provides details of the results of performance testing of the Eljen GSF 1,200 L/d advanced secondary treatment system against Australian Standard AS 1546.3:2017, as conducted by Arris Pty Ltd at their wastewater testing facility located in Hahndorf, South Australia. The Eljen GSF system was tested according to the following parameters:

- a) Nominal hydraulic loading of 1,200 L/d (8-person equivalent);
- b) Treated effluent grade of advanced secondary quality as per AS 1546.3:2017 Table 2.1;
- c) An emergency storage capacity of a minimum 1,000 L;
- d) No nutrient reduction capacity;
- a) No disinfection treatment;
- b) No audio-visual alarm.

The unit entered commissioning phase during June of 2023 and official performance testing commenced on 26 June 2023 and testing round was completed on 11 March 2024. Ambient air temperature at the test site during performance testing ranged from as low as -0.3°C during winter to 38.9°C in summer, with corresponding water temperatures in the main treatment chamber ranging from approx. 9 to 26°C . Accordingly, the recommended operating temperature range for the STS when fully buried is for an ambient air temperature of between 0°C and 39°C and wastewater temperatures of approx. $9-26^{\circ}\text{C}$.

Influent raw sewage quality during the 34-week testing period met the requirements of AS 1546.3:2017 according to the following parameters:

- Average BOD_5 of 398 mg/L (required average ≥ 300 mg/L);
- Average TSS of 322 mg/L (required average ≥ 300 mg/L);
- Average total nitrogen of 65 mg/L (required average ≥ 60 mg/L); and
- Average total phosphorus of 13 mg/L (required average ≥ 8 mg/L).

Routine monitoring of the Eljen GSF effluent during the 34-week testing period confirmed that the system complied with the requirements of Table 2.1 of AS 1546.3:2017 for advanced secondary effluent quality during the 34-week testing period:

- 90.2% of effluent samples (37 of 41 samples) for BOD_5 were ≤ 10 mg/L, with the maximum recorded value for BOD_5 of 15 mg/L;
- 100% of effluent samples (41 of 41 samples) for TSS were ≤ 10 mg/L, with the maximum recorded value for TSS of 10 mg/L;

Though not targeting full nutrient reduction performance as per Table 2.1 of AS 1546.3:2017, nutrients were monitored in Eljen GSF effluent and results showed that partial nutrient reduction was achieved for both total nitrogen and phosphorus as detailed below:

- Average effluent total nitrogen 48 mg/L (average 25.7% total nitrogen reduction, with 2% of effluent results ≤ 15 mg/L);
- Average effluent total phosphorus 10.2 mg/L (average 25.6% total phosphorus reduction, with 2% of effluent results ≤ 2.0 mg/L).

Dissolved oxygen in the effluent during the testing period was routinely measured and was on average 4.3 mg/L during the 34-week testing period (minimum 2.8 mg/L; maximum 7.2 mg/L).

As the Eljen GSF system was gravity dosed, average daily electricity consumption during the 34-week testing period was 0.0 kWh/d, with a corresponding average flow-specific electricity consumption of 0.0 kWh/1,000 L of treated effluent.

1 Introduction

This report summarises the outcomes of on-site domestic wastewater secondary treatment system (STS) performance testing activities undertaken by Arris Pty Ltd during the period 2023–2024 against Australian Standard *AS 1546.3:2017 On-site domestic wastewater treatment units Secondary treatment systems*.

The STS unit to which this report relates is Eljen Geotextile Sand Filter (GSF) advanced secondary treatment system (1,200L/d capacity) and the system's manufacturer and the system's manufacturer and supplier is Eljen Corporation of 90 Meadow Road, Windsor, Connecticut 06095, USA.

1.1 Description of the performance testing facility and STS sampling

The performance testing facility was located outdoors at a domestic wastewater treatment plant in the township of Hahndorf, South Australia. The test facility receives primarily domestic sewage from the adjacent towns of Hahndorf and Verdun and is located in an Australian climate zone 6 region (mild temperate).

Raw sewage was accessed for STS performance testing prior to any screening or physical, biological and/or chemical treatment as per the requirements of AS 1546.3:2017. Raw sewage was sourced from the sewer main entering the Hahndorf wastewater treatment plant and stored in a 5,000 L balance tank which was continuously supplied with fresh raw sewage via pressurised supply from the wastewater treatment plant's supply pump station.

Mixing of sewage in the balance tank was achieved by regular pump station cycling (<10-minute intervals between the hours of 0600–2200) which resulted in regular filling and drawing of sewage in the balance tank and continuous sewage turnover within the tank. Mixing was also achieved by a recirculating impeller pump which was positioned inside the balance tank and activated at times to coincide with sewage dosing intervals. Sewage was supplied to the STS unit via a macerator unit coupled to a progressing cavity pump, in line with the influent distribution provisions of AS 1546.3:2017 paragraph A5.2.3. Pump flow rate and sewage feed line pressure were maintained by a programmable logic controller control system, with sewage dosing and flow rates to the STS controlled by electronically operated modulating ball valves and electromagnetic flowmeters (accuracy <1.0% of flow rate).

Influent and STS system grab and 24-hour composite sampling was undertaken as per the requirements of AS 1546.3:2017 paragraph A5.4 using fully automated refrigerated autosamplers.

1.2 Wastewater system description, specification and installation

The STS was installed within an aboveground concrete bunded area to reflect normal underground installation conditions. No insulation of the STS walls or surface was applied at any time during the testing period in response to cold air and water temperatures. STS access lids were installed above the finished ground level and were easily accessible. Groundwater and stormwater intrusion were avoided due to the aboveground installation layout and the finished level of the influent distribution box being well above ground level.

The GSF system comprises a primary treatment stage (4,000 L septic tank fitted with a bristle-type outlet filter) followed by a gravity dosed secondary stage GSF treatment bed. The secondary stage GSF treatment bed consists of a series of polypropylene media Modules to support biological growth (Figure 1), supported by a bed of Eljen-specified sand to a minimum depth of 300 mm, underlain by a graded layer of gravel aggregate material (10 mm minimum particle size). The GSF Module is designed with the following characteristics:

- Provide increased surface area for biological treatment of nutrients and contaminants;
- Open air channels support aerobic bacterial growth on the Module's geotextile fabric interface, and promotes oxygen in the system;
- An anti-siltation geotextile fabric covers the top and sides of the Module to protect the system from the migration of fines;
- Surface area for enhanced biomat development.

Primary treated wastewater is distributed across the surface of the secondary stage media Modules and underlying sand filter bed under gravity dosing aided by the use of a proprietary SeptiSurge® dosing siphon box to encourage even water distribution across the GSF system area, and aeration of the water before filtering downward through the Modules and underlying sand media bed (Figure 2). The combined volume of the SeptiSurge® reservoir in the tested system was approx. 120 L. Once dosed, water percolates downward through the Modules and then through the 300 mm layer of specified sand, prior to being collected in the underdrain pipe for treated effluent discharge.

The Eljen GSF advanced secondary STS components as-tested included:

- 1 × 4,000 L baffled septic tank fitted with bristle-type outlet filter;
- SeptiSurge® dosing siphon distribution box with approx. 120 L volume per dosing cycle;
- 1 × 17.5 m² bed containing a minimum of 300 mm of Eljen-specified sand depth underneath GSF modules) overlaying 100 mm depth of 10–20 mm coarse drainage aggregate and backfilled with 300 mm of clean coarse fill material.

Engineering drawings of the Eljen GSF system as tested are given in Appendix A, showing system components, dimensions, installation layout and volumes.

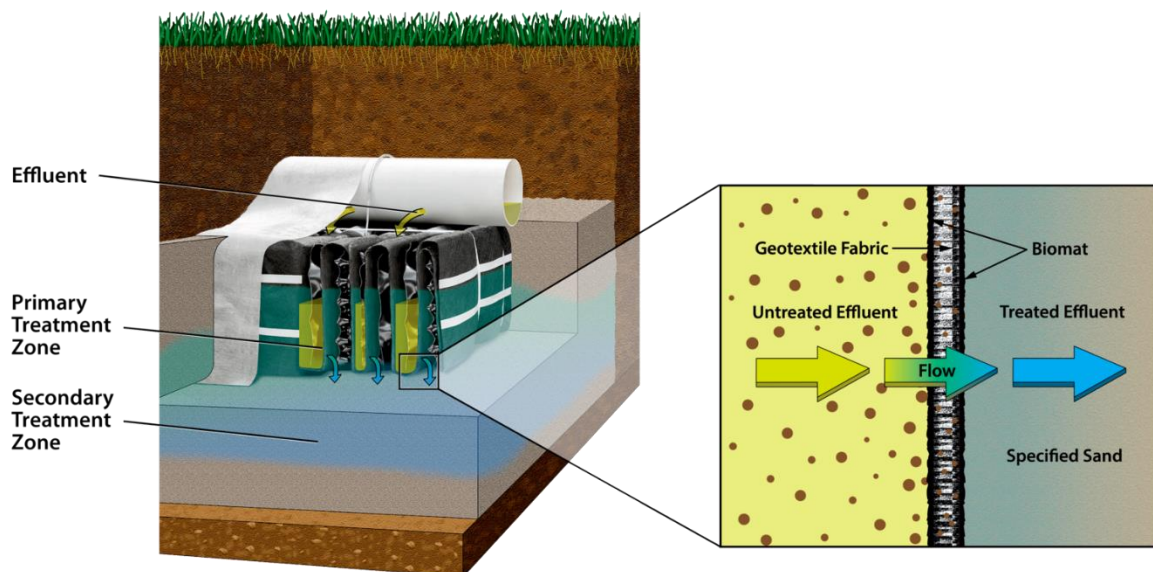


Figure 1. Schematic overview of Eljen GSF system, showing effluent distribution to Modules (gravity wastewater distribution shown) and specified sand layer.



Figure 2. Photograph of SeptiSurge® dosing siphon distribution box supplying influent wastewater to the Eljen GSF advanced secondary system.

The Eljen GSF advanced secondary STS was tested according to the following capacities and design parameters:

- c) Combined nominal hydraulic loading of 1,200 L/d (8-person equivalent);
- d) Treated effluent grade of advanced secondary quality as per AS 1546.3:2017 Table 2.1;
- e) An emergency storage capacity of a minimum 1,000 L;
- f) No nutrient reduction capacity;
- g) No disinfection treatment;
- h) No audio-visual alarm (gravity dosing).

1.3 STS installation and commissioning

The Eljen GSF system was installed on 30th May 2023 and the commencement of commissioning phase operations started on 21st June 2023. The system achieved the nominated secondary effluent quality within two weeks of operation (i.e. time taken for the STS to begin producing treated effluent in line with secondary quality as per AS 1546.3:2017 Table 2.1). Official performance testing commenced on 26th June 2023 and was completed on 11 March 2024

1.4 Features and operation of the emergency storage

The minimum 1,000 L emergency storage in the Eljen GSF advanced secondary STS is achieved by the combined open void volume within the GSF modules (Figure 1) which at 94 L/module equates to a combined 1,410 L for the tested system comprising 15 modules (Appendix A). This emergency storage capacity does not include pipes draining into or discharging from the treatment system as per the requirements of AS 1546.3:2017 paragraph 2.3.7(c). NB. There would normally be no

emergency storage requirement for the Eljen GSF system when installed as an unlined gravity-dosed system, as there are no mechanical components which could malfunction and prevent wastewater flow to the system during periods of power outage.

The design of the Eljen GSF STS prevents the possibility of short-circuiting and gross solids contamination (>6 mm in two dimensions) of the effluent chamber during both normal operation and periods of breakdown periods, power failure, component malfunction and/or maintenance periods. The design of the Eljen GSF system, which includes a septic tank fitted with bristle type outlet filter, GSF modules and specified sand bed, effectively prevents any short-circuiting of untreated wastewater during periods of power failure, as there is no possibility of raw or untreated wastewater and gross solids bypassing the secondary treatment stage before exiting the base of the system.

1.5 STS performance testing schedule

STS performance testing was carried out during the period June 2023–March 2024 according to the schedule in Table 2.

1.6 Characteristics of influent sewage water quality in accordance with Table A1

Summary results of influent sewage samples taken during the combined 34-week testing period are given in Table 1. The full dataset for daily sewage water quality results is given in Section 1.8 of this report (Table 4).

Table 1. Summary results of influent sewage water quality during the 34-week testing period (all data in units of mg/L except pH (unitless) and *E. coli* (cfu/100 ml)).

Parameter	Average value (mean)	Data range (min–max)	Required range as per AS 1546.3:2017 ¹
BOD ₅	398	190–690	150–750
TSS	322	190–900	150–750
Total nitrogen (TN)	64.6	36–86	20–150
Ammonium-nitrogen	41	20–81	20–80
Total phosphorus (TP)	13.4	5–26	6–25
pH	7.0	6.0–7.6	6.0–9.0
<i>E. coli</i>	1.7×10 ⁷	4×10 ⁶ –6×10 ⁸	10 ⁴ –10 ¹⁰

¹ Specified sewage quality requirements as per AS 1546.3:2017 Table A1

BOD₅ – five-day biochemical oxygen demand; TSS – total suspended solids

Table 2. AS 1546.3:2017 compliance testing schedule 2023–24 showing steady-state and stress testing operations (grey) with sampling intervals.

Week	Date (week beginning)	Test state	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	26/06/2023	Steady-state	I & E						
2	17/07/2023	Steady-state			I & E				
3	24/07/2023	Power failure		I & E		Power failure	Power failure		
4	31/07/2023	Recovery	I & E	I & E	I & E				
5	07/08/2023	Steady-state	I & E						
6	14/08/2023	Steady-state		I & E					
7	21/08/2023	Steady-state			I & E			Overload stress	Overload stress
8	28/08/2023	Overload stress	Overload stress	Overload stress	Overload stress	Overload stress	Overload stress		
9	04/09/2023	Recovery	I & E	I & E	I & E				
10	11/09/2023	Steady-state	I & E						
11	18/09/2023	Steady-state		I & E					
12	25/09/2023	Steady-state			I & E		No flow stress	No flow stress	No flow stress
13	02/10/2023	No flow	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress
14	09/10/2023	No flow	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress
15	16/10/2023	No flow	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress	No flow stress
16	23/10/2023	No flow	No flow stress	No flow stress	No flow stress	No flow stress			
17	30/10/2023	Recovery	I & E	I & E	I & E				
18	06/11/2023	Steady-state	I & E						
19	13/11/2023	Steady-state		I & E					
20	20/11/2023	Steady-state			I & E				Chemical stress
21	27/11/2023	Chemical stress	I & E	I & E	I & E				
22	04/12/2023	Steady-state	I & E						
23	11/12/2023	Steady-state		I & E					
24	18/12/2023	Steady-state			I & E				
25	08/01/2024	Steady-state	I & E					Surge flow	Surge flow
26	15/01/2024	Surge flow stress	I & E	I & E	I & E				
27	22/01/2024	Steady-state	I & E						
28	29/01/2024	Steady-state		I & E					
29	05/02/2024	Steady-state			I & E				Laundry stress
30	12/02/2024	Laundry Stress	I & E	I & E	I & E				
31	19/02/2024	Steady-state	I & E						
32	26/02/2024	Steady-state		I & E					
33	04/03/2024	Steady-state			I & E				
34	11/03/2024	Steady-state	I & E						

I & E – Influent and effluent sampling undertaken on these days in accordance with AS 1546.3:2017 Table A6.

Influent sewage and treated effluent water quality analyses were undertaken by the NATA-accredited laboratory Envirolab Services Pty Ltd. Test methods used for the various parameters were as detailed in Table 3. Water quality analyses for dissolved oxygen was done on-site using a portable dissolved oxygen meter (Orion Model 810). Free chlorine (FAC) analysis was done on site using USEPA DPD Method 8021 (colorimetric).

Table 3. Details of testing method used by analytical testing laboratory.

Parameter	Test method used
BOD ₅	APHA latest edition 5210 D
TSS	APHA latest edition 2540D
Total nitrogen	APHA latest edition 4500
Ammonium-nitrogen	APHA latest edition 4500-NH ₃ F
Total phosphorus	APHA latest edition 4500
pH	APHA latest edition 4500-H+
<i>E. coli</i>	AS4276.7-2007

1.7 Log of all compliant and non-conforming test results in accordance with Tables 2.1 to 2.6, date of sampling, conformity calculations, maintenance, equipment or component failures, and other factors pertinent to the test evaluation.

Courier delays with samples collected on 06/03/2024 meant that samples were not received by the testing laboratory until after the prescribed holding period, so sample data for this date was replaced with equivalent data from after the official testing period (18/03/2024).

Full details of other factors pertinent to the testing program are given in Section 1.15.

On 04/12/2024 a small leak was detected from one of the outlet pipe flange seals in the SeptiSurge® distribution box. The client was notified on the same day and the leak was rectified on 11/12/2024. No other component failures were recorded during STS testing.

1.8 Influent and effluent test results correlated to the dates the samples were collected and the dates of the stress and the steady-state tests.

Details of all influent (sewage) and effluent water quality data are given in Table 4 and Table 5 respectively.

As per Table 4, influent wastewater quality during the 34-week testing period (41 samples) met the requirements of Table A1 of AS 1546.3:2017 based on the following:

- Average BOD₅ of 398 mg/L (required average ≥ 300 mg/L);
- Average TSS of 322 mg/L (required average ≥ 300 mg/L);
- Average total nitrogen of 64.6 mg/L (required average ≥ 60 mg/L); and
- Average total phosphorus of 13.4 mg/L (required average ≥ 8 mg/L).

The concentrations of BOD₅ and TSS in the influent wastewater during the 34-week testing period (41 samples) are plotted in Figure 3 below. NB. There was one instance where raw sewage TSS exceeded the recommended upper maximum threshold value of AS 1546.3:2017 Table A1 (i.e. 750 mg/L); however, there were no adverse effects on treated effluent quality observed as a result of the high TSS load and so this data was retained.

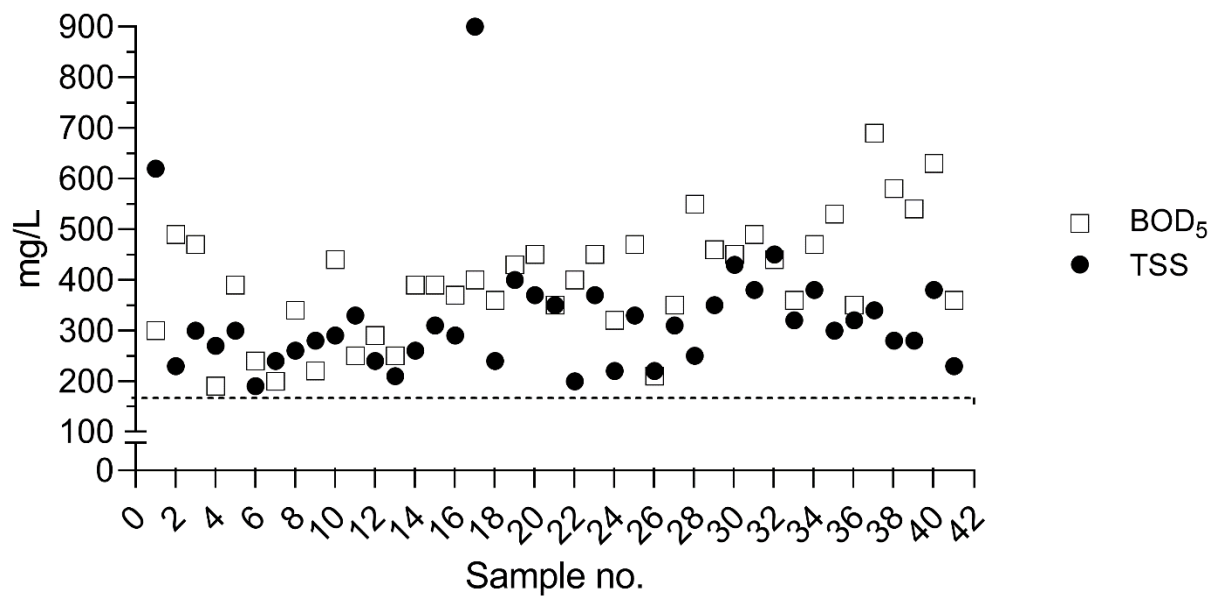


Figure 3. Overview of BOD₅ and TSS for the influent wastewater during the 34-week testing period (horizontal dashed line shows ≤150 mg/L lower limit for BOD₅ and TSS as per AS 1546.3:2017 Table A1).

Table 4. Summary of full influent sewage quality data during the 34-week test period

Week	Sample No.	Date	pH	BOD ₅ (mg/L)	TSS (mg/L)	TN (mg/L)	NH ₄ -N (mg/L)	TP (mg/L)	<i>E. coli</i> (cfu/100 ml)
1	1	26/06/2023	7.1	300	620	36	20	5.4	3800000
2	2	19/07/2023	6.5	490	230	45	28	13	13000000
3	3	25/07/2023	6.5	470	300	57	33	13	5700000
4*	4	31/07/2023	7.0	190	270	55	28	8.1	16000000
4*	5	01/08/2023	7.2	390	300	57	29	13	11000000
4*	6	02/08/2023	7.1	240	190	62	32	18	14000000
5	7	07/08/2023	7.1	200	240	50	34	9.3	19000000
6	8	15/08/2023	7.0	340	260	53	32	13	7500000
7	9	23/08/2023	7.2	220	280	36	26	8.7	6700000
9*	10	04/09/2023	6.9	440	290	50	32	12	6900000
9*	11	05/09/2023	6.9	250	330	46	30	10	13000000
9*	12	06/09/2023	7.2	290	240	65	39	11	4600000
10	13	11/09/2023	7.0	250	210	42	31	7.2	12000000
11	14	19/09/2023	6.8	390	260	70	43	13	18000000
12	15	27/09/2023	6.8	390	310	71	40	13	6900000
17*	16	30/10/2023	7.1	370	290	84	49	15	11000000
17*	17	31/10/2023	7.1	400	900	73	49	15	28000000
17*	18	01/11/2023	7.0	360	240	71	48	13	37000000
18	19	06/11/2023	6.8	430	400	82	52	14	15000000
19	20	14/11/2023	6.7	450	370	82	49	15	9000000
20	21	22/11/2023	6.6	350	350	62	37	23	18000000
21*	22	27/11/2023	6.5	400	200	45	31	7.7	20000000
21*	23	28/11/2023	7.1	450	370	65	42	11	24000000
21*	24	29/11/2023	6.0	320	220	57	42	13	20000000
22	25	04/12/2023	7.2	470	330	78	52	13	11000000
23	26	12/12/2023	6.8	210	220	53	28	12	14000000
24	27	20/12/2023	7.1	350	310	75	36	22	26000000
25	28	08/01/2024	7.6	550	250	86	45	16	36000000
26*	29	15/01/2024	7.6	460	350	75	47	11	27000000
26*	30	16/01/2024	7.3	450	430	59	48	13	34000000
26*	31	17/01/2024	6.8	490	380	83	81	21	30000000
27	32	22/01/2024	7.0	440	450	81	49	13	18000000
28	33	30/01/2024	7.0	360	320	63	47	11	34000000
29	34	07/02/2024	6.8	470	380	73	54	26	18000000
30*	35	12/02/2024	7.0	530	300	70	43	17	10000000
30*	36	13/02/2024	7.1	350	320	65	33	17	18000000
30*	37	14/02/2024	6.8	690	340	73	33	21	24000000
31	38	19/02/2024	7.0	580	280	73	50	14	24000000
32	39	27/02/2024	7.1	540	280	69	46	19	33000000
33	40	06/03/2024	6.5	630	380	74	42	18	570000000
34	41	11/03/2024	7.4	360	230	83	56	13	6000000

TN – total nitrogen; NH₄-N – ammonia nitrogen; TP – total phosphorus; * – data pertaining to a stress testing event.

As per Table 5, the Eljen GSF effluent water quality complied with the requirements of Table 2.1 of AS 1546.3:2017 (incorporating Amendment No. 1) for advanced secondary effluent quality during the 34-week testing period:

- 90.2% of effluent samples (37 of 41 samples) for BOD₅ were ≤10 mg/L, with the maximum recorded value for BOD₅ of 15 mg/L;
- 100% of effluent samples (41 of 41 samples) for TSS were ≤10 mg/L, with the maximum recorded value for TSS of 10 mg/L.

The concentrations of BOD₅ and TSS in the treated effluent during the 34-week testing period (41 samples) are plotted in Figure 4 below.

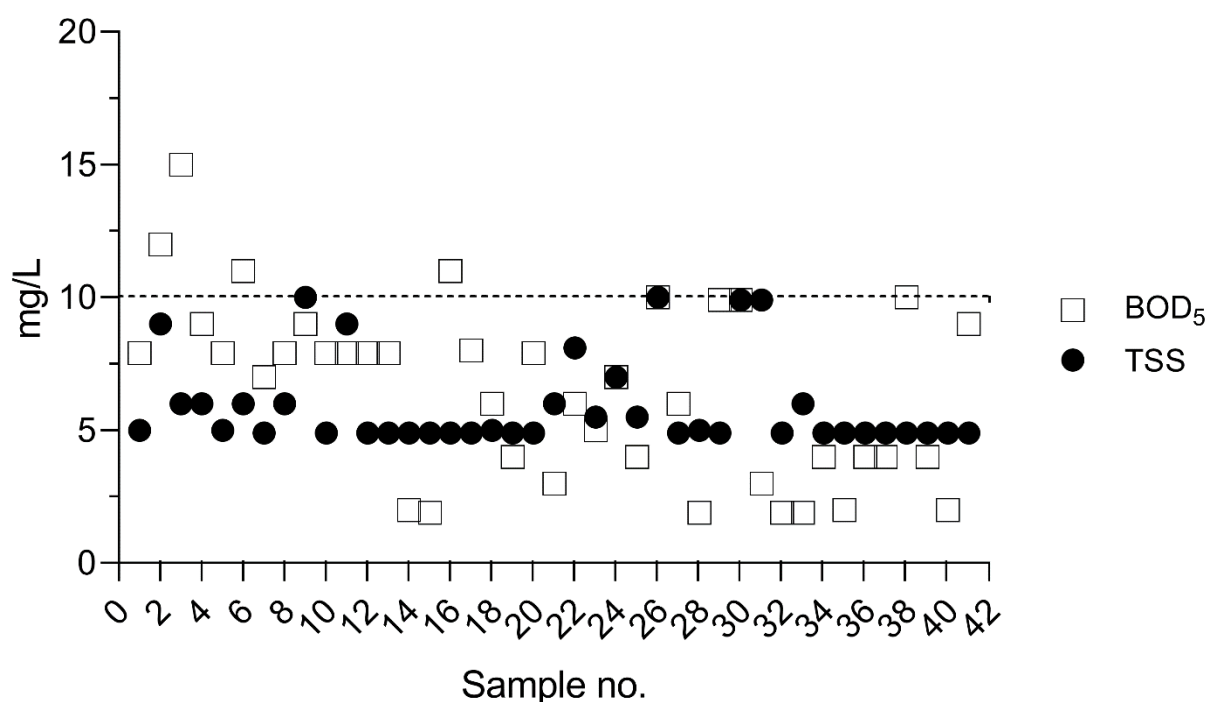


Figure 4. Overview of BOD₅ and TSS for the treated effluent during the 34-week testing period (horizontal dashed line shows ≤10 mg/L cut-off for 90% BOD₅ and TSS samples at advanced secondary quality as per AS 1546.3:2017 Table 2.1).

Though not targeting full nutrient reduction performance as per Table 2.1 of AS 1546.3:2017, nutrients were monitored in Eljen GSF effluent and results showed that partial nutrient reduction was achieved for both total nitrogen and phosphorus as detailed below:

- Average effluent total nitrogen 48 mg/L (average 25.7% total nitrogen reduction, with 2% of effluent results ≤15 mg/L);
- Average effluent total phosphorus 10.2 mg/L (average 25.6% total phosphorus reduction, with 2% of effluent results ≤2.0 mg/L).

Table 5. Summary of Eljen GSF 8 EP advanced secondary effluent water quality data during the 34-week test period.

Week	Sample No.	Date	pH	BOD ₅ (mg/L)	TSS (mg/L)	DO (mg/L)	TN (mg/L)	TP (mg/L)
1	1	26/06/2023	7.3	<8	5	7.2	16	1.4
2	2	19/07/2023	7.2	12	9	4.6	25	5.4
3	3	25/07/2023	7.1	15	6	4.7	24	6.8
4*	4	31/07/2023	7.0	9	6	4.3	38	7.1
4*	5	01/08/2023	7.1	<8	5	6.2	41	5.8
4*	6	02/08/2023	7.0	11	6	5.1	38	7.1
5	7	07/08/2023	7.0	7	<5	3.7	29	6.4
6	8	15/08/2023	6.8	<8	6	6.0	33	7.9
7	9	23/08/2023	6.8	9	10	4.5	31	8.1
9*	10	04/09/2023	6.9	<8	<5	3.9	37	7.9
9*	11	05/09/2023	6.8	<8	9	4.2	42	7.9
9*	12	06/09/2023	6.9	<8	<5	4.3	40	8.7
10	13	11/09/2023	6.8	<8	<5	5.5	33	6.5
11	14	19/09/2023	6.6	2	<5	5.2	43	9.6
12	15	27/09/2023	6.8	<2	<5	6.5	50	7.7
17*	16	30/10/2023	7.2	11	<5	5.5	68	11
17*	17	31/10/2023	7.0	8	<5	4.6	60	11
17*	18	01/11/2023	6.9	6	5	4.7	55	11
18	19	06/11/2023	6.6	4	<5	4.0	46	11
19	20	14/11/2023	6.3	<8	<5	4.5	47	11
20	21	22/11/2023	6.6	3	6	3.8	51	12
21*	22	27/11/2023	6.7	6	8.1	3.3	43	8.1
21*	23	28/11/2023	6.9	5	5.5	4.1	42	11
21*	24	29/11/2023	6.9	7	7	4.3	42	9.8
22	25	04/12/2023	6.6	4	5.5	4.1	58	13
23	26	12/12/2023	6.6	10	10	3.2	35	12
24	27	20/12/2023	6.7	6	<5	4.8	58	11
25	28	08/01/2024	7.6	<2	5	5.2	13	9.9
26*	29	15/01/2024	6.8	<10	<5	4.2	58	12
26*	30	16/01/2024	6.9	<10	<10	4.0	65	10
26*	31	17/01/2024	6.9	3	<10	3.6	62	11
27	32	22/01/2024	6.7	<2	<5	3.0	66	13
28	33	30/01/2024	6.6	<2	6	3.2	57	11
29	34	07/02/2024	7.6	4	<5	3.3	64	14
30*	35	12/02/2024	6.5	2	<5	3.1	64	15
30*	36	13/02/2024	6.5	4	<5	3.3	70	13
30*	37	14/02/2024	6.3	4	<5	3.2	73	13
31	38	19/02/2024	6.5	10	<5	3.0	63	15
32	39	27/02/2024	6.6	4	<5	3.1	64	15
33 [#]	40	06/03/2024	6.7	2	<5	2.78	62	14
34	41	11/03/2024	7.3	9	<5	3.6	73	15

DO – dissolved oxygen; * – denotes data pertaining to stress testing event; # Denotes daily data are from repeat testing or analysis.

1.9 Daily minimum and maximum ambient air temperatures and water temperatures of the influent and the main treatment chamber/tank

Details of ambient air temperature (daily min, max) and water temperature (influent and main treatment chamber) on test days during the 34-week testing period are given in Table 6. NB. Comprehensive daily air temperature data (min; max) for the duration of the testing period are given in Appendix B. Ambient air temperatures recorded on site ranged from a daily maximum average of approx. 14.8°C in winter to 27.5°C in summer. Daily average minimum ambient air temperatures were approx. 6.7°C in winter and 13.0°C in summer. The peak daily maximum air temperature was recorded on 18/01/2024 at 38.9°C, with the lowest overnight minimum temperature of -0.3°C recorded on 17/07/2023 (Appendix B).

Main treatment chamber temperatures (measured in the final effluent pump sump) ranged from winter average values of approx. 10°C to a summer average of approx. 20°C. Main treatment chamber temperature dropped as low as 9°C during winter as a result of cold overnight minimum temperatures which were at times just below 0°C (Table 6). AS 1546.3:2017 (paragraph C2.3.3) suggests that low winter water temperatures (<15°C) can adversely affect the performance of biological wastewater treatment processes; however, no adverse consequences on treatment performance were observed for the Eljen GSF STS as a result of low winter temperatures.

Influent sewage temperatures ranged from winter average values of approx. 14°C to summer average temperatures of approx. 24°C. Summer high water temperatures in the main treatment chamber peaked at approx. 22°C. Higher water temperatures combined with higher rates of biological activity can potentially serve to lower available dissolved oxygen levels in wastewater systems, but dissolved oxygen levels in the effluent of the Eljen GSF bed were always well above those considered fully aerobic (>0.5 mg/L; Table 5) at all times and no adverse performance consequences were seen as a result of elevated summer temperatures. Though not formally required to be reported, dissolved oxygen levels during the testing period were routinely measured in the final effluent on testing days (Table 5) and was on average 4.3 mg/L during the 34-week testing period (minimum 2.8 mg/L and maximum 7.2 mg/L).

Based on this, the validated operating temperature range for the Eljen GSF STS during testing was an ambient air temperature of between 0°C and 39°C and main treatment chamber wastewater temperature of 9–26°C.

Table 6. Ambient air temperature (daily min, max) and STS water temperature (influent and main treatment chamber effluent) during the 34-week testing period.

Week	Sample No.	Date	Ambient air (min; max) (°C)	Influent water temperature (°C)	Main wastewater treatment chamber (°C) [#]
1	1	26/06/2023	14.5; 7.0	12	9.9
2	2	19/07/2023	15.0; 0.6	16	9.9
3	3	25/07/2023	14.8; 8.2	17	10.7
4*	4	31/07/2023	14.8; 8.5	14	11.1
4*	5	01/08/2023	13.3; 8.3	15	10.7
4*	6	02/08/2023	18.0; 5.6	17	11.3
5	7	07/08/2023	14.2; 3.3	15	11.4
6	8	15/08/2023	15.3; 0.4	14	11.5
7	9	23/08/2023	12.5; 4.0	15	11.8
9*	10	04/09/2023	16.6; 10.0	17	13.4
9*	11	05/09/2023	15.7; 5.6	17	13.3
9*	12	06/09/2023	20.8; 4.6	17	13.3
10	13	11/09/2023	22.1; 4.5	24	12.1
11	14	19/09/2023	20.7; 11.2	21	15.7
12	15	27/09/2023	18.7; 9.3	18	14.9
17*	16	30/10/2023	19.8; 8.9	20	16.7
17*	17	31/10/2023	24.8; 3.4	19	16.6
17*	18	01/11/2023	29.2; 4.3	19	17.4
18	19	06/11/2023	38.1; 12.6	25	18.0
19	20	14/11/2023	26.6; 11.3	13	19.3
20	21	22/11/2023	22.1; 10.7	23	20.4
21*	22	27/11/2023	20.3; 12.8	20	18.9
21*	23	28/11/2023	27.6; 6.8	19	18.6
21*	24	29/11/2023	34.3; 9.6	19	19.1
22	25	04/12/2023	33.8; 12.1	23	19.3
23	26	12/12/2023	24.3; 16.3	24	18.3
24	27	20/12/2023	19.5; 8.8	23	20.2
25	28	08/01/2024	34.0; 22.3	24	21.4
26*	29	15/01/2024	33.8; 21.8	25	23.1
26*	30	16/01/2024	32.5; 19.2	26	23.4
26*	31	17/01/2024	28.1; 17.1	23	23.6
27	32	22/01/2024	21.6; 14.7	24	23.2
28	33	30/01/2024	37.9; 24.2	24	23.2
29	34	07/02/2024	37.1; 23.0	24	22.9
30*	35	12/02/2024	36.4; 12.0	26	23.5
30*	36	13/02/2024	29.3; 16.8	25	23.1
30*	37	14/02/2024	22.0; 10.5	24	22.6
31	38	19/02/2024	32.8; 11.3	24	23.5
32	39	27/02/2024	35.3; 13.2	25	23.9
33	40	06/03/2024	31.4; 15.2	25	24.2
34	41	11/03/2024	37.8; 21.7	26	26.1

[#] Main treatment chamber temperatures measured in final effluent pump sump

1.10 Flow rates during steady-state weeks and on test days

Flow rates were recorded and logged from electronic flow meters installed on the inlet of the STS and flow data provided in Table 7. Average sewage flow supplied to the STS during testing was 1,200 L (± 1 L/d) which was within the specified $\pm 10\%$ range. Average instantaneous sewage flow rate into the STS was 15 L/min (± 2 L/min).

Table 7. STS influent flow rates during the 34-week testing period.

Week	Sample No.	Date	Flow rate (L/day)	Flow rate (L/min)
1	1	26/06/2023	1201	18.5
2	2	19/07/2023	1200	12.2
3	3	25/07/2023	1200	16.2
4*	4	31/07/2023	1200	12.1
4*	5	01/08/2023	1200	12.1
4*	6	02/08/2023	1200	12.1
5	7	07/08/2023	1200	12.2
6	8	15/08/2023	1200	12.1
7	9	23/08/2023	1200	12.4
9*	10	04/09/2023	1200	12.9
9*	11	05/09/2023	1200	13.0
9*	12	06/09/2023	1200	13.6
10	13	11/09/2023	1200	14.1
11	14	19/09/2023	1200	14.0
12	15	27/09/2023	1200	12.8
17*	16	30/10/2023	1200	14.6
17*	17	31/10/2023	1200	14.0
17*	18	01/11/2023	1200	12.8
18	19	06/11/2023	1200	13.5
19	20	14/11/2023	1196	12.7
20	21	22/11/2023	1200	13.8
21*	22	27/11/2023	1200	14.1
21*	23	28/11/2023	1200	14.1
21*	24	29/11/2023	1200	14.6
22	25	04/12/2023	1200	14.0
23	26	12/12/2023	1200	16.0
24	27	20/12/2023	1200	15.0
25	28	08/01/2024	1200	15.8
26*	29	15/01/2024	1200	15.6
26*	30	16/01/2024	1200	15.6
26*	31	17/01/2024	1200	15.6
27	32	22/01/2024	1200	15.6
28	33	30/01/2024	1200	17.4
29	34	07/02/2024	1200	16.2
30*	35	12/02/2024	1200	19.4
30*	36	13/02/2024	1200	19.4
30*	37	14/02/2024	1200	19.6
31	38	19/02/2024	1199	18.4
32	39	27/02/2024	1199	18.7
33	40	06/03/2024	1202	19.7
34	41	11/03/2024	1200	18.5

1.11 Stress testing synopsis including outcomes and any pertinent observations, or issues encountered

Stress testing was undertaken in accordance with AS 1546.3:2017 Paragraph A5.9 and following the schedule provided in Table A5 of the standard. Dates for stress testing events are provided in Table 2 and further details outlined in Table 8. All stress testing was undertaken and proceeded as per the procedures outlined in Paragraph A5.9 of AS 1546.3:2017. No pertinent observations or deviations from these procedures were encountered for any stress test. NB. The sequence of testing and stress testing was varied slightly from that outlined in AS Table A5 of 1546.3:2017 due to operational issues with site requiring a delayed testing commencement date during June 2023 (i.e. laundry stress test was undertaken at the end of the test period instead of the beginning).

1.11.1 Laundry day stress test

On the day of the 11th February 2024, the laundry stress test was undertaken. Accordingly, three volumes of recycled water (each 150 L) were dosed to the inlet invert of the STS' septic tank between the hours of 1200 to 1500. Additional laundry stress test water was added via gravity flow from a plastic barrel, with laundry stress flows administered at 1200, 1300 and 1400 hours.

1.11.2 Power failure stress test

During the period 27th to 28th July 2023 inclusive, the power failure stress test was undertaken. Accordingly, power supply to the STS was switched off at 1000 hours, remaining off for a period of 48 hours after which electricity supply was reinstated. During this 48-hour period, there was no wastewater inflow to the STS.

1.11.3 Overload (133% capacity) stress test

During the period 26th August to 1st September 2023 inclusive, the overload stress test was undertaken. Accordingly, the STS was loaded at a rate of 133% ($\pm 10\%$) of its nominated daily hydraulic load (i.e. 1,596 L/d) for seven consecutive days. Average recorded flow delivered to the STS during overload stress was 1,587 L/d (± 1 L) which was within the $\pm 10\%$ acceptable range.

1.11.4 Vacation/no flow stress test

During the period from 29th September to 26th October 2023 inclusive, the vacation stress test was undertaken. Accordingly, wastewater inflow was shut off such that there was no wastewater flow into the STS during the 28-day simulated vacation period. Electricity supply was maintained to the STS during this period.

1.11.5 Chemical stress test

During the morning of the 26th November 2023, the chemical stress test was undertaken. Accordingly, 125 ml of household bleach (containing 5% sodium hypochlorite) was added to 100 L of recycled water in a 200 L plastic barrel. The bleach and water mixture were then discharged by gravity into the inlet invert pipe of the STS' septic tank.

1.11.6 Surge/peak flow stress test

During the mornings of the 13th and 14th January 2024, the surge flow stress test was undertaken. Accordingly, 200 L of wastewater was discharged into the inlet invert pipe of the STS' septic tank over a maximum of 3 minutes. This additional surge flow was in addition to the normal 1,200 L/d steady-state flow applied to the STS during this period.

Table 8. Details of stress testing events for the Eljen GSF STS.

Stress test	Date and timing of stress test	Comments
Laundry day stress	11/02/2024	n/a
Power failure	27–28/07/2023	n/a
Overload (133%) stress	28/08–01/09/2023	n/a
Vacation/no flow stress	29/09–26/10/2023	n/a
Chemical stress	26/11/2023	n/a
Surge/peak flow stress	13–14/01/2024	n/a

1.12 Sludge accumulation testing

The volume of sludge was measured in both chambers of the septic tank at the end of the testing period as per AS 1546.3:2017 paragraph A5.3.2. Measured sludge levels are detailed in Table 9.

Table 9. Sludge accumulation testing results for the Eljen GSF STS septic tank.

Tank (chamber)	Sludge depth (cm)	Chamber volume (L)	Sludge accumulation vs. chamber volume (%)
Septic tank (1 st chamber)	31	2,730	21
Septic tank (2 nd chamber)	25	1,270	18

* Final surface crust thickness on 1st chamber of septic tank was approx. 10 cm (no crust on 2nd chamber)

Sludge accumulation and desludging interval is calculated based on the average sludge levels across the two septic tank chambers which after the total operating period between system commissioning and final sludge depth measurement had accumulated sludge to approx. 20% of its total operating capacity. The surface crust on the 1st septic chamber was to a depth of approx. 10 cm and was not taken into consideration when calculating desludging intervals, since much of the crust sits above the normal operating water level.

Accordingly, and based on the average sludge accumulation level in the septic tank and 300 days of total commissioning plus testing operation time, a desludging interval at the daily flow of 1,200 L is calculated as 1,265 days, or approx. 3.5 years. This calculation is based on sludge accumulation in the septic tank up to the point where sludge volume occupies 80% of its total capacity (i.e. 20% clear liquid volume). It should be noted that sludge accumulation calculations here are based on the system continuously receiving the maximum design loading rate of 1,200 L/d and so sludge accumulation and subsequent desludging interval under reduced wastewater influent flow rates would need to be adjusted accordingly.

1.13 Scheduled maintenance and equipment or component failure log

No scheduled or system maintenance was undertaken during the test duration.

On 04/12/2024 a small leak was detected from one of the outlet pipe flange seals in the SeptiSurge® distribution box. The client was notified on the same day and the leak was rectified on 11/12/2024. No other component failures were recorded during STS testing.

1.14 Functionality of the audio-visual alarm and/or the telemetric alarm system

The tested Eljen GSF Advanced secondary system had no audio-visual alarm fitted, as there were no mechanical or electrical components requiring alarming due to the gravity dosing of wastewater from the septic tank into the Eljen system.

1.15 Information on any deviations from treatment performance, manufacturer's maintenance instructions, sampling or testing procedures, or other misadventures

Several test site technical and/or operational problems were experienced during the testing program. These are detailed below:

- The sequence of testing and stress testing was varied slightly from that outlined in AS Table A5 of 1546.3:2017 (i.e. laundry stress test was undertaken at the end of the test period instead of the beginning). This was due to operational issues with site requiring a delayed testing commencement date during June 2023.
- Whole-of-site closure Christmas 2023: Due to holiday closure of our testing laboratory during the Christmas and New Year holiday period, the site was placed on standby operation for a period of two weeks between 25/12/2023–07/01/2024. During this period, normal flows were dosed to all STS units but no weekly monitoring was undertaken. Normal testing and sampling resumed on week beginning 08/01/2024.
- Courier delays with samples collected on 06/03/2024 meant that samples were not received by the testing laboratory until after the prescribed holding period, so sample data for this date was replaced with equivalent data from after the official testing period (18th March 2024).

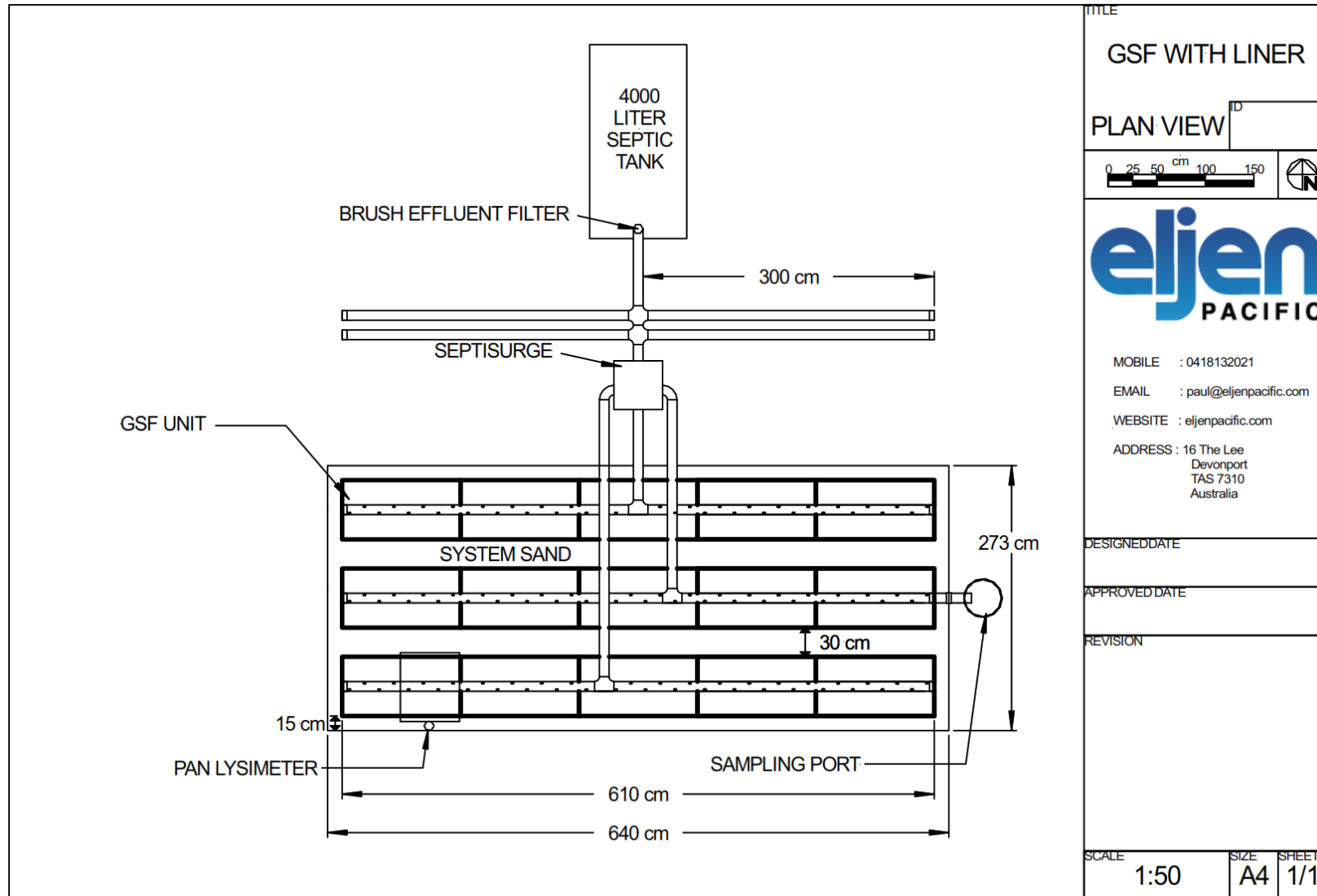
1.16 Noise levels

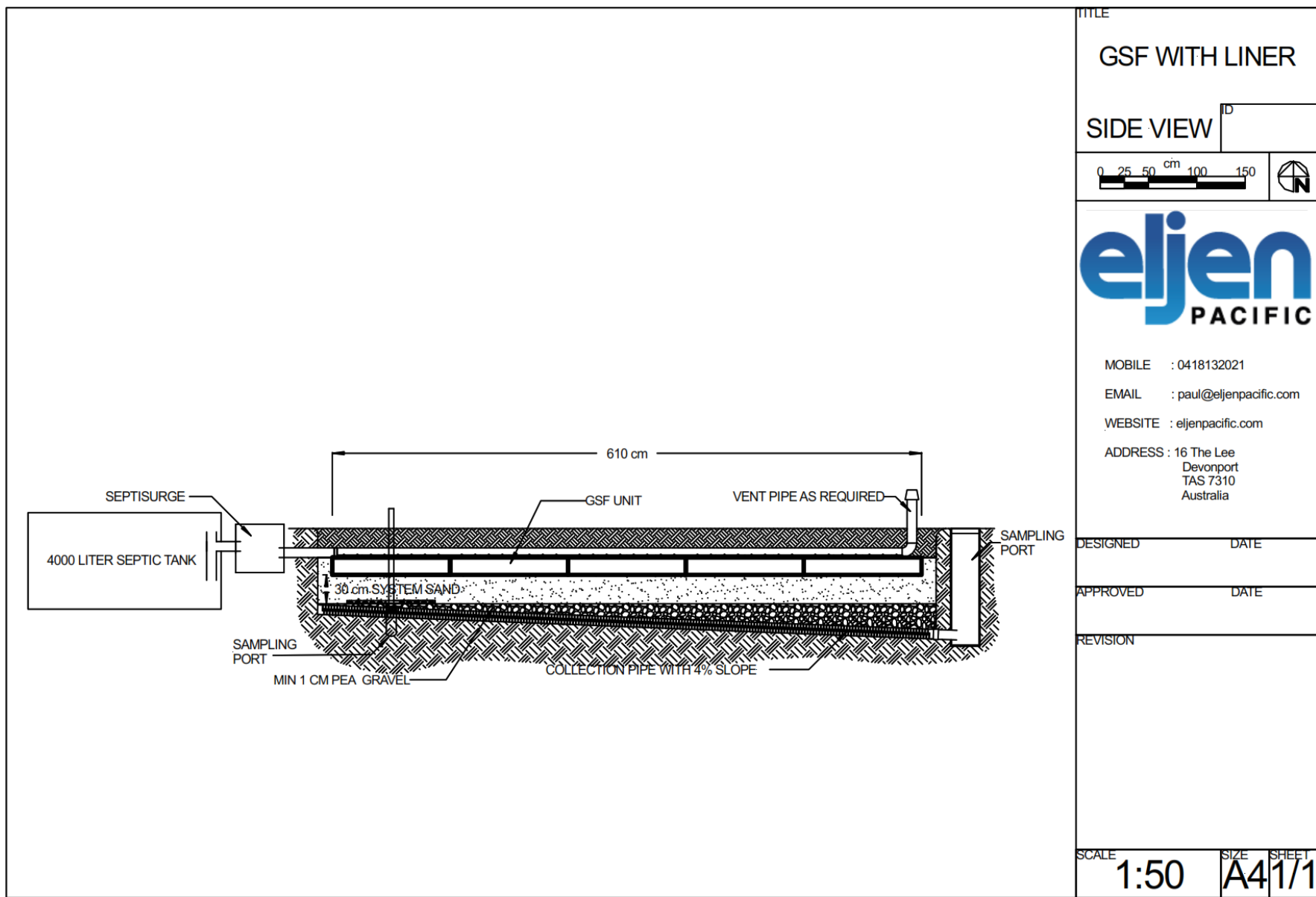
The Eljen GSF advanced secondary system has no aboveground noise-emitting components and no electrical or mechanical components under gravity-dosed configuration as tested, so operating noise levels are inherently low and were not measured.

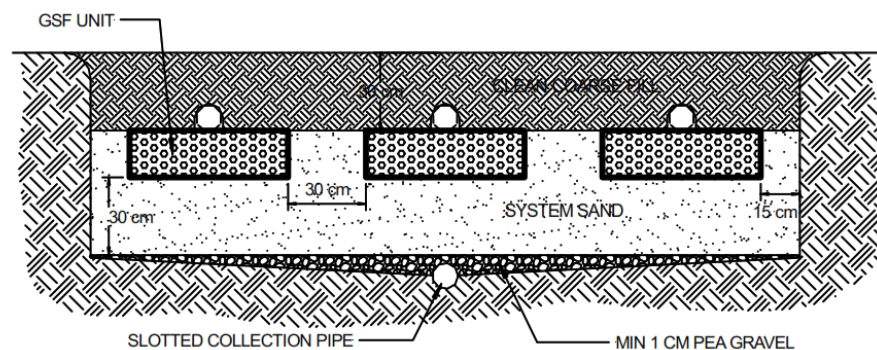
1.17 The average amount of electricity consumed during the evaluation period expressed in kilowatt hours per day (kWh/d) and kilowatt hours per cubic metre (kWh/1000 L) of treated effluent

As the Eljen GSF system was gravity dosed, average daily electricity consumption during the 34-week testing period was 0.0 kWh/d, with a corresponding average flow-specific electricity consumption of 0.0 kWh/1,000 L of treated effluent.

Appendix A 'As-tested' drawings of the Eljen GSF 1200 L/d secondary treatment system







TITLE		
GSF WITH LINER		
CROSS VIEW		ID
0 12.5 25 50 75 cm		N
MOBILE : 0418132021 EMAIL : paul@eljenpacific.com WEBSITE : eljenpacific.com ADDRESS : 16 The Lee Devonport TAS 7310 Australia		
DESIGNED DATE		
APPROVED DATE		
REVISION		
SCALE	SIZE	SHEET
1:25	A4	1/1

Appendix B Daily air temperature dataset (min; max)

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/06/2023	11.7	13.9
2/06/2023	8.8	16.6
3/06/2023	10.5	22.6
4/06/2023	10.6	21.8
5/06/2023	10.6	14.5
6/06/2023	11.5	20.5
7/06/2023	12.8	20.0
8/06/2023	9.2	14.2
9/06/2023	7.0	14.5
10/06/2023	8.1	13.6
11/06/2023	5.2	15.4
12/06/2023	7.5	16.6
13/06/2023	7.0	13.2
14/06/2023	6.0	13.9
15/06/2023	9.5	15.0
16/06/2023	9.6	17.0
17/06/2023	10.6	13.5
18/06/2023	4.4	12.4
19/06/2023	8.0	13.8
20/06/2023	2.0	12.3
21/06/2023	5.4	10.5
22/06/2023	7.0	9.6
23/06/2023	6.4	13.1
24/06/2023	7.7	12.2
25/06/2023	6.8	10.9
26/06/2023	7.0	14.5
27/06/2023	6.5	10.7
28/06/2023	6.4	14.5
29/06/2023	3.7	13.2
30/06/2023	7.3	11.4

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/07/2023	7.0	14.2
2/07/2023	7.0	9.4
3/07/2023	4.6	9.8
4/07/2023	5.6	13.5
5/07/2023	5.5	15.2
6/07/2023	9.0	10.7
7/07/2023	6.9	13.5
8/07/2023	8.4	13.0
9/07/2023	9.3	13.2
10/07/2023	8.9	15.2
11/07/2023	9.1	15.6
12/07/2023	4.0	15.4
13/07/2023	5.3	14.7
14/07/2023	9.4	15.2
15/07/2023	6.9	15.6
16/07/2023	3.2	14.6
17/07/2023	-0.3	13.9
18/07/2023	3.6	12.9
19/07/2023	2.0	15.0
20/07/2023	0.6	13.6
21/07/2023	2.0	14.6
22/07/2023	6.0	12.2
23/07/2023	6.5	12.3

24/07/2023	7.4	14.3
25/07/2023	8.2	14.8
26/07/2023	3.7	17.0
27/07/2023	5.0	17.4
28/07/2023	9.0	14.0
29/07/2023	10.5	15.1
30/07/2023	9.0	12.9
31/07/2023	8.5	14.8

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/08/2023	8.3	13.3
2/08/2023	5.6	18.0
3/08/2023	8.5	22.0
4/08/2023	11.0	12.1
5/08/2023	5.0	12.5
6/08/2023	5.0	12.7
7/08/2023	3.3	14.2
8/08/2023	0.1	16.2
9/08/2023	5.7	19.6
10/08/2023	6.1	15.2
11/08/2023	3.1	14.8
12/08/2023	8.6	12.0
13/08/2023	8.0	10.8
14/08/2023	7.2	15.0
15/08/2023	0.4	15.3
16/08/2023	3.6	17.2
17/08/2023	8.9	14.8
18/08/2023	6.5	14.4
19/08/2023	8.9	15.2
20/08/2023	7.9	17.0
21/08/2023	8.2	17.2
22/08/2023	6.5	15.4
23/08/2023	4.0	12.5
24/08/2023	2.5	18.5
25/08/2023	7.0	21.7
26/08/2023	8.1	14.0
27/08/2023	7.7	14.5
28/08/2023	3.4	22.9
29/08/2023	10.5	24.5
30/08/2023	10.0	15.6
31/08/2023	6.5	15.4

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/09/2023	7.7	14
2/09/2023	3.3	20.3
3/09/2023	7.3	21.5
4/09/2023	10	16.6
5/09/2023	5.6	15.7
6/09/2023	4.6	20.8
7/09/2023	9.0	12.8
8/09/2023	4.3	13.5
9/09/2023	1.3	14.5
10/09/2023	2.9	18.3
11/09/2023	4.5	22.1
12/09/2023	6.9	23.2
13/09/2023	7.3	26.5
14/09/2023	11.6	25.3
15/09/2023	9.6	20.4

16/09/2023	10.1	24.2
17/09/2023	6.8	27.5
18/09/2023	11.0	21.7
19/09/2023	11.2	20.7
20/09/2023	11.0	15.7
21/09/2023	7.9	18
22/09/2023	2.5	18.7
23/09/2023	4.5	20.5
24/09/2023	5.3	26.6
25/09/2023	10.0	20.4
26/09/2023	9.8	22.9
27/09/2023	9.3	18.7
28/09/2023	7.4	24.7
29/09/2023	9.1	27.4
30/09/2023	9.2	29.4

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/10/2023	10.6	19.3
2/10/2023	6.2	28.2
3/10/2023	11.5	18.2
4/10/2023	5.5	15.2
5/10/2023	5.0	15.0
6/10/2023	8.5	16.5
7/10/2023	2.3	21.4
8/10/2023	6.1	25.2
9/10/2023	6.8	29.7
10/10/2023	7.1	16.6
11/10/2023	7.6	16.4
12/10/2023	3.2	20.1
13/10/2023	3.8	25.6
14/10/2023	4.1	29.1
15/10/2023	7.8	28.8
16/10/2023	10.4	18.9
17/10/2023	7.4	16.7
18/10/2023	0.8	24.3
19/10/2023	12.3	23.9
20/10/2023	3.7	14.7
21/10/2023	2.6	16.2
22/10/2023	1.3	21.6
23/10/2023	3.8	25.9
24/10/2023	4.4	23.6
25/10/2023	8.9	18.8
26/10/2023	6.7	17.7
27/10/2023	1.4	19.7
28/10/2023	4.8	21.9
29/10/2023	9.4	20.1
30/10/2023	8.9	19.8
31/10/2023	3.4	24.8

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/11/2023	4.3	29.2
2/11/2023	9.3	26.2
3/11/2023	7.3	27.4
4/11/2023	11.1	30.1
5/11/2023	9.3	38.7
6/11/2023	12.6	38.1
7/11/2023	5.5	18.2
8/11/2023	10.3	22.2

9/11/2023	10.9	21.5
10/11/2023	11.1	24.0
11/11/2023	10.9	22.4
12/11/2023	8.6	21.9
13/11/2023	8.7	25.8
14/11/2023	11.3	26.6
15/11/2023	11.8	24.7
16/11/2023	12.3	21.5
17/11/2023	12.1	21.5
18/11/2023	11.1	20.3
19/11/2023	11.8	20.8
20/11/2023	11.4	19.1
21/11/2023	12.4	20.1
22/11/2023	10.7	22.1
23/11/2023	9.4	20.9
24/11/2023	12.8	19.3
25/11/2023	13.4	23.7
26/11/2023	10.7	22.2
27/11/2023	12.8	20.3
28/11/2023	6.8	27.6
29/11/2023	9.6	34.3
30/11/2023	13.9	31.8

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/12/2023	11.5	22.5
2/12/2023	12.5	18.1
3/12/2023	8.7	28.0
4/12/2023	12.1	33.8
5/12/2023	13.9	30.2
6/12/2023	12.8	29.7
7/12/2023	14.0	27.7
8/12/2023	17.0	34.0
9/12/2023	13.4	13.8
10/12/2023	10.1	16.6
11/12/2023	10.5	25.4
12/12/2023	16.3	24.3
13/12/2023	12.1	23.2
14/12/2023	14.0	21.3
15/12/2023	10.2	22.0
16/12/2023	10.0	21.1
17/12/2023	7.5	27.3
18/12/2023	15.5	29.0
19/12/2023	12.1	19.2
20/12/2023	8.8	19.5
21/12/2023	9.5	20.6
22/12/2023	10.8	26.6
23/12/2023	9.9	24.7
24/12/2023	12.4	20.7
25/12/2023	11.8	19.4
26/12/2023	9.2	23.0
27/12/2023	7.9	26.7
28/12/2023	11.4	29.6
29/12/2023	14.0	28.8
30/12/2023	16.7	25.7
31/12/2023	16.2	30.6

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/01/2024	19.2	29.8

2/01/2024	18.6	26.7
3/01/2024	11.5	26.0
4/01/2024	11.4	27.9
5/01/2024	11.9	27.9
6/01/2024	13.4	28.3
7/01/2024	14.5	36.2
8/01/2024	13.8	34.0
9/01/2024	11.9	25.4
10/01/2024	16.0	30.9
11/01/2024	21.2	33.8
12/01/2024	20.8	32.7
13/01/2024	14.6	22.2
14/01/2024	14.4	29.1
15/01/2024	13.7	33.8
16/01/2024	13.9	32.5
17/01/2024	13.8	28.1
18/01/2024	12.3	38.9
19/01/2024	10.6	38.2
20/01/2024	15.0	31.1
21/01/2024	21.3	21.9
22/01/2024	18.6	21.6
23/01/2024	18.6	28.7
24/01/2024	18.7	28.6
25/01/2024	20.8	25.1
26/01/2024	19.5	22.7
27/01/2024	19.4	26.2
28/01/2024	18.4	26.2
29/01/2024	15.3	33.6
30/01/2024	14.4	37.9
31/01/2024	14.8	36.7

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/02/2024	6.2	22.1
2/02/2024	8.2	23.3
3/02/2024	9.3	26.1
4/02/2024	11.4	24.3
5/02/2024	10.2	27.2
6/02/2024	9.4	33.4
7/02/2024	11.3	37.1
8/02/2024	14.3	36.6
9/02/2024	9.1	24.1
10/02/2024	5.6	25.3
11/02/2024	6.6	28.8
12/02/2024	6.7	32.1
13/02/2024	8.9	32.3
14/02/2024	9.3	28.3
15/02/2024	7.9	22.5
16/02/2024	8.5	29.1
17/02/2024	9.0	32.0
18/02/2024	11.0	32.0
19/02/2024	11.3	32.8
20/02/2024	13.2	30.3
21/02/2024	19.1	37.5
22/02/2024	18.7	33.4
23/02/2024	12.7	19.7
24/02/2024	12.5	26.0
25/02/2024	8.6	31.0
26/02/2024	15.0	25.4

27/02/2024	13.2	35.3
28/02/2024	22.8	28.9
29/02/2024	16.2	29.5

Date	Air temperature (min) (°C)	Air temperature (max) (°C)
1/03/2024	12.8	29.9
2/03/2024	13.7	24.8
3/03/2024	12.3	22.9
4/03/2024	9.0	27.0
5/03/2024	10.5	32.9
6/03/2024	15.2	31.4
7/03/2024	15.2	28.8
8/03/2024	12.5	35.0
9/03/2024	17.6	38.4
10/03/2024	22.1	37.6
11/03/2024	21.7	37.8



Agriculture & Environmental



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Carlton - P1.pdf

Plans Reference:P1

Date Received:24/09/2025



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Geotextile Sand Filter

Australia Design & Installation Manual



Sorell Council

Development Application: 5.2025.260.1 -
Development Application 16 Clover Court,
Carlton - P1.pdf

Plans Reference: P1
Date Received: 24/09/2025

eljen
CORPORATION

Innovative Onsite Products & Solutions Since 1970

March 2018
www.eljen.com

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Glossary of Terms

A42 Module	122 cm x 61 cm x 18 cm (L x W x H)
Cover Fabric	The geotextile cover fabric (provided by manufacturer) that is placed over the GSF modules.
Design Flow	The estimated peak flow that is used to size a GSF system is 120 liters per day per person.
GSF	The Eljen Geotextile Sand Filter Modules and the sand layer at the base and along the sides of the modules.
GSF Module	The individual module of a GSF system. The module is comprised of a cuspated plastic core and corrugated geotextile fabric.
Specified Sand	To ensure proper system operation, the system MUST be installed using ASTM C33 Sand. ASTM C33 sand will have less than 10% passing the #100 Sieve and less than 5% passing the # 200 sieve. Ask your material supplier for a sieve analysis to verify that your material meets the required specifications.

TABLE 1: SPECIFIED SAND SIEVE REQUIREMENTS

ASTM C33 SAND SPECIFICATION		
Sieve Size	Sieve Square Opening Size	Specification Percent Passing (Wet Sieve)
9.5 mm	9.52 mm	100
No. 4	4.76 mm	95 - 100
No. 8	2.38 mm	80 - 100
No. 16	1.19 mm	50 - 85
No. 30	590 µm	25 - 60
No. 50	297 µm	5 - 30
No. 100	149 µm	0 - 10
No. 200	75 µm	0 - 5

Primary Treatment Zone

- Perforated pipe is centered above the GSF module to distribute septic effluent over and into corrugations created by the cusped core of the geotextile module.
- Septic effluent is filtered through the Bio-Matt fabric. The module's unique design provides increased surface area for biological treatment that greatly exceeds the module's footprint.
- Open air channels within the module support aerobic bacterial growth on the modules geotextile fabric interface, surpassing the surface area required for traditional absorption systems.
- An anti-siltation geotextile fabric covers the top and sides of the GSF module and protects the Specified Sand and soil from clogging, while maintaining effluent storage within the module.

Secondary Treatment Zone

- Effluent drips into the Specified Sand layer and supports unsaturated flow into the native soil. This Specified Sand/soil interface maintains soil structure, thereby maximizing the available absorption interface in the native soil. The Specified Sand supports nitrification of the effluent, which reduces oxygen demand in the soil, thus minimizing soil clogging from anaerobic bacteria.
- The Specified Sand layer also protects the soil from compaction and helps maintain cracks and crevices in the soil. This preserves the soil's natural infiltration capacity, which is especially important in finer textured soils, where these large channels are critical for long-term performance.
- Native soil provides final filtration and allows for groundwater recharge.

FIGURE 1: GSF SYSTEM OPERATION

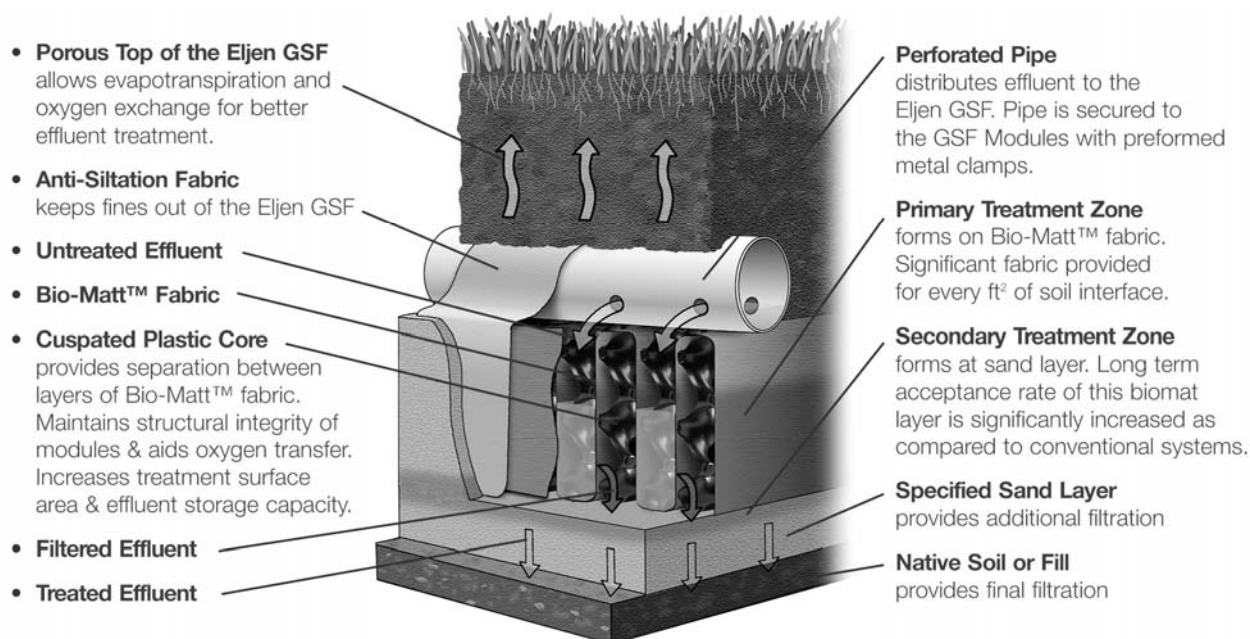
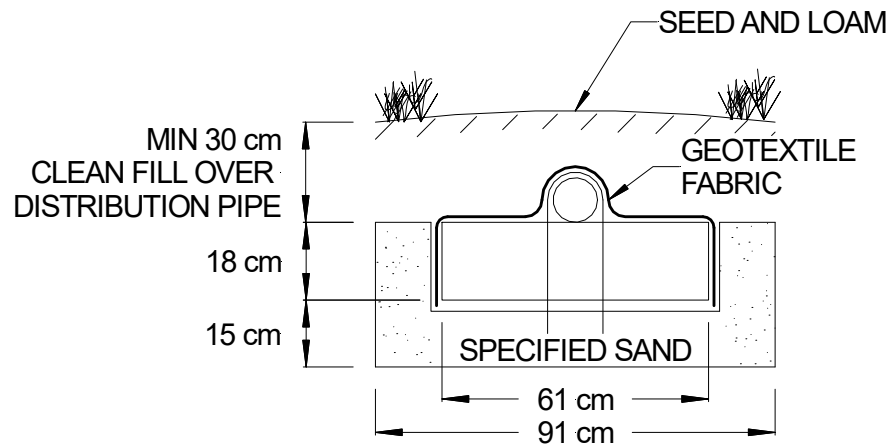


FIGURE 2: TYPICAL A42 GSF CROSS SECTION



A42 MODULE (L x W x H) 122 cm x 61 cm x 18 cm

All systems are required to have a minimum of:

- 15 cm of Specified Sand is at the edges of the GSF module.
- 15 cm of Specified Sand is at the beginning and end of each GSF Row.
- 15 cm of Specified Sand is directly below the GSF module.
- 30 cm of clean fill above the module.

1.0 Design and Installation

1.1 REQUIREMENTS: GSF systems must meet the local rules and regulations except as outlined in this manual. The purpose of this manual is to provide the minimum design and installation information for the use of Eljen A42 GSF Modules. Exceptions and changes may be made, but should be confirmed by Eljen Pacific Inc. The manual provides a brief description of the Eljen GSF Modules with their sizing and installation specifications. This document is not inclusive of all installation options.

For more detailed design information, please contact Eljen Pacific Inc. at 0418 132 021 or paul@eljenpacific.com.

1.2 SPECIFIED SAND SPECIFICATION FOR GSF SYSTEMS: The sand immediately under, between rows and around the perimeter of the GSF system must meet **ASTM C33 SPECIFICATIONS, WITH LESS THAN 10% PASSING A #100 SIEVE AND LESS THAN 5% PASSING A #200 SIEVE**. Please place a prominent note to this effect on each design drawing. See Table 1 for more information on the sand and sieve specifications.

1.3 CONNECTIONS AND FITTINGS: Connections of lines to tanks and distribution boxes must be made using watertight mechanical seals.

1.4 PLACING GSF MODULES: The “Painted Stripe” on the GSF modules indicates the top of the module and is not intended to indicate the location of the distribution pipe. With the painted stripe facing up, all rows of GSF modules are set level, end to end on the Specified Sand layer. No mechanical connection is required between modules.

1.5 DISTRIBUTION: Gravity, pump to gravity or pressure distribution are acceptable when using the GSF System. All piping must meet the guidelines and have holes placed at 4 & 8 o'clock at 150 mm centers. A pressure manifold is placed inside the 100 mm distribution pipe when using pressure distribution. Section 4.0 of this manual goes into details of how to construct the distribution network. The minimum method of distribution is determined by the separation distance to ground water and soil type.

1.6 DISTRIBUTION BOX: Set gravity system D-box outlet invert a minimum of 1 cm per above invert of distribution pipe over modules (5 cm minimum for pumped D-Box systems). The fill below the D-Box and piping must be compacted to avoid settling. Flow Equalizers (speed levelers) are recommended for gravity and pump to gravity systems.

1.7 COVER FABRIC: Geotextile cover fabric is provided by Eljen Corporation for all GSF systems. It is placed over the top and sides of the module rows to prevent long term siltation and failure. **Cover fabric substitution is not allowed.** Fabric should drape vertically over the pipe and must not block holes in the distribution pipe or be stretched from the top of the pipe to the outside edge of the modules. “Tenting” will cause undue stress on fabric and pipe.

1.8 BACKFILL & FINISH GRADING: Complete backfill with a minimum of 30 cm of clean porous fill measured from the top of the distribution pipe. Use well graded native soil fill that is clean, porous and devoid of large rocks. Do not use wheeled equipment over the system. A light track machine may be used with caution, avoiding crushing or shifting of pipe assembly. Divert surface runoff from the Effluent Disposal Area, (EDA). Finish grade to prevent surface ponding. Topsoil and seed system area to protect from erosion.

1.9 ADDITIONAL FACTORS EFFECTING RESIDENTIAL SYSTEM SIZE: Homes with expected higher than normal water usage may consider increasing the septic tank volume as well as incorporating a multiple compartment septic tank. Consideration for disposal area may be up-sized for expected higher than normal water use.

For example:

- Luxury homes, homes with a Jacuzzi style tubs, and other high use fixtures.
- Homes with known higher than normal occupancy.

1.0 Design and Installation

1.10 GARBAGE DISPOSALS: The use of a garbage disposal (garburators) is not recommended as they can cause septic system problems by generating an increased amount of suspended solids, grease and nutrients.

The Daily Design Flow is increased by 50% if the owner wishes to use a garburator. Eljen recommends a dual compartment tank or tanks in series when using a garbage disposal unit. An effluent filter with higher filtration is recommended for systems with garbage disposals.

1.11 WATER CONDITIONERS: Water conditioners will be discharged into a separate disposal system.

1.12 VEHICULAR TRAFFIC: All vehicular traffic is prohibited over the GSF system.

1.13 SYSTEM GEOMETRY: Design systems as long and narrow as practical along site contours to minimize ground water mounding especially in poorly drained low permeability soils. If possible, design level systems with equal number of modules per row.

1.14 SEPTIC TANKS: Please refer to Australia Standards AS 1547 2012 & AS 1546 for guidance on septic tanks.

1.15 SEPTIC TANK FILTERS: Septic tank effluent filters are **REQUIRED** on the outlet end of septic tank. Filter manufactures require that filters be cleaned from time to time. Ask your installer or designer for specific cleaning requirements based on the type or make of the filter installed. Eljen requires the septic tank to be pumped every three years or as needed which would be a good time to check and conduct filter maintenance.

1.16 SYSTEM VENTING: It is strongly recommended to vent all systems. See Section 6.0 for a more detailed explanation of venting GSF products.

1.17 VERTICAL SEPARATION: The minimum distances located in Table R1 of the regulations provide guidance on vertical separation.

1.18 COMMERCIAL DESIGN CONSIDERATIONS: Commercial systems differ from residential systems relative to wastewater characteristics, effluent distribution strategies, peak flows, system size and geometry. As these systems are normally larger, the designer must also consider the collection systems and their integrity, groundwater hydrology, drainage above and below the GSF system and design accordingly.

Designers should carefully review and document with their client effluent BOD₅ and TSS concentrations and water use numbers. The designer should document that the system installation meets the technology supplier's specifications to ensure long-term performance. In addition, designers must be attentive to special details of the system, conduct follow-through startup and document technical capabilities for personnel required for Operation and Maintenance of the system.

Please contact Eljen Pacific Inc. at 0418 132 021 or paul@eljenpacific.com for recommendations on sizing prior to design and submission of plans to local authority.

2.0 GSF System Sizing

ELJEN GSF SYSTEM DESIGN PROGRAM

		Eljen GSF System Design Program		RESET FORM	
Date:		Client Name:			
Site Address:			Council Area:		
Designer:		Designer Phone Number:		Is this new construction Y or N:	
Plumber:		Plumber Phone Number:		Plumber License Number:	
<i>Note: This design program is a guide only. All design constraints and limitations must be addressed by the designer prior to design and installation.</i>					
System Design Information			Design Notes and Comments		
Design Occupancy (Number of persons):					
Daily Design Flow (L/Person/Day):					
Total Daily Design Flow (L/Day):					
Trench or Bed					
Soil Category <i>(Note: Soil Categories 4-6 May Require additional design consideration. Please reference AS/1547 2012 when designing in these soil types.)</i>					
Site Design Loading Rate (L/mm/day):					
System Area Slope (%):					
System Area Slope (converted from % slope to degrees slope):					
System Basal Area Bore Log Depth: <i>(Note: Must be greater than 600 mm)</i>					
Maximum System Length Based on Site Constraints:					
Desired Rows or Trenches in System					
Distribution Type <i>(G = Gravity - P = Pump to Gravity - LPD = Low Pressure Distribution):</i>					
System Dimensions					
Would you like to use a specific width? (y or n) Not applicable in Trenches					
Specific Width (m)					
Treatment Zone			Dispersal Zone Extension		
Length (m)					
Width (m)					
Sand Height (m)					
Sand Area (m ²)					
System Capacity					
Total Daily Design Flow (L/Day):					
Minimum Number of A42 Units Required					
Units per Row					
Length of Rows with 0.15 m Sand Extension					
End to End Space Between Modules (TRENCH ONLY)					
Materials					
Minimum Number of A42 Units Required					
The system requires a high vent. Are using 50mm or 100mm pipe					
Low vent					
Effluent Filter					
Inspection Ports					
Pipe Required (m)					
Estimate of System Sand Required (m ³)					

For simple and easy system design, please use the Eljen GSF System Design Program. This design program provides all the necessary information for designing your Eljen GSF System.

This Program is for residential systems only and can be obtained from Eljen Pacific Inc. at 0418 132 021 or paul@eljenpacific.com.

3.0 Trench Installation Guidelines

1. Ensure all components leading to the GSF system are installed properly. Septic tank effluent filters are required with the GSF system.
2. Determine the number of GSF Modules required using the sizing program.
3. Prepare the site. Do not install a system on saturated ground or wet soils that are smeared during excavation. Keep machinery off infiltrative areas.
4. Plan all drainage requirements above (up-slope) of the system. Set soil grades to ensure that storm water drainage and ground water is diverted away from the absorption area once the system is complete.
5. Excavate the trench; scarify the receiving layer to maximize the interface between the native soil and specified sand.
6. Minimize walking in the trench prior to placement of the specified sand to avoid soil compaction.
7. Place specified sand in a 15 cm lift, stabilize by foot, a hand held tamping tool or a portable vibrating compactor. The stabilized height below the GSF module must be level at 15 cm.
8. Place GSF modules with **PAINTED STRIPE FACING UP**, end to end on top of the specified sand along their 122 cm length.
9. A standard perforated 100 mm distribution pipe is centered along the modules 122 cm length. Orifices are set at the 4 & 8 o'clock position.
10. All pipes are secured with manufacturers supplied wire clamps, one per module.
11. (Pressure Distribution Systems) Insert a pressure pipe (size per design and code) into the standard perforated distribution pipe. The pressure pipe orifices are set at the 12 o'clock position as shown in Figure 11. Each pressure lateral will have a drain hole at the 6 o'clock position. Each pressure lateral shall have a clean out at the end of the trench.
12. It is strongly recommended to install a 100 mm vent onto the distribution pipe. Distribution pipes can be connected to one vent or use one vent per distribution line.
13. **Cover fabric substitution is not allowed.** The installer should lay the Eljen provided geotextile cover fabric lengthwise down the trench, with the fabric fitted to the perforated pipe on top of the GSF modules. Fabric should be neither too loose, nor too tight. The correct tension of the cover fabric is set by:
 - a. Spreading the cover fabric over the top of the module and down both sides of the module with the cover fabric tented over the top of the perforated distribution pipe.
 - b. Place shovelfuls of Specified Sand directly over the pipe area allowing the cover fabric to form a mostly vertical orientation along the sides of the pipe. Repeat this step moving down the pipe.
14. Place 15 cm of Specified Sand along both sides of the modules edge. A minimum of 15 cm of Specified Sand is placed at the beginning and end of each trench.
15. Complete backfill with a minimum of 30 cm of clean porous fill measured from the top of the module. Use well graded native soil fill that is clean, porous and devoid of large rocks. Do not use wheeled equipment over the system. A light track machine may be used with caution, avoiding crushing or shifting of pipe assembly.
16. Divert surface runoff from the system. Finish grade to prevent surface ponding. Topsoil and seed system area to protect from erosion.

3.0 Trench Installation Guidelines

FIGURE 3: PLAN VIEW – TRENCH SYSTEM

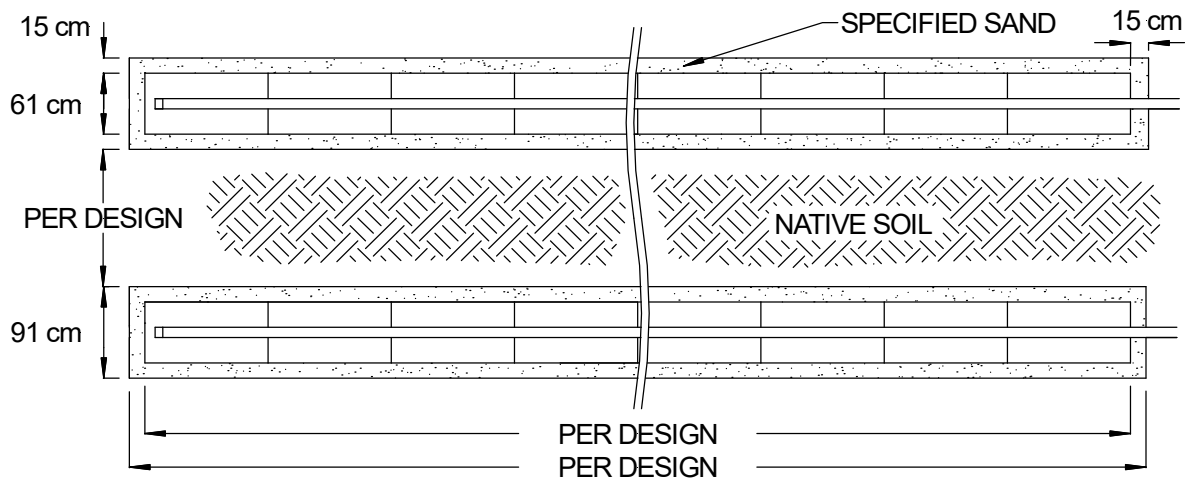


FIGURE 4: SECTION VIEW – TRENCH SYSTEM – LEVEL SITE

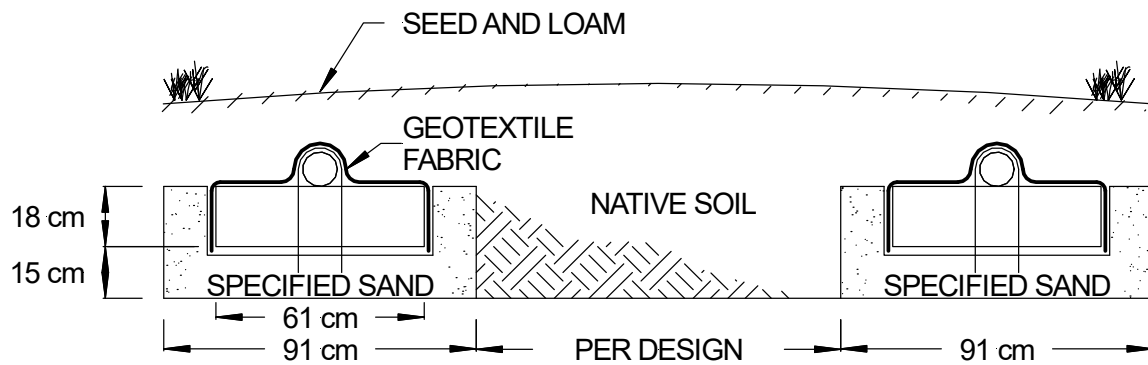
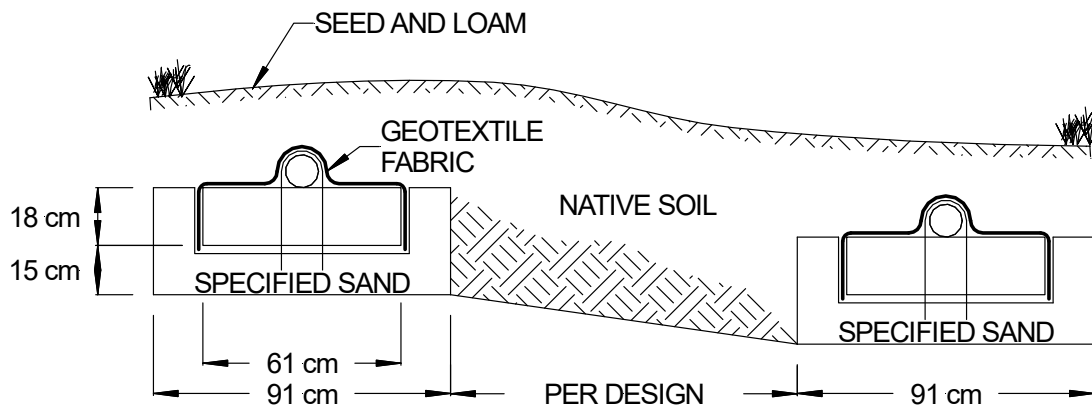


FIGURE 5: SECTION VIEW – TRENCH SYSTEM – SLOPING SITE



4.0 Bed Installation Guidelines

1. Ensure all components leading to the GSF system are installed properly. Septic tank effluent filters are required with the GSF system.
2. Determine the number of GSF Modules required using the sizing program.
3. Prepare the site. Do not install a system on saturated ground or wet soils that are smeared during excavation. Keep machinery off infiltrative areas.
4. Plan all drainage requirements above (up-slope) of the system. Set soil grades to ensure that storm water drainage and ground water is diverted away from the absorption area once the system is complete.
5. Excavate the bed absorption area; scarify the receiving layer to maximize the interface between the native soil and specified sand.
6. Minimize walking in the absorption area prior to placement of the specified sand to avoid soil compaction.
7. Place specified sand in a 15 cm lift, stabilize by foot, a hand held tamping tool or a portable vibrating compactor. The stabilized height below the GSF module must be level at 15 cm.
8. Place GSF modules with **PAINTED STRIPE FACING UP**, end to end on top of the specified sand along their 122 cm length.
9. A standard perforated 100 mm distribution pipe is centered along the modules 122 cm length. Orifices are set at the 4 & 8 o'clock position.
10. All distribution pipes are secured with manufacturers supplied wire clamps, one per module.
11. (Pressure Distribution Systems) Insert a pressure pipe (size per design and code) into the standard perforated distribution pipe. The pressure pipe orifices are set at the 12 o'clock position as shown in Figure 11. Each pressure lateral will have a drain hole at the 6 o'clock position. Each pressure lateral shall have a clean out at the end of each module row.
17. It is strongly recommended to install a 100 mm vent onto the distribution pipe. Distribution pipes can be connected to one vent or use one vent per distribution line.
12. **Cover fabric substitution is not allowed.** The installer should lay the Eljen provided geotextile cover fabric lengthwise down the row, with the fabric fitted to the perforated pipe on top of the GSF modules. Fabric should be neither too loose, nor too tight. The correct tension of the cover fabric is set by:
 - a. Spreading the cover fabric over the top of the module and down both sides of the module with the cover fabric tented over the top of the perforated distribution pipe.
 - b. Place shovelfuls of Specified Sand directly over the pipe area allowing the cover fabric to form a mostly vertical orientation along the sides of the pipe. Repeat this step moving down the pipe.
13. Place 15 cm of Specified Sand along both sides of the modules edge. A minimum of 15 cm of Specified Sand is placed at the beginning and end of each module row. A minimum of 30 cm of Specified Sand is placed in between module rows.
14. Complete backfill with a minimum of 30 cm of clean porous fill measured from the top of the module. Use well graded native soil fill that is clean, porous and devoid of large rocks. Do not use wheeled equipment over the system. A light track machine may be used with caution, avoiding crushing or shifting of pipe assembly.
15. Divert surface runoff from the system. Finish grade to prevent surface ponding. Topsoil and seed system area to protect from erosion.

4.0 Bed Installation Guidelines

FIGURE 6: PLAN VIEW – BED SYSTEM

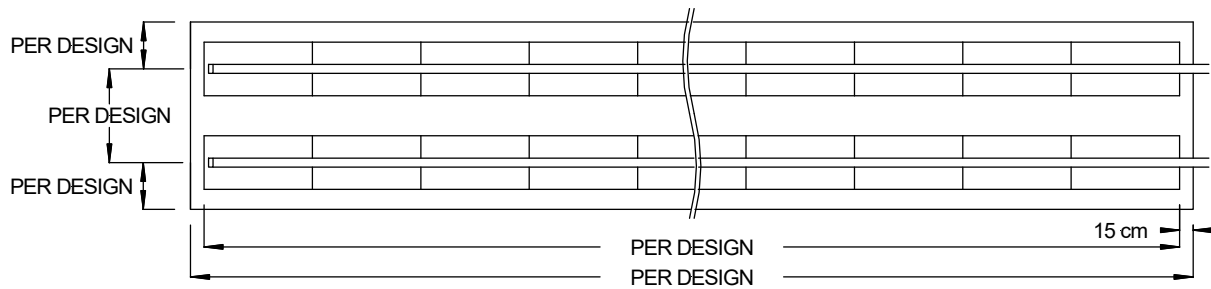
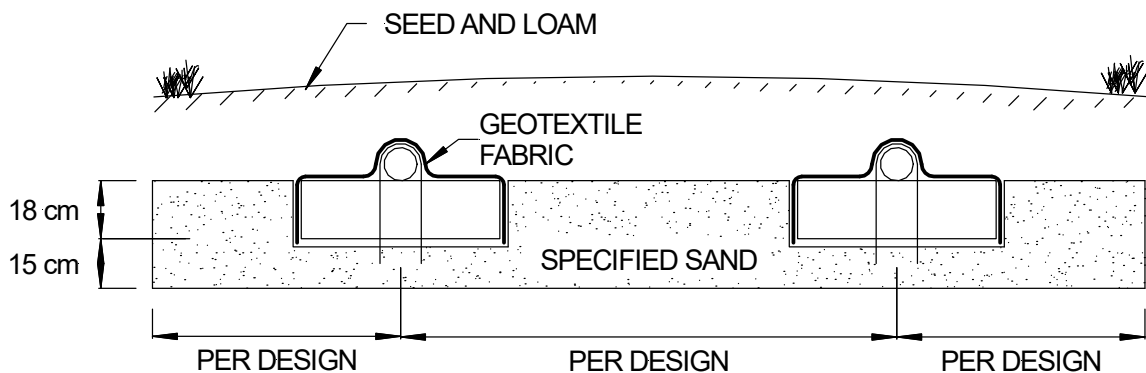


FIGURE 7: SECTION VIEW – BED SYSTEM



5.0 Eljen GSF Systems on Level Sites

5.1 SYSTEM CONFIGURATIONS: Design level systems with 30 cm minimum spacing between module rows and 15 cm from the end or edge of system perimeter. The system sand, GSF modules, and distribution pipes are installed level at their design elevations.

5.2 DISTRIBUTION PIPE LAYOUT: Approved 100 mm perforated pipe runs along the center of the modules. Ends may be connected with approved solid pipe at the far end of the system and at mid points in, gravity systems as long as equal distribution is insured to all rows. Solid pipe is used to connect perforated lines to the distribution box.

6.0 Eljen GSF Systems on Sloped Sites

6.1 SYSTEM CONFIGURATIONS: Sequential and serial dosed GSF systems may be used on sloped sites where applicable.

6.2 ROW SPACING: Systems with up to 15 cm elevation drop between adjacent module rows use 30 cm minimum spacing. If over 15 cm drop, use a minimum of 2 times the elevation drop as minimum spacing between module rows.

6.3 DISTRIBUTION BOX: Provide a distribution box at the beginning of the first row of modules for effluent velocity reduction and a system inspection port. Lower rows can utilize drop boxes, or distribution boxes with flow equalizer to ensure effluent is loaded to the upslope trench before continuing to lower trenches within the system.

7.0 Mound Installation Guidelines

1. Ensure all components leading to the GSF system are installed properly. Septic tank effluent filters are required with the GSF system.
2. Determine the number of GSF Modules required using the sizing program.
3. Prepare the site. Do not install a system on saturated ground or wet soils that are smeared during excavation. Keep machinery off infiltrative areas.
4. Plan all drainage requirements above (up-slope) of the system. Set soil grades to ensure that storm water drainage and ground water is diverted away from the absorption area once the system is complete.
5. Remove the organic soil layer. Scarify the receiving layer to maximize the interface between the native soil and Specified Sand. Minimize walking in the absorption area prior to placement of the Specified Sand to avoid soil compaction.
6. Place fill material meeting local requirements (or Specified Sand requirements) onto the soil interface as you move down the excavated area. Place specified sand in a 15 cm lifts, stabilize by foot, a hand held tamping tool or a portable vibrating compactor. The stabilized height below the GSF module must shall meet the mound design requirements.
7. Place GSF modules with **PAINTED STRIPE FACING UP**, end to end on top of the specified sand along their 122 cm length.
8. A standard perforated 100 mm distribution pipe is centered along the modules 122 cm length. Orifices are set at the 4 & 8 o'clock position.
9. All distribution pipes are secured with manufacturers supplied wire clamps, one per module.
10. (Pressure Distribution Systems) Insert a pressure pipe (size per design and code) into the standard perforated distribution pipe. The pressure pipe orifices are set at the 12 o'clock position as shown in Figure 11. Each pressure lateral will have a drain hole at the 6 o'clock position. Each pressure lateral shall have a clean out at the end of each module row.
18. It is strongly recommended to install a 100 mm vent onto the distribution pipe. Distribution pipes can be connected to one vent or use one vent per distribution line.
11. **Cover fabric substitution is not allowed.** The installer should lay the Eljen provided geotextile cover fabric lengthwise down the row, with the fabric fitted to the perforated pipe on top of the GSF modules. Fabric should be neither too loose, nor too tight. The correct tension of the cover fabric is set by:
 - a. Spreading the cover fabric over the top of the module and down both sides of the module with the cover fabric tented over the top of the perforated distribution pipe.
 - b. Place shovelfuls of Specified Sand directly over the pipe area allowing the cover fabric to form a mostly vertical orientation along the sides of the pipe. Repeat this step moving down the pipe.
12. Ensure there is 15 cm of specified sand surrounding the GSF modules in the mound. Slope the sand away from the mound as described on the plan.
13. Complete backfill with a minimum of 30 cm of clean porous fill measured from the top of the modules. Use well graded native soil fill that is clean, porous and devoid of large rocks. Do not use wheeled equipment over the system. A light track machine may be used with caution, avoiding crushing or shifting of pipe assembly.
14. Divert surface runoff from the system. Finish grade to prevent surface ponding. Topsoil and seed system area to protect from erosion.

7.0 Mound Installation Guidelines

FIGURE 8: PLAN VIEW – MOUND SYSTEM

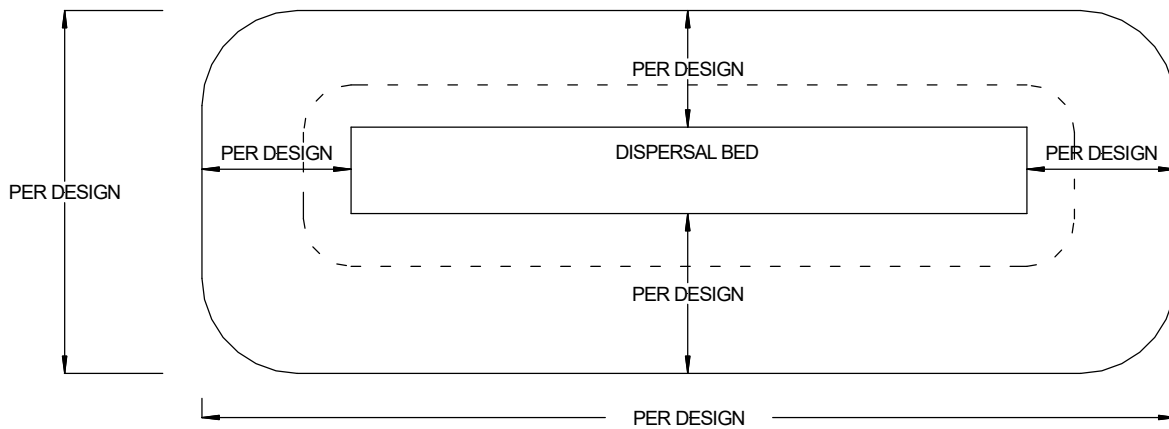


FIGURE 9: CROSS SECTION – MOUND SYSTEM

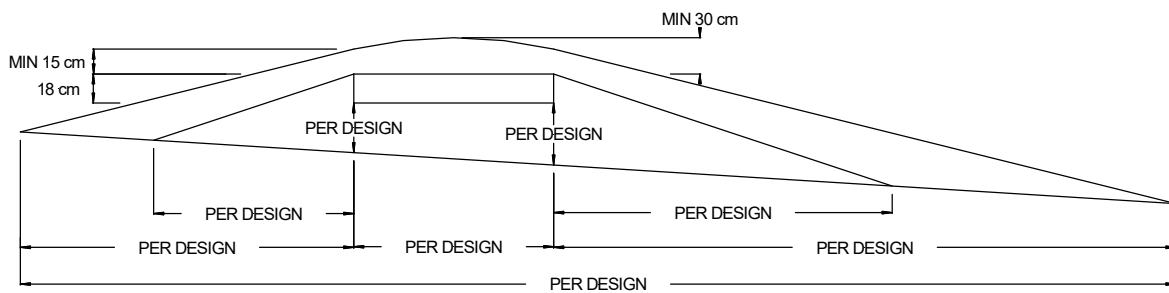
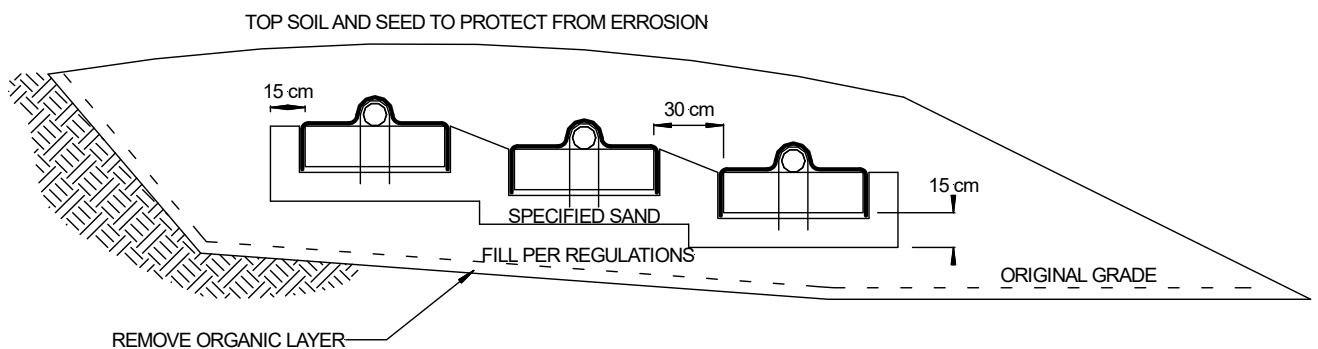


FIGURE 10: CROSS SECTION – MOUND SYSTEM



8.0 Dosing Distribution Guidance

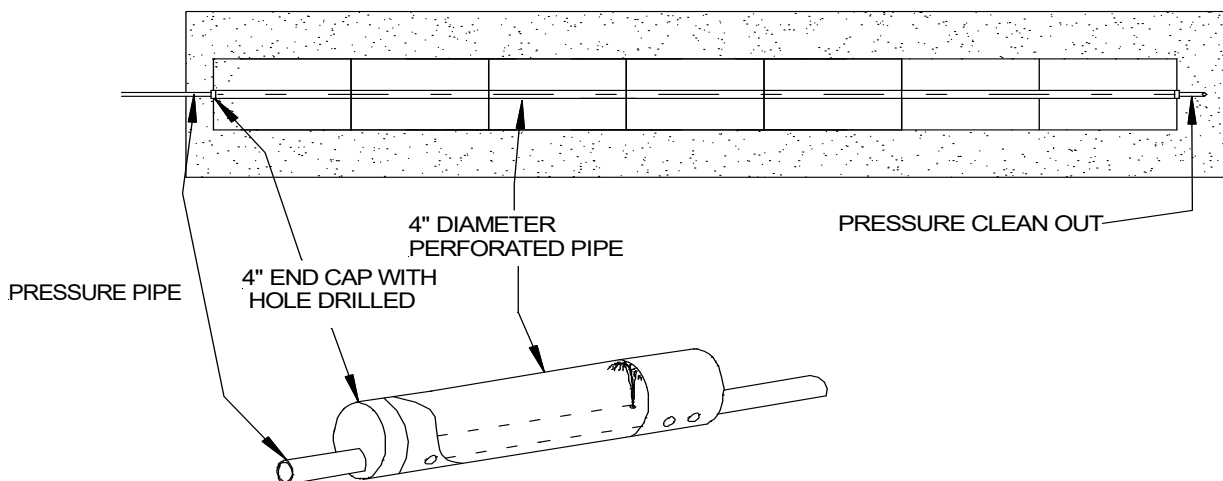
8.1 DOSING DESIGN CRITERIA: Dosing volume must be set to deliver a maximum of **10 liters per Module per dosing cycle**. Head loss and drain back volume must be considered in choosing the pump size and force main diameter.

8.2 PUMP TO DISTRIBUTION BOX: Specify an oversized distribution box for pumped systems. Provide velocity reduction in the D-box with a tee or baffle. Set D-box invert a minimum of 5 cm higher than invert of perforated pipe over GSF modules. Do not use flow equalizers or other restricting devices in the outlet lines of the D-box.

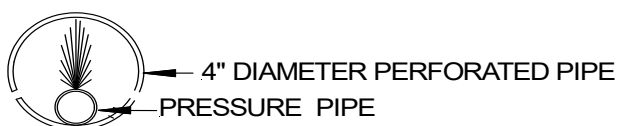
9.0 Pressure Distribution Guidance

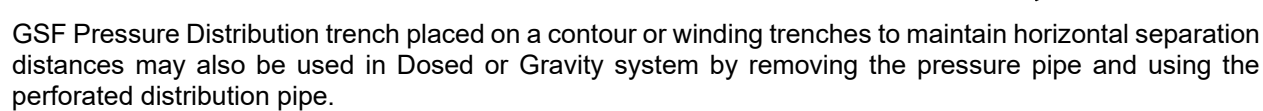
Standard procedures for design of pressure distribution networks apply to the GSF filter. A minimum orifice size according to the regulations shall be maintained. A drain hole is required at the 6 o'clock position of each pressure lateral for drainage purposes. The lateral pipe network (*size per design and code*) is placed within a standard perforated distribution pipe. The perforations in the outer pipe are set at the 4 and 8 o'clock position, the drilled orifices on the pressure pipe are set to spray at the 12 o'clock position directly to the top of the perforated pipe as shown below.

FIGURE 11: PRESSURE PIPE PLACEMENT



PRESSURE PIPE CROSS SECTION FOR ALL APPLICATIONS

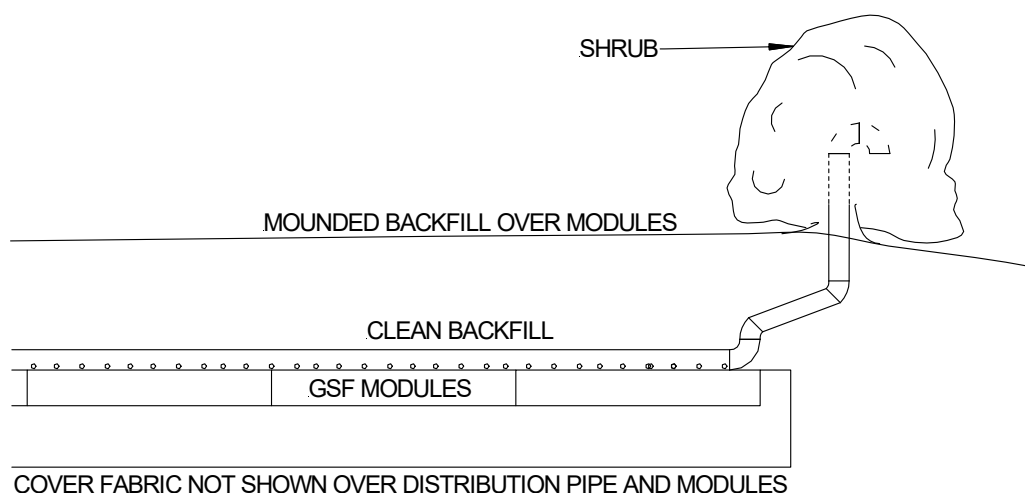




10.0 System Ventilation

10.3 VENTILATION PLACEMENT: In a GSF system, the vent is usually a pipe extended to a convenient location behind shrubs, as shown in Figure 14. Corrugated pipe may be used. If using corrugated pipe, ensure that the pipe does not have any bends that will allow condensation to pond in the pipe. This may close off the vent line. The pipe must have an invert higher than the system so that it does not drain effluent.

FIGURE 14: GSF WITH 100 mm VENT EXTENDED TO CONVENIENT LOCATION



11.0 Eljen GSF Inspection & Maintenance

Please follow these recommended steps to assure that your Eljen GSF system provides you with years of trouble-free service. *Note: Additional monitoring and maintenance may be required by your local code.*

- Inspection of the area around the Eljen GSF system every 12 months by the homeowner to ensure that there is no ponding or surfacing of effluent.
- If a service provider is required, the service provider shall inspect at least the following items at an interval frequency recommended by the manufacturers and/or Counties requirements:
 - o Inspect septic tanks, dosing tanks (if installed), and lift pump tanks (if installed) for structural integrity of the tank, inlet and outlet baffles, pumps, siphons, and electrical connections.
 - o If a Pump Dosed or Low Pressure Distribution system is installed, ensure that the pumping/pressure system is operational;
 - o Ensure that the absorption area cleanouts and/or vents are in proper working condition;
 - o Ensure that the septic effluent filter is cleaned regularly and is in proper working condition.
- A service provider shall inspect and pump excess solids in accordance with the manufacturers and/or the Counties requirements. Eljen recommends pumping tanks every 3-5 years depending on use.

COMPANY HISTORY

Established in 1970, Eljen Corporation created the world's first prefabricated drainage system for foundation drainage and erosion control applications. In the mid-1980s, we introduced our Geotextile Sand Filter products for the passive advanced treatment of onsite wastewater in both residential and commercial applications. Today, Eljen is a global leader in providing innovative products and solutions for protecting our environment and public health.

COMPANY PHILOSOPHY

Eljen Corporation is committed to advancing the onsite industry through continuous development of innovative new products, delivering high quality products and services to our customers at the best price, and building lasting partnerships with our employees, suppliers, and customers.



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www.eljen.com





eljen Geotextile Sand Filter

Septic System Owner's Manual

*How your septic system works
and how to keep it working*



Innovative Onsite Products and Solutions Since 1970

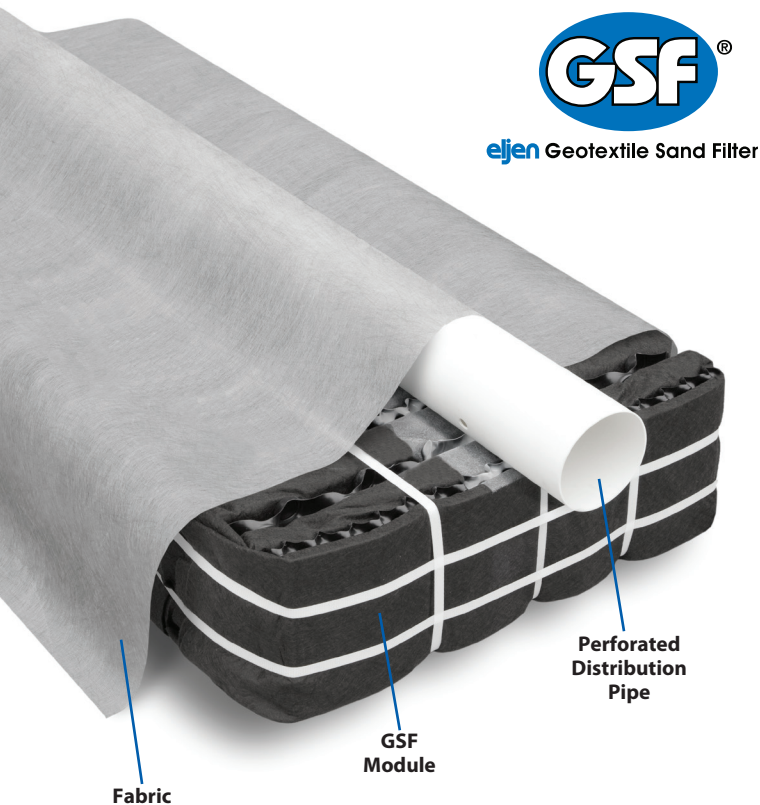


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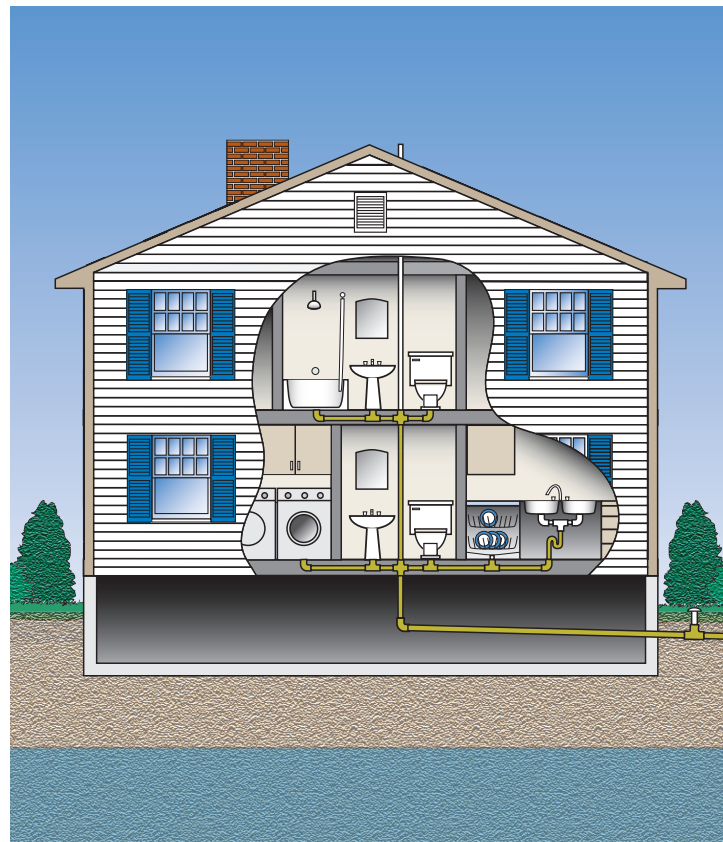
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Introduction

No one budgets for a septic system failure. A new residential septic system can cost anywhere from \$4,000 to more than \$20,000 to install. If the system is not maintained, the soil around the system could become clogged causing sewage to overflow on to the ground or back up into the house. Bottom line, rebuilding a failed septic system is an expensive burden on the homeowner.

Preventing a septic system failure is easier and more affordable than it is to correct. By keeping harmful materials out of the system and by pumping out the septic tank at least every three years, the homeowner can protect their system against premature failure. The minimum cost of having the septic tank pumped is wise insurance to protect your home's wastewater system.

This manual outlines the principles of septic system operations and explains the basic maintenance procedures that will lengthen the life of your system. If properly operated and maintained, your Eljen GSF system can provide many years of trouble-free service.



Tested for Proven Performance

The Eljen GSF system technology is based on research conducted by nationally recognized engineering scientists from the University of Connecticut. Eljen Corporation has over 30 years of success in the onsite wastewater industry, with tens of thousands of systems currently in use. The GSF is recognized by regulatory officials and experts in the industry as one of the most reliable wastewater treatment technologies in the marketplace today.

The GSF technology is based on scientific principles which state that improved effluent quality provides increased soil absorption rates. GSF's proprietary two-stage Bio-Matt™ pre-filtration process improves effluent quality while increasing reliability and ease of operation.



GSF System Description

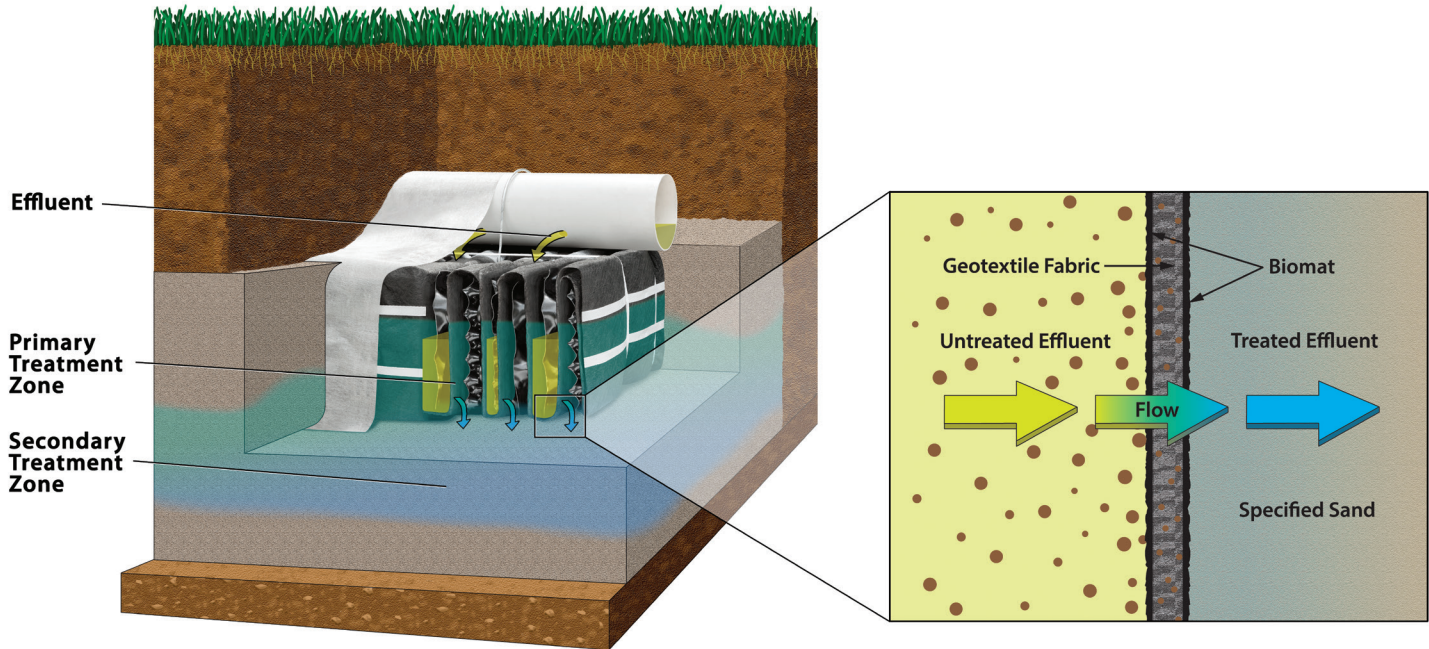
The Eljen GSF Geotextile Sand Filter system is a cost-effective upgrade from other septic technologies. Unlike other systems that treat effluent only once, the GSF's patented Bio-Matt™ pre-treatment process treats septic effluent twice. That means that the soil can absorb the effluent more easily, resulting in a better-performing system in a smaller area than other systems.

HOW THE GSF SYSTEM WORKS

- Incoming effluent and bacteria flow through the perforated pipes which distribute the effluent over the Modules.
- Open air channels in the Modules allow beneficial bacteria to grow on the Bio-Matt fabric and treat effluent.
- A geotextile fabric covers the top and sides of the GSF Modules, protecting the system's sand and soil from fine particles that can clog the system. It also helps maintain effluent storage inside the Modules.
- After effluent passes through the GSF Modules, a lighter, secondary biomat forms on the layer of sand below the system, where the treatment process is continued.
- Treated effluent is then absorbed by the native soil where final filtration takes place.

GSF System Operation

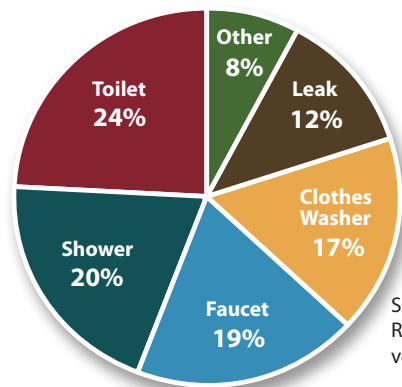
This schematic shows the inner workings of the GSF Module and the overall operation of a GSF System.



The Nature of Household Sewage

Household sewage is a combination of wastewater from several sources including sinks, toilets, showers, washing machines, dishwashers, and garbage disposals. The largest source of household sewage may vary depending upon the number of residents and water-using appliances within the home. Organic matter comes mostly from toilets and garbage disposals, while sinks, showers, and washing machines contribute large amounts of wastewater containing only small amounts of soap and dirt (including grease, detergents, lint, and vegetable matter).

How much water do we use?

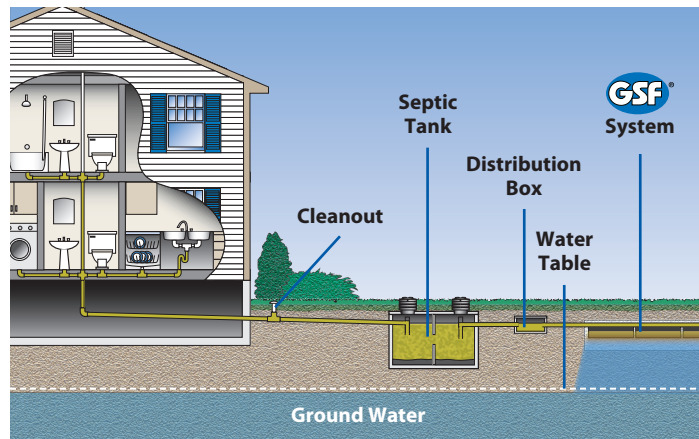


Source: Water Research Foundation, Residential End Uses of Water, version 2, 2016

NOTE: Most states require much larger septic tanks and even larger system sizes if garbage disposals are used.

The Septic System

Your septic system is a two-part sewage treatment and disposal system buried in the ground. It is composed of a septic tank and a treatment system, and may have filters, pumps, and other components depending on your location and system demands. The sewage generally flows by gravity: first, into the septic tank where larger particles settle out and some primary decomposition takes place, and then into the GSF system where it is further decomposed before slowly soaking into the soil.

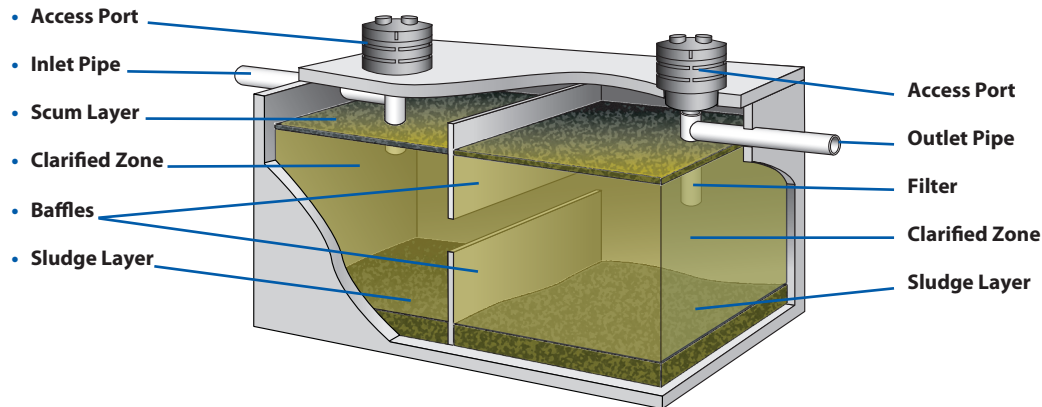


The Septic Tank

Untreated household sewage would quickly clog any system if applied directly to the soil. The function of the septic tank is primarily a settling tank allowing solids to settle to the bottom of the tank while a somewhat cleaner liquid is discharged to the GSF system for additional treatment. Septic tanks may contain one or more compartments, or the designer may have specified two or more tanks for your system.

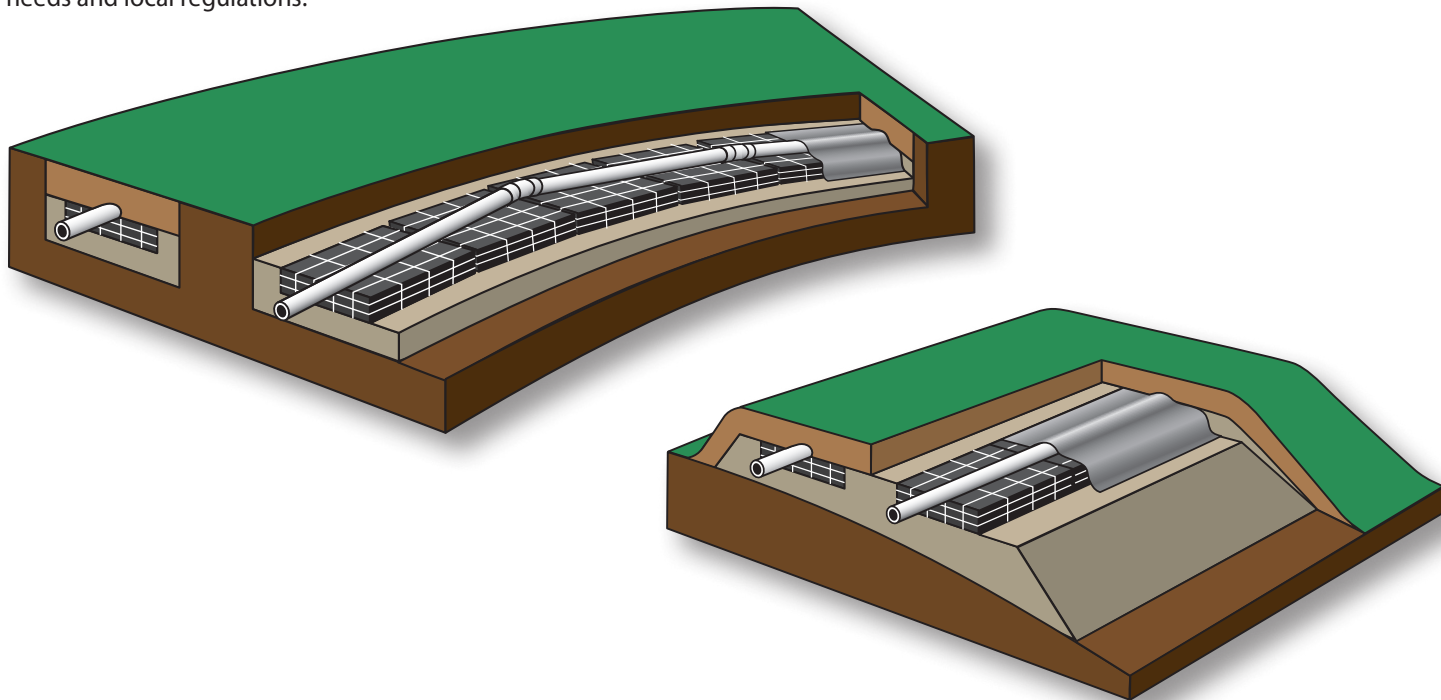
Regardless of the number of compartments or tanks in your system, the basic principle is the same. Within the tank, as shown below, four important processes take place.

- The heavier, solid particles in the sewage settle to the bottom of the tank forming a layer of sludge. Lighter materials, including fat and grease, float to the surface, forming a scum layer.
- Bacteria living in the septic tank break down some of the organic solids into liquid components, helping to reduce the build up of sludge in the tank.
- Sludge and scum are stored in the septic tank rather than being allowed to flow out of the septic tank, where they would quickly create problems.
- The septic tank filter and/or baffles prevent scum and other floatable materials from flowing out to the GSF system.



GSF System Designs

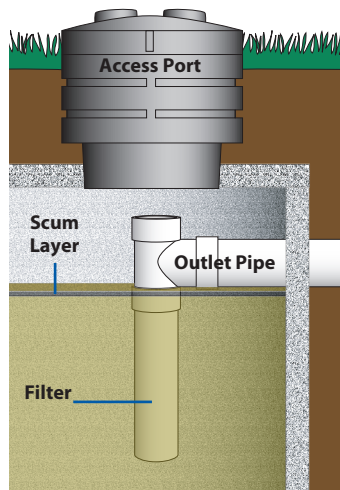
Eljen GSF Systems offer flexible design options based on a site's needs and local regulations.



Septic Tank Effluent Filters

Your septic system will include an effluent filter, which may be located at the outlet of the septic tank, or in a separate tank located just after your septic tank. Effluent filters protect your GSF system from solids that may carry over from the septic tank during peak usage. By limiting the maximum size of particles entering the GSF Modules to about 1/16 inch, they safeguard your system from unnecessary failure.

While effluent filters are partially self-cleaning, they must be thoroughly cleaned when the tank is inspected. When operating properly, they provide a fail-safe reminder that your tank needs pumping. Effluent filters may also be added to an existing system, either in the tank or externally. Filters must be installed before a pump chamber and should be easily accessible when the tank is serviced.



Pumped Systems

An effluent pump and pump chamber are used to move the sewage to the system. The pump chamber may be located in a separate tank, or it may be placed in a second compartment within the septic tank.

Effluent levels in the pump chamber are controlled by internal switches that turn the pump on and off, sending effluent to the system by dosing or pressure distribution.

For more information contact the pump manufacturer.

System Care and Maintenance

SEPTIC TANK PUMPING

- Do not wait until your system shows signs of failure to have your septic tank pumped out. Waiting can mean complete clogging and an expensive repair bill. A septic tank filter will gradually slow down effluent flow over 2 to 3 years as reminder that your tank should be serviced. Filters in residential systems usually need cleaning only as often as you pump the tank. Call a licensed septic tank maintainer to inspect your system.
- Clean your filter and pump your tank at a minimum of every 3 years.
- If your system's access manholes are at ground level or are clearly marked or mapped, the job of pumping the tank should be fast and easy. While your tank is being inspected, ask the operator to examine the inlet and outlet baffles and/or septic tank filter. If anything is broken, have repairs done immediately. The inlet should also be checked to see if wastewater is continuously flowing into the tank from previously undetected plumbing leaks.
- It is not necessary to leave any of the sludge in the tank as "seed." Incoming sewage contains all the bacteria needed for proper operation. Acids or bleaches should not be used to clean the tank.
- The use of enzymes or other "miracle" septic system additives has not been shown to be of significant value. It has been observed that some of these additives can actually harm your system. Regular pumping remains the best insurance against system failure.
- Keep accurate records of your system's inspections and pumping in the space provided on page 14 of this manual.

Potential System Problems

SIGNS OF A FAILING SYSTEM:

- Slow draining toilets or fixtures
- Sewage backing up into the house
- Sewage odors near the field or tank
- Sewage breakout on to the lawn

Problems with septic systems can be quite difficult to analyze. Whenever your system is not operating properly, it is best to contact a licensed professional, such as the installer who constructed your system or a licensed septic system maintainer. Your area Eljen distributor will be able to recommend trained personnel to assist you. Keep a copy of your design plan on hand for use in analyzing any malfunctions. Always be sure to document any inspections or maintenance done to your system.

If toilets or fixtures are draining slowly and your system has a septic tank filter, check your service records to see if it has been too long between tank servicing and pumping. If necessary, have your tank inspected, pumped, and clean the septic tank filter. Remember, the filter is there to protect your system.

If sewage is backing up into the house and you have a pumped system, have the pump and pump controls checked to make sure they are functioning properly. Make sure that the pump dose is not excessive and/or is set according to the original design. Also note that in winter, effluent can freeze in the force main or the distribution box and block sewage flow if the system is not used for a period of time.

If you detect sewage odors, sewage over or near the system, your system is overloaded. This may be caused by excessive water use and/or ground water intrusion into the septic tank through a leaking tank seam. Check your water consumption, check for leaky toilets or fixtures, and have your tank pumped so that the system can be checked for ground water intrusion into the tank, especially at seasonal high water time.

NOTE: Sewage odors coming from vent pipes are common with all types of disposal systems. Various activated charcoal filter options are available and can be used with our system.

Preventing System Problems

DO'S

- **DO** have your tank pumped at least every 3 years by a licensed septic tank maintainer.
- **DO** practice water conservation. Promptly repair leaky faucets and toilets, run washing machines and dishwashers only when full, avoid long showers, and use water-saving features in faucets, showerheads and toilets.
- **DO** divert roof drains and surface water from driveways and hillsides away from the septic system. Keep sump pumps and household footing drains away from the septic system as well.
- **DO** take leftover hazardous household chemicals to your approved hazardous-waste collection center for disposal. Use bleach, drain and toilet bowl cleaners, and disinfectants sparingly and in accordance with product labels.
- **DO** learn the location of your septic tank and system's location and record it in the chart provided on page 14 of this manual. Keep a copy of your plan on file and attach a complete GSF System Card to a convenient place such as the main electrical panel.
- **DO** use the space provided on page 14 of this manual to keep a record of pumping, inspections and other maintenance.

Preventing System Problems

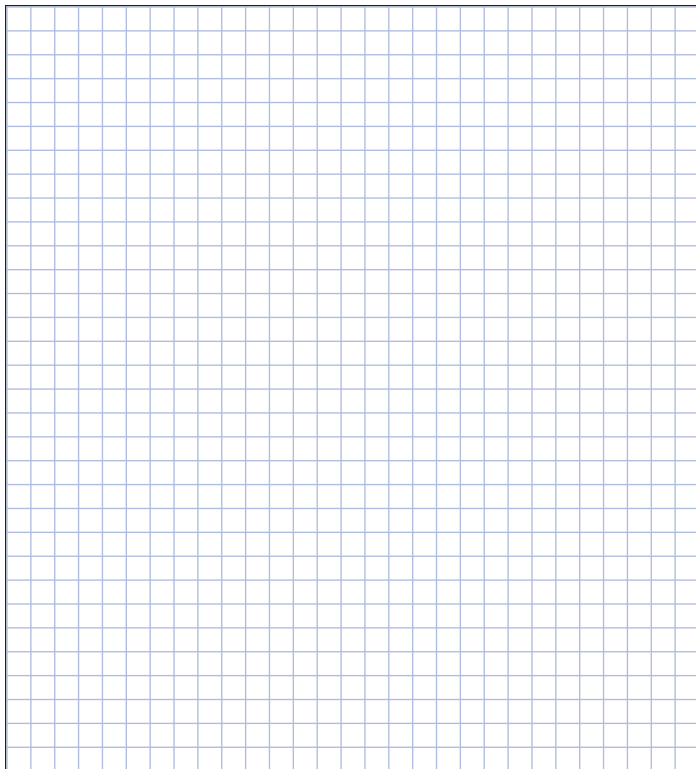
DON'TS

- **DON'T** drive or park over any part of your septic system. The area over the system should be left undisturbed with only a mowed grass cover. Roots from nearby trees or shrubs may clog or damage your system.
- **DON'T** put large amounts of cooking oil or grease into the system.
- **DON'T** put non-degradable materials such as disposable diapers, sanitary products, plastic, and cigarettes into the system.
- **DON'T** put poisons such as gasoline, oil, paint, paint thinner, pesticides, antifreeze, or other chemicals into the system.
- **DON'T** use commercial septic tank additives. These products usually do not help and some may hurt your system in the long run.
- **DON'T** wait for signs of system failure. Follow the maintenance advice in this manual.
- **DON'T** use garbage disposals unless your system has been designed according to the requirements of Eljen's GSF Design and Installation Guidelines.
- **DON'T** use petroleum-based soaps and shampoos. We recommend Bio-Degradable products for soaps and shampoos in your system.

Service and Maintenance Record

[illegible]

Map of Your Septic System



System Details

Owner's Name, Address, Phone:	System Address, if Different than Owner's Address:
Contractor's Name, Address, Phone:	Engineer's Name, Address, Phone:
Contractor's License Number:	Designer's License Number:
Installation Date:	Number of Bedrooms:
Design Flow in Litres / Day:	Septic Tank Filter: ☐ No ☐ Yes, Location:
Eljen Products Used: ☐ GSF A42 ☐ GSF B43	Number of GSF Modules Used:
Number of Rows:	GSF Modules per Row:
Septic Tank:	Other Components:
System Design: ☐ Bed ☐ Trench ☐ Pressure Distribution ☐ Mound/Elevated System ☐ Pumped ☐ Other:	
System Type: ☐ Repair / Replacement ☐ New Construction ☐ Upgrade/Modification	
Structure Type: ☐ Residential ☐ Commercial	
System Use: ☐ Year-Round ☐ Seasonal	

Eljen Corporation Standard Limited Warranty for Septic Products

Each GSF manufactured by Eljen Corporation and installed and operated as an on-site treatment system in accordance with Eljen Corporation's installation instructions, is warranted to the original system owner against defective materials and workmanship for fifteen years from the date the system is inspected and activated for operation. In order to exercise its warranty rights, the original system owner must notify Eljen Pacific Pty Ltd in writing at: 16 The Lee, Devonport, Tasmania 7310; phone: 0418132021; email: paul@eljenpacific.com within 15 days of the alleged defect. Eljen Corporation will supply replacement Modules determined by Eljen Corporation to be defective and covered by this Limited Warranty. Eljen Corporation's liability specifically excludes the cost of removal and/or installation of the Modules; damage to the Modules due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Modules; the placement and or use of improper materials into the system containing the Modules; failure of the Modules or the septic system due to improper design, improper installation, excessive water usage, improper grease disposal, or improper operation; not using specified materials during system construction specifically sand meeting the ASTM C33 specification; or any other event not caused by Eljen Corporation. System owners shall consider the Modules as single use, and re-use of Modules that were previously installed in an activated on-site system shall void this Limited Warranty. For this Limited Warranty to apply, the Modules must be installed in accordance with all site conditions required by state and local codes, all other applicable laws, and Eljen Corporation's installation instructions. This Limited Warranty and its remedies are exclusive and shall apply to no other party other than the original system owner.

THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY AND THERE IS NO IMPLIED WARRANTY OF FITNESS FOR BUYER'S PARTICULAR PURPOSE; THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR BUYER'S PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

UNDER NO CIRCUMSTANCES SHALL ELJEN CORPORATION BE LIABLE TO THE SYSTEM OWNER OR ANY THIRD PARTY UNDER THIS AGREEMENT OR OTHERWISE FOR (a) ANY LOSS OR DAMAGE CAUSED BY OR ARISING OUT OF ANY DELAY IN FURNISHING ANY MATERIALS UNDER THIS AGREEMENT OR ANY ACT THAT IS NOT INTENTIONAL OR RECKLESS IN NATURE; OR (b) ANY INDIRECT, SPECIAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES, REGARDLESS OF WHETHER ELJEN CORPORATION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. WITHOUT LIMITING THE FOREGOING, SYSTEM OWNER OR ANY THIRD PARTY'S SOLE AND EXCLUSIVE REMEDY IN RESPECT OF THIS AGREEMENT AND THE MATERIALS FURNISHED HEREUNDER SHALL BE LIMITED TO THE REFUND TO SYSTEM OWNER OR ANY THIRD PARTY OF THE APPLICABLE FEES ACTUALLY PAID TO ELJEN CORPORATION UNDER THIS AGREEMENT WITH RESPECT TO THE PARTICULAR MATERIALS AT ISSUE. IN NO EVENT SHALL ELJEN CORPORATION'S LIABILITY HEREUNDER EXCEED THE APPLICABLE FEES ACTUALLY PAID TO ELJEN CORPORATION UNDER THIS AGREEMENT WITH RESPECT TO THE MATERIALS AT ISSUE.

This is the Standard Limited Warranty offered by Eljen Corporation. Any purchaser or potential system owner of Modules should carefully read and understand this warranty prior to the purchase of the Modules.



Innovative Onsite Products and Solutions Since 1970

www.eljen.com

Patented #2122

Represented By:



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ABN 83 464 107 291

Beachouse Architecture

ATTENTION: Michael Shrapnel
11 River Street
Carlton TAS 7132



Sorell Council

Development Application: 5.2025.260.1 -
Response to Request For Information - 16
Clover Court, Carlton - P2.pdf
Plans Reference: P2
Date Received: 10/10/2025

10 October 2025

Dear Michael

RE: 16 Clover Court, Carlton
Proposed Development/Use – Single Residential Dwelling
DA 5.2025.2601.1

Preamble

I refer to engagement to assess the natural values of 16 Clover Court, Carlton, specifically to address matters raised in correspondence from Sorell Council dated 2 Oct. 2025 in relation to the application now known as DA 5.2025.260.1, which noted:

Planning:

1. A Natural Values Assessment and site plan showing extent and manner of vegetation clearance to be undertaken, as informed by the Bushfire Hazard Management Area.

The following statement is intended to address this item.

Site details

Address: 16 Clover Court, Carlton (Figures 1-3)

PID: 9861800; C.T.: 175511/18; LPI: JNF70

Zone: Low Density Residential (Figure 4)

Overlays (relevant to the present assessment): Priority Vegetation Area (Natural Assets Code) – southern part of title (Figure 5) & Waterway and Coastal Protection Area (Natural Assets Code) – based on high water mark (Figure 6)

Area: computed area = 3,643.176 m², measured area 3,646 m² i.e. 0.36 ha

Topography: sloping land with generally southeasterly aspect with elevation ca. 10-25 m a.sl.

Current land use: most of title has been cleared ready for development, presumably as part of the original development of the Clover Court subdivision, with the proposed house site now supporting regenerating native/naturalised vegetation (Plates 1-4); partly fenced with



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

residentially-occupied titles to the north and west; with a fringe of unfenced and long-undisturbed native scrub along the eastern boundary and on the steeper south-facing slopes (Plates 2 & 3 plus Plates 5 & 6)



Plates 1-4. Approximate location of proposed residential dwelling: clockwise from top left – looking north, east, south and west



Plates 5 & 6. Views of long-undisturbed scrub on south-facing slopes



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)



Figure 1. General location of subject title

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

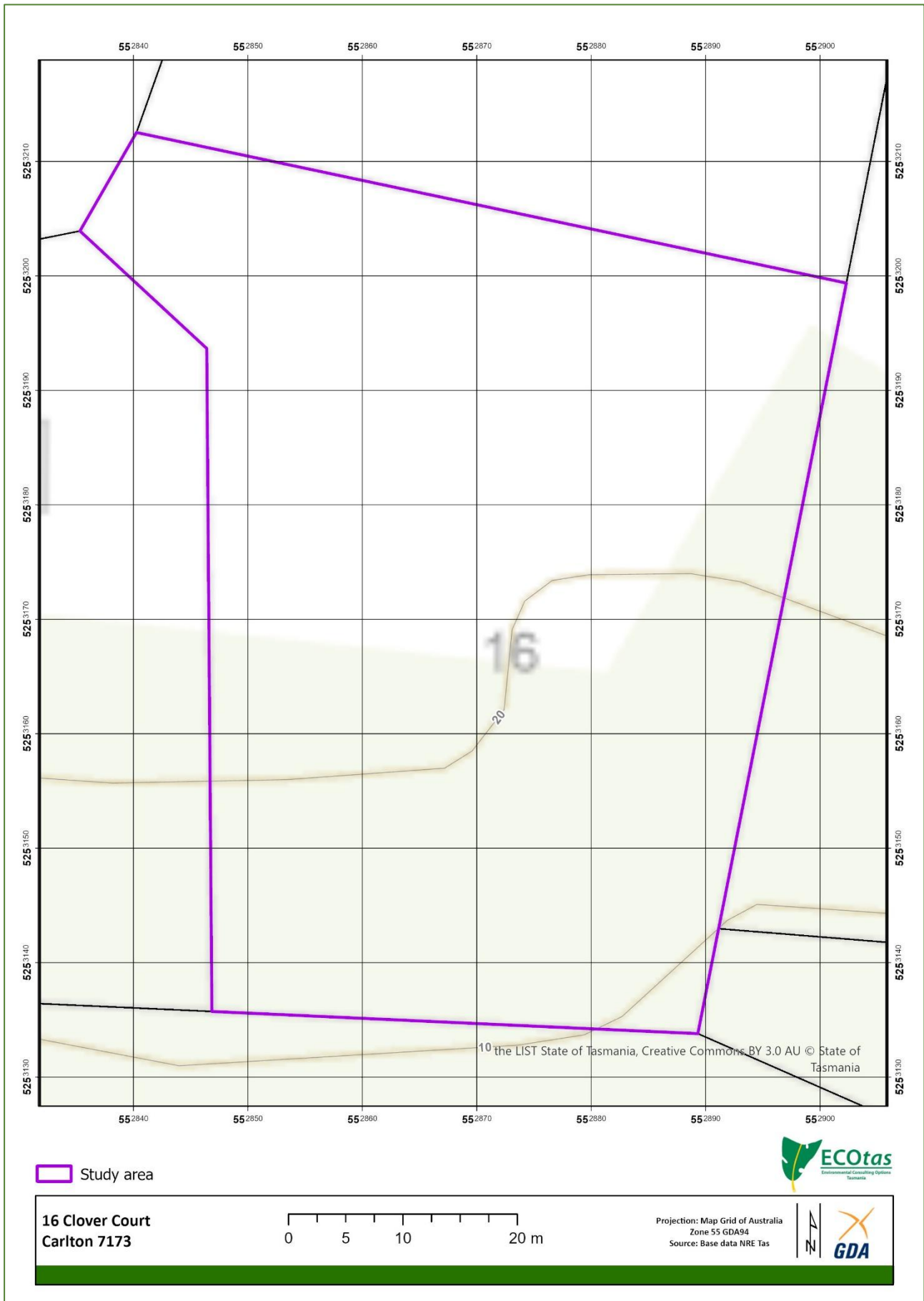


Figure 2. Detailed location of subject title showing cadastral and topographic features

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)



Figure 3. Detailed location of subject title showing cadastral, topographic features and recent aerial imagery



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

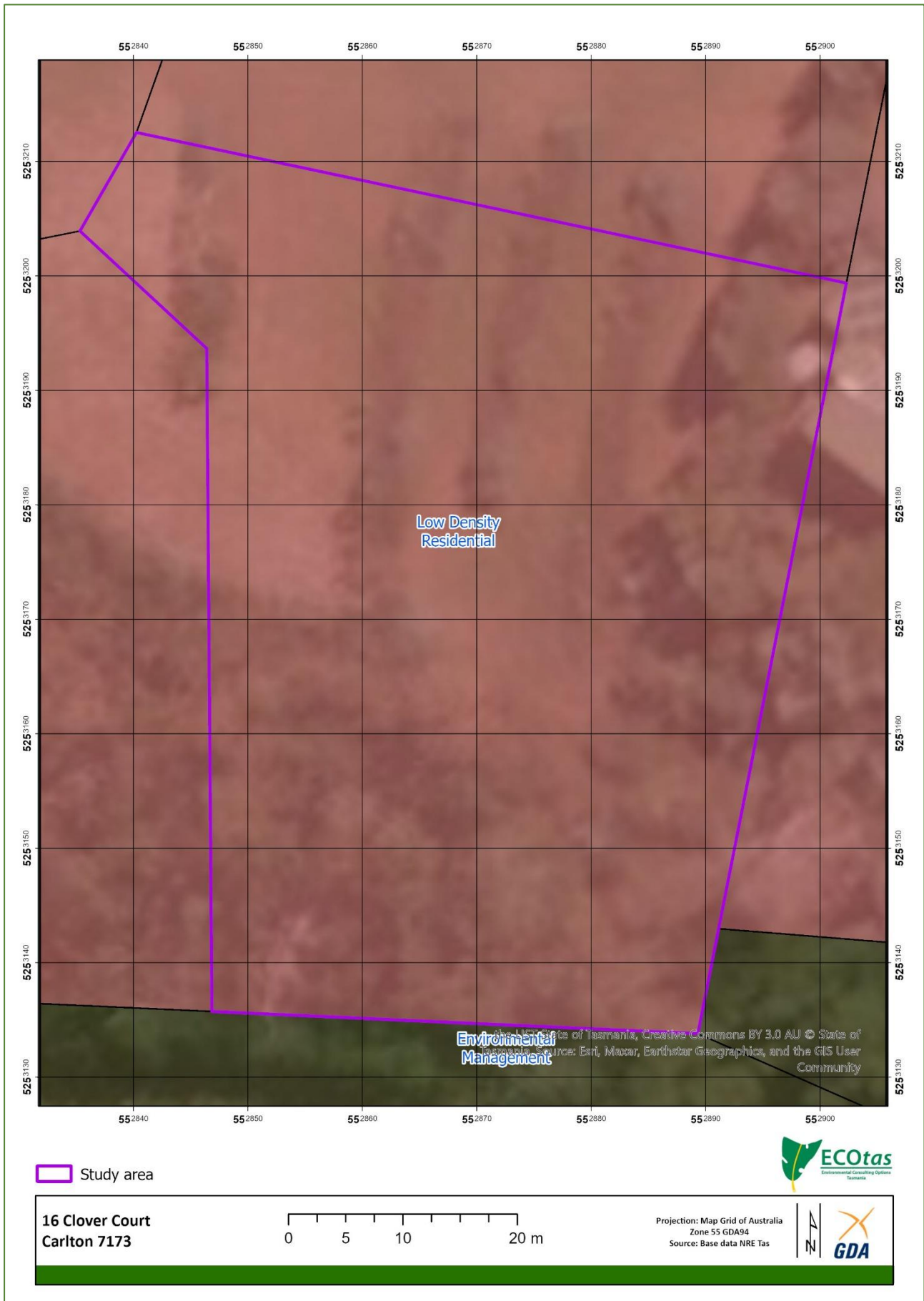


Figure 4. Zoning of subject title pursuant to *Tasmanian Planning Scheme – Sorell Local Provisions Schedule*

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)



Figure 5. Extent of Priority Vegetation Area (Natural Assets Code) overlay within subject title and surrounds pursuant to *Tasmanian Interim Planning Scheme – Sorell*

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

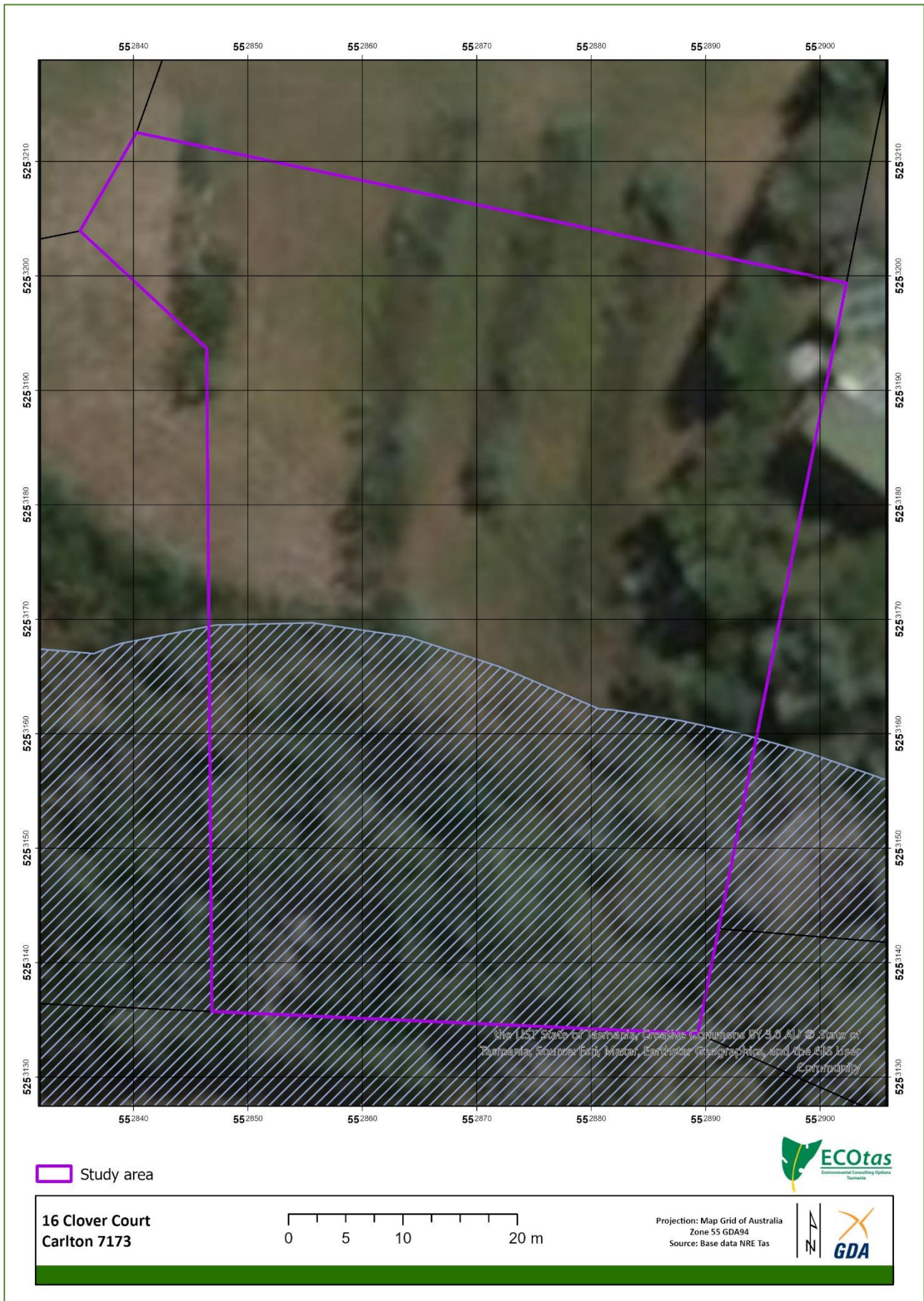


Figure 6. Extent of Waterway and Coastal Protection Area (Natural Assets Code) overlay within subject title and surrounds pursuant to *Tasmanian Interim Planning Scheme – Sorell*

and the Commonwealth *Protected Matters Report* (CofA 2025) to support the assessment process (all appended for reference).

Site assessment

I attended the site on 9 Oct. 2025. The whole title was examined as well as the adjacent Crown land title (informal reserve).

Findings

Vegetation types

TASVEG 3.0 & 4.0 both map the title as follows (Figure 8):

- urban areas (TASVEG code: FUR) – most of title except for steeper south-facing slopes, noting that the extent of FUR (i.e. modified land) extends to the fringe of obvious scrub in the east and south of the title; and
- coastal scrub (TASVEG code: SSC) – the steeper south-facing slopes are mapped as SSC, although its extent is inaccurate (see under FUR).

The extent of native vegetation (viz. SSC) explains the Priority Vegetation Area overlay (Figure 5), which was largely based on TASVEG 3.0 vegetation mapping under the Regional Ecosystem Model.

TASVEG Live now maps the title as follows (Figure 9):

- urban areas (TASVEG code: FUR) – FUR is retained and now better reflects the limits of cleared land although it still extends FUR to the eastern boundary ignoring the fringe of scrub; and
- *Eucalyptus viminalis* grassy forest and woodland (TASVEG code: DVG) – DVG replaces SSC on the south-facing slopes, largely following the line of clearing within the title.

The re-coding of SSC to DVG was made under the TASVEG_ADMIN-DPIPWE-2022 TASVEG project. At the time, this may have been somewhat understandable because there might have been a tree canopy, that would have been (correctly) presumed to be *Eucalyptus viminalis*. That it was coded as DVG rather than *Eucalyptus viminalis* – *Eucalyptus globulus* coastal forest and woodland (TASVEG code: DVC) is somewhat surprising given the coastal location and the geology mapping (Figure 10) that shows this part of the title and surrounds as Quaternary-age “sand gravel and mud of alluvial, lacustrine and littoral origin” (geocode: Qh) i.e. sands. However, in the last few years, it appears that there has been quite extensive dieback of the originally sparse canopy of *Eucalyptus viminalis* (Plates 7 & 8), which is attributed to the Statewide phenomenon of “ginger tree syndrome” (a climate change-heat wave impact). This is now reflected in the tree canopy modelling that shows no significant tree canopy within or immediately adjacent to the title (Figure 11).

Site assessment indicated that the cleared parts of the title are best classified as FUR (Figure 12). While this area includes several native plant species, it is long-managed as cleared land and is in the context of a largely fenced small suburban setting (see Plates 1-4). The long-undisturbed scrub fringing the area of FUR (see Plates 5 & 6) is best attributed to *Bursaria* – *Acacia* woodland and scrub (TASVEG code: NBA) as it is dominated by a dense closed canopy of *Bursaria spinosa*, *Dodonaea viscosa*, *Banksia marginata* and *Acacia dealbata*. This scrub has affinities to coastal scrub (TASVEG code: SSC) due to the sandy substrate and ground layer species (e.g. *Lepidosperma concavum*, *Pteridium esculentum*, *Lomandra longifolia*) but whether it is coded as SSC or NBA is of no consequence in terms of its conservation priority.



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

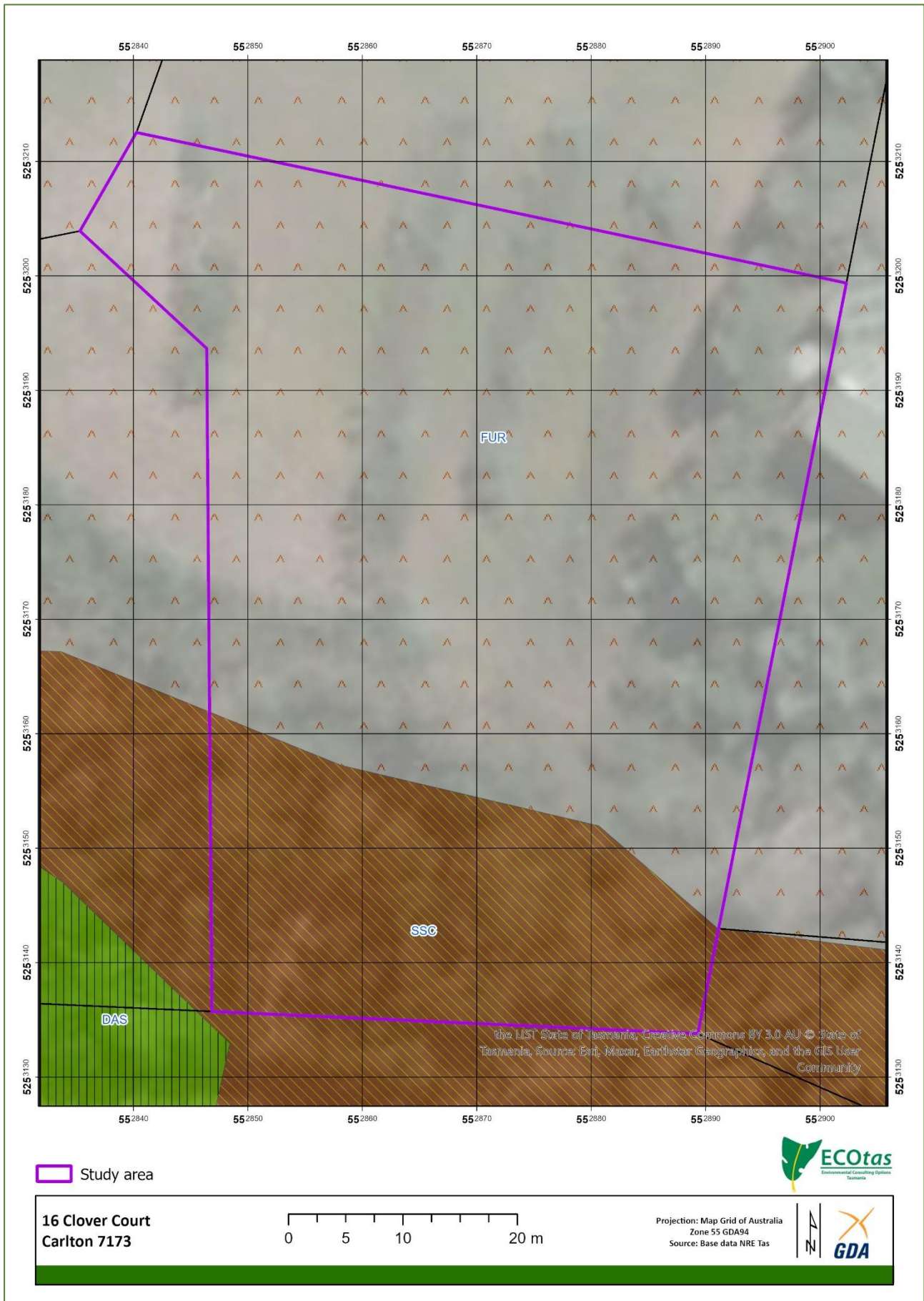


Figure 8. Existing TASVEG 3.0 & 4.0 vegetation mapping for subject title and surrounds (refer to text for codes)

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

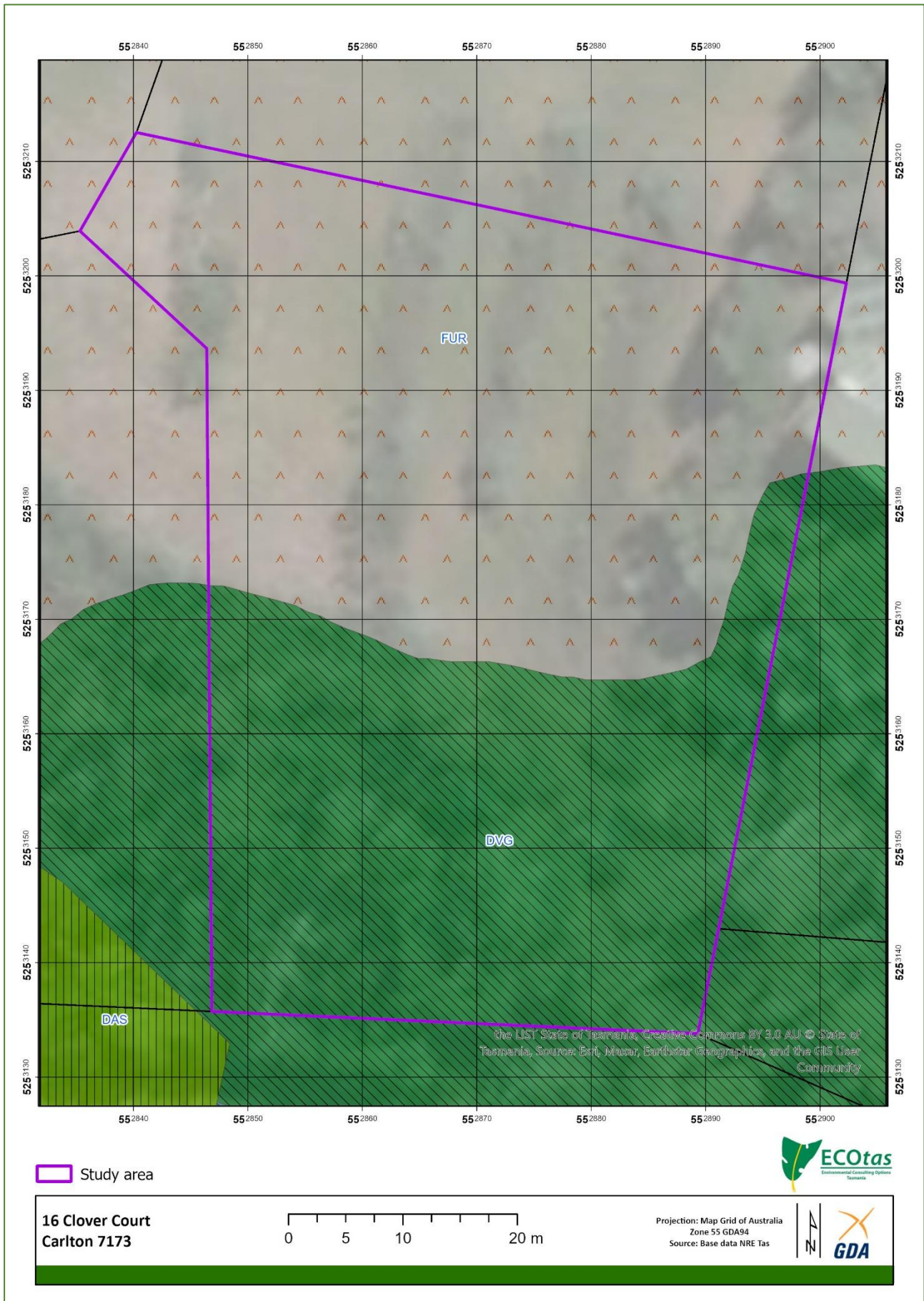


Figure 9. Existing TASVEG Live vegetation mapping for subject title and surrounds (refer to text for codes)

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

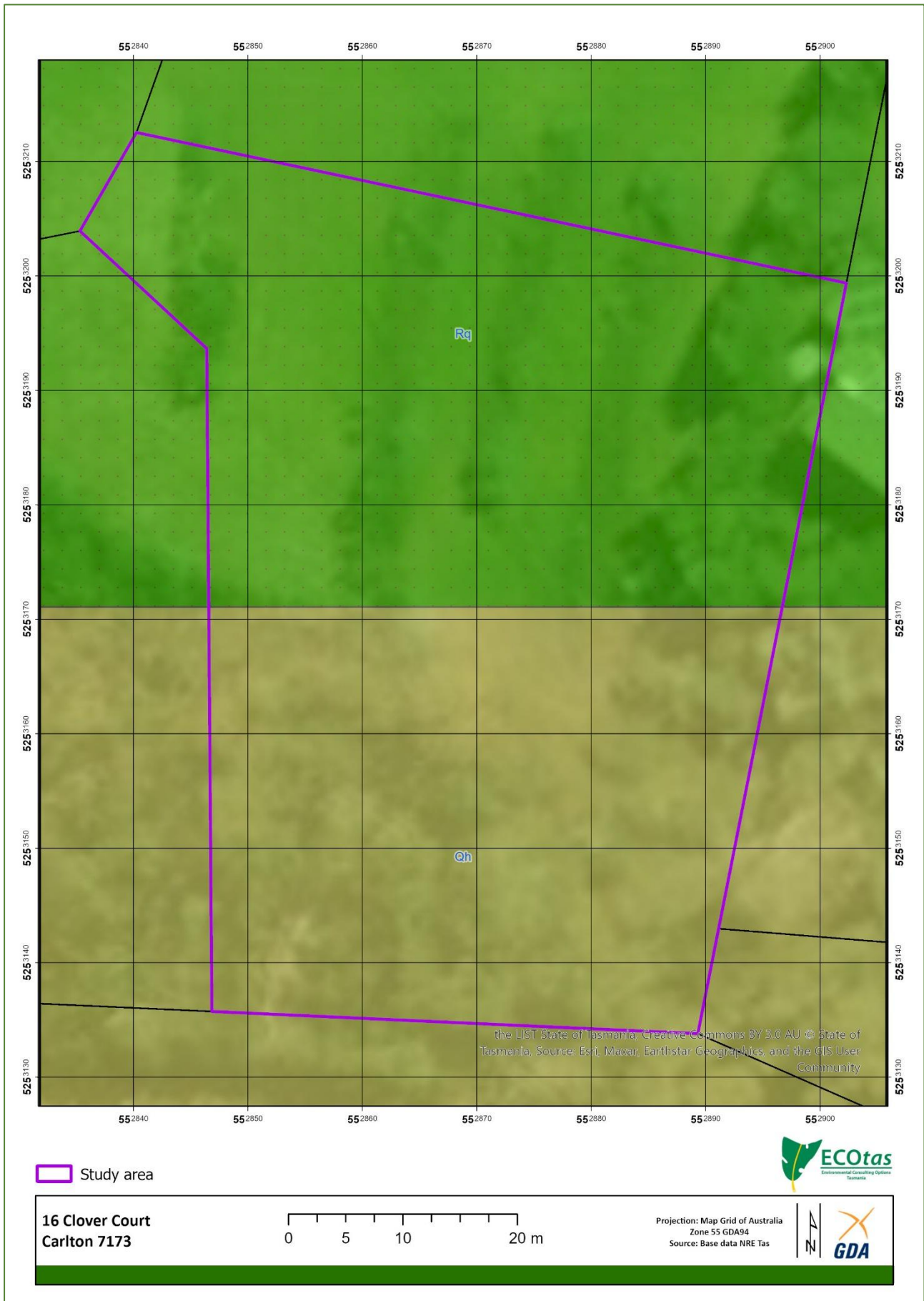


Figure 10. Geology (1:250,000 scale) mapping for subject title and surrounds



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

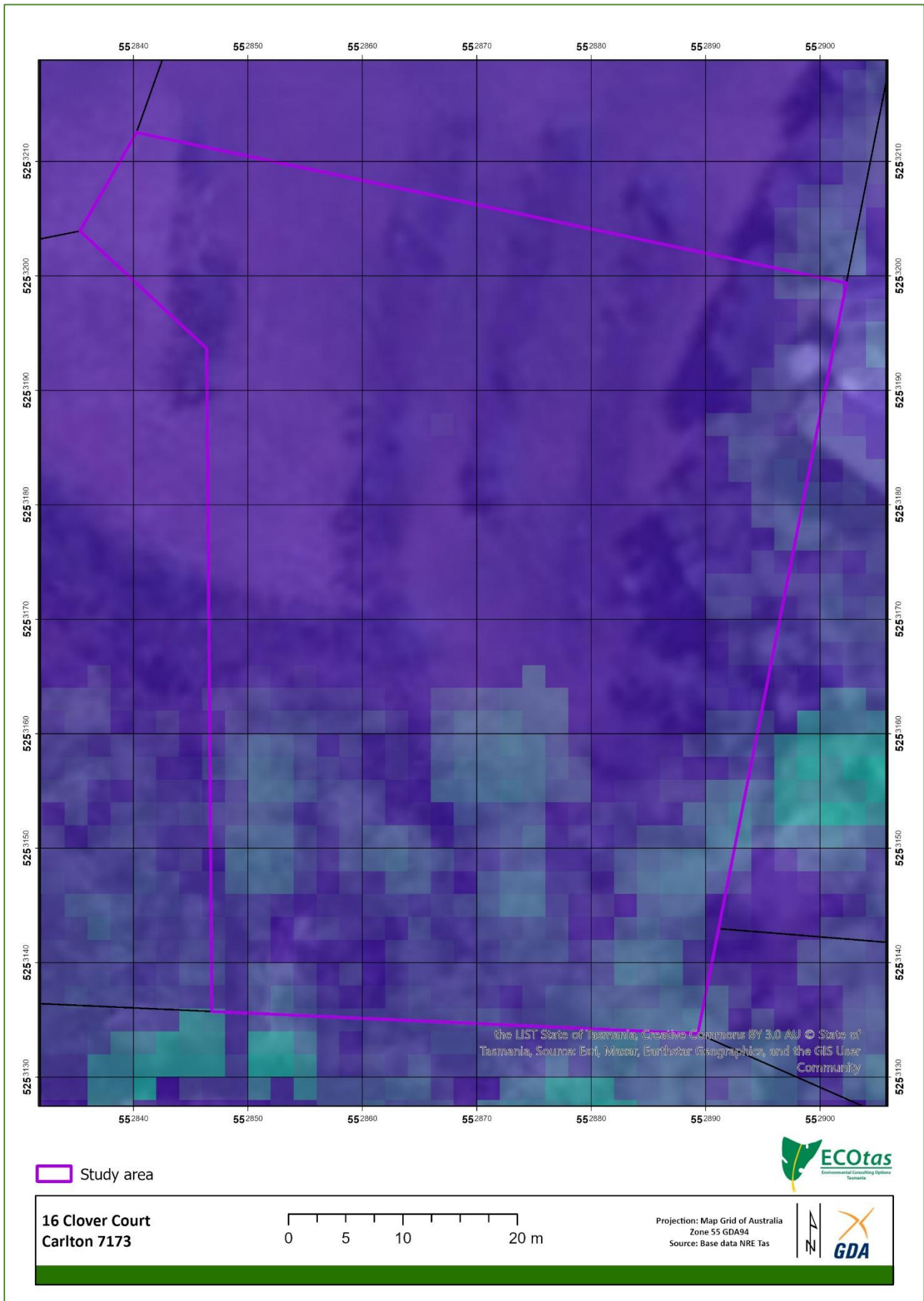


Figure 11. Tree canopy modelling for subject title and surrounds



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)



Figure 12a. Revised vegetation mapping for subject title (refer to text for codes)



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

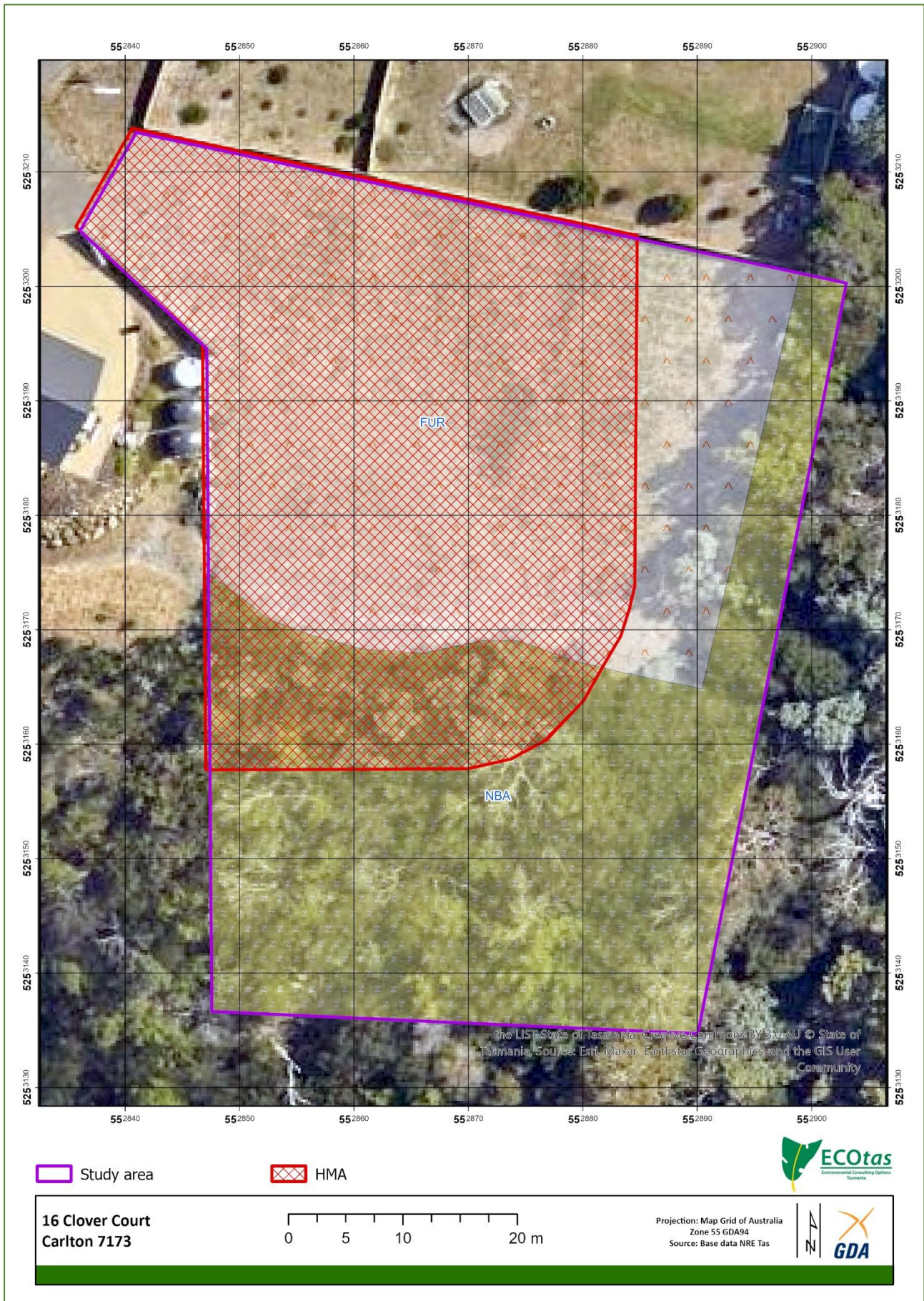


Figure 12b. Revised vegetation mapping for subject title (refer to text for codes) showing proposed hazard management area



Plate 7. Looking north into title (left of centre) showing extensive dieback of *Eucalyptus viminalis* – the one live tree (just off-title) has symptoms of “ginger tree syndrome” – inset)



Plates 8. Looking east along coastal reserve showing extensive dieback of *Eucalyptus viminalis* with only scattered live canopy much further east



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)



Figure 13. Distribution of threatened flora within vicinity of title (overview)

16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)



Figure 14. Distribution of threatened fauna within vicinity of title (overview)

Threatened flora

Database information indicates that the subject title does not support known populations of flora listed as threatened on either the Tasmanian *Threatened Species Protection Act 1995* or the Commonwealth *Environment Protection and Biodiversity Protection Act 1999* (Figure 13). Site assessment did not detect any such species.

Threatened fauna

Database information indicates that the subject title does not support known populations of fauna listed as threatened on either the Tasmanian *Threatened Species Protection Act 1995* or the Commonwealth *Environment Protection and Biodiversity Protection Act 1999* (Figure 14). Site assessment did not detect any such species, nor significant potential habitat of such species.

Consideration of planning scheme requirements

Correspondence from Sorell Council dated 2 Oct. 2025 in relation to the application now known as DA 5.2025.260.1 requested further information addressing the Natural Assets Code. It is presumed that this is in relation only to the Waterway and Coastal Protection Area overlay because the title is zoned as Low Density Residential such that the Natural Assets Code cannot have application in relation to the Priority Vegetation Area overlay (see C7.2.1 below).

The Purpose of the Natural Assets Code is stated as:

C7.0 Natural Assets Code

C7.1 Code Purpose

The purpose of the Natural Assets Code is:

- C7.1.1 To minimise impacts on water quality, natural assets including native riparian vegetation, river condition and the natural ecological function of watercourses, wetlands and lakes.
- C7.1.2 To minimise impacts on coastal and foreshore assets, native littoral vegetation, natural coastal processes and the natural ecological function of the coast.
- C7.1.3 To protect vulnerable coastal areas to enable natural processes to continue to occur, including the landward transgression of sand dunes, wetlands, saltmarshes and other sensitive coastal habitats due to sea-level rise.
- C7.1.4 To minimise impacts on identified priority vegetation.
- C7.1.5 To manage impacts on threatened fauna species by minimising clearance of significant habitat.

RESPONSE: In this case, the application of the Waterway and Coastal Protection Area overlay appears to be based on a 40 m buffer applied to a broad area shown as some form of "coastal wetland" rather than a "blue hydrographic line" per se. That is, C7.1.2 & C7.1.2 probably have the greatest relevance.

The Code has the following application:

C7.2 Application of this Code

C7.2.1 This code applies to development on land within the following areas:

- (a) a waterway and coastal protection area;
- (b) a future coastal refugia area; and



16 Clover Court, Carlton: Natural Values Statement (DA 5.2025.260.1)

- (c) a priority vegetation area only if within the following zones:
- (d) a waterway and coastal protection area;
- (xii) General Residential Zone or Low Density Residential Zone, only if an application for subdivision.

C7.2.2 This code does not apply to use.

RESPONSE: C7.2.1(a) is applicable but C7.2.1(b) is not (the Future Coastal Refugia Area overlay does not extend to the title) nor is C7.2.1(c) because the proposal is not an application for subdivision.

The Development Standards for Buildings and Works (C7.6) and specifically those for Buildings and Works within a Waterway and Coastal Protection Area or Future Coastal Refugia Area (last not relevant) are stated below:

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

Objective: That buildings and works within a waterway and coastal protection area or future coastal refugia area will not have an unnecessary or unacceptable impact on natural assets.

RESPONSE: While there will be works (some form of hazard management) within the overlay it is very difficult to anticipate a scenario in which such works would "have an unnecessary or unacceptable impact on natural assets" given that the modified status of most of the title (existing cleared land) and the extent of the slope-based scrub below what will be the lower limit of the hazard management area, providing a wide buffer of vegetation above the broader coastal flat. That is, I do not find the intent of the objective statement will be compromised.

The Acceptable Solution A1 of C7.6.1 is stated as:

A1

Buildings and works within a waterway and coastal protection area must:

- (a) be within a building area on a sealed plan approved under this planning scheme;
- (b) in relation to a Class 4 watercourse, be for a crossing or bridge not more than 5 m in width; or
- (c) if within the spatial extent of tidal waters, be an extension to an existing boat ramp, car park, jetty, marina, marine farming shore facility or slipway that is not more than 20% of the area of the facility existing at the effective date.

RESPONSE: In my interpretation, these provisions are either not met or are not applicable, noting that A1(a) refers to "this planning scheme" and so I presume any approval of the now older subdivision and obviously any subsequent development under the previous scheme is no longer applicable.

The title is one of several small new titles released on what was largely previously cleared land, wholly approved by Sorell Council for the primary purpose of residential development, with roads and services all already established prior to the current owner acquiring the title. Clover Court is fully developed and furnished with all relevant services. It is a reasonable assumption that the approval of the subdivision took due account of the potential direct and/or indirect immediate and/or future impacts on the adjacent natural values subject to the Waterway and Coastal Protection Area overlay.

The Performance Criteria P1.1 of C7.6.1 is stated as:

P1.1



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

RESPONSE: Under the Code, “natural assets” are taken to mean “biodiversity, environmental flows, natural stream bank and stream bed condition, riparian vegetation, littoral vegetation, water quality, wetlands, river condition and waterway and/or coastal values” i.e. they have broad definition and potential application. In this case the highly modified status of most of the title is reiterated.

As a starting point, the opening phrase of P1.1 refers to “...must avoid or minimise adverse impacts on natural assets...”. The use of the term “minimise” contemplates a level of acceptable impact, although this is not defined anywhere. On the basis that the lot is very small and clearly intended for residential development, combined with the absence of key “natural assets” per se within the title (mainly cleared land with a fringe of non-threatened vegetation that does not support populations of threatened flora nor significant potential habitat of threatened fauna), in my opinion, the project achieves the objective to “minimise adverse impacts” as far as practicable.

With respect to the phrase “...having regard to...”, this is considered in the manner referred to in *S and S McElwaine and A Hamilton v West Tamar Council and Growth Developments Pty Ltd [2021] TASCAT 4 (17 November 2021)*, where TASCAT stated: “the requirement to ‘have regard to’ does not elevate P2.1(a) to (f) to mandatory requirements that the proposal must satisfy. The tribunal need only consider those subparagraphs in ascertaining whether the proposal complies with clause E8.6.1 P2.1”.

Below the sub-criteria of P1.1 are addressed in turn.

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

RESPONSE: To my interpretation, this provision is either not applicable or met by default because there should be limited impacts caused by erosion, siltation, sedimentation and runoff into the adjacent Crown land (noting P1.1 requires impacts to be “avoided **or** minimised”). Based on my site assessment, I do not anticipate that construction works will cause any such impact because they will be wholly in the cleared part of the title. Eventual management of the fringe of coastal scrub will simply extend the area of modified land but a wide buffer of native vegetation will be retained between the limits of the hazard management area and the coastal fringe.

- (b) impacts on riparian or littoral vegetation;

RESPONSE: Not applicable because there is no proposal to impact on littoral vegetation with all works intended to be wholly within the existing title, the “littoral vegetation” notionally extending on to the lower slopes of the title (this is in effect actually restricted to the broad grassy/sedgy flat adjacent to the outfall of various natural drainage features into the Carlton River –Plate 7).

- (c) maintaining natural streambank and streambed condition, where it exists;

RESPONSE: Not applicable (site does not support any watercourses).

- (d) impacts on in-stream natural habitat, such as fallen logs, bank overhangs, rocks and trailing vegetation;

RESPONSE: Not applicable (site does not support any watercourses).

- (e) the need to avoid significantly impeding natural flow and drainage;

RESPONSE: Not applicable (site does not support any watercourses).

- (f) the need to maintain fish passage, where known to exist;

RESPONSE: Not applicable (site does not support any watercourses).

- (g) the need to avoid land filling of wetlands;

RESPONSE: Not applicable (no wetlands present).

- (h) the need to group new facilities with existing facilities, where reasonably practical;

RESPONSE: To my interpretation, this provision is not applicable.



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- (i) minimising cut and fill;

RESPONSE: To my interpretation, this provision is satisfied as there will be limited cut and fill that will materially impact on "natural values".

- (j) building design that responds to the particular size, shape, contours or slope of the land;

RESPONSE: To my interpretation, this provision is satisfied based on the site plans provided, noting this is an approved subdivision that permitted a small title immediately adjacent to the coastal fringe, with no practical options to position a dwelling.

- (k) minimising impacts on coastal processes, including sand movement and wave action;

RESPONSE: In my opinion, provided works are restricted to the title itself, there should be no impact on coastal processes because the site is well above any notional high water mark and set well back from this mark.

- (l) minimising the need for future works for the protection of natural assets, infrastructure and property;

RESPONSE: In my opinion, this provision has little practical application to a small title where works will be wholly contained within the title.

- (m) the environmental best practice guidelines in the *Wetlands and Waterways Works Manual*; and

RESPONSE: Not applicable (there will be no works that will manifestly impact on wetlands or waterways).

- (n) the guidelines in the *Tasmanian Coastal Works Manual*.

RESPONSE: In my opinion, this manual will have little direct application to the present scenario provided that works are wholly restricted to the title itself.

Based on the above review of P1.1 of C7.6.1, the proposal will fully satisfy all relevant provisions without the need for specific mitigation conditions.

Note that this statement does not constitute legal advice, and provides my interpretation of the provisions of the *Tasmanian Planning Scheme – Sorell Local Provisions Schedule*, which may not represent the views of Sorell Council. It is recommended that formal advice be sought from the relevant agency prior to acting on any aspect of this report.

Please do not hesitate to contact me further if additional information is required.

Kind regards



Mark Wapstra
Senior Scientist/Manager



References

- CofA (Commonwealth Australia) (2025). *Protected Matters Report* for a polygon defining the title, dated 8 Oct. 2025. [appended]
- DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2015, updated by NRE Tas 2021). *Guidelines for Natural Values Surveys - Terrestrial Development Proposals*. Department of Primary Industries, Parks, Water & Environment, Hobart.
- DNRET (Department of Natural Resources and Environment Tasmania) (2023). *Natural Values Atlas Report ECOTas_16CloverCourt* for a polygon defining the title area (centred on 552870mE 5253173mN), buffered by 5 km, dated 8 Oct. 2025. [appended]
- FPA (Forest Practices Authority) (2023). *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 552870mE 5253173mN (nominally the centroid of the *Natural Values Atlas* report), buffered by 2 km and 5 km for records of threatened flora and fauna, respectively, hyperlinked species' profiles and predicted range boundary maps, dated 8 Oct. 2025. [appended]
- Kitchener, A. & Harris, S. (2013+, online edition). *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Edition 2*. Department of Primary Industries, Parks, Water & Environment, Hobart. [for classification and nomenclature of vegetation mapping units]



Natural Values Atlas Report

Authoritative, comprehensive information on Tasmania's natural values.



Sorell Council

Development Application: 5.2025.260.1 -
Response to Request For Information - 16
Clover Court, Carlton - P2.pdf
Plans Reference: P2
Date Received: 10/10/2025

Reference: ECOTas_6CloverCourt

Requested For: Mwapstra

Report Type: Summary Report

Timestamp: 12:28:59 PM Wednesday 08 October 2025

Threatened Flora: buffers Min: 500m Max: 5000m

Threatened Fauna: buffers Min: 500m Max: 5000m

Raptors: buffers Min: 500m Max: 5000m

Tasmanian Weed Management Act Weeds: buffers Min: 500m Max: 5000m

Priority Weeds: buffers Min: 500m Max: 5000m

Geoconservation: buffer 1000m

Acid Sulfate Soils: buffer 1000m

TASVEG: buffer 1000m

Threatened Communities: buffer 1000m

Fire History: buffer 1000m

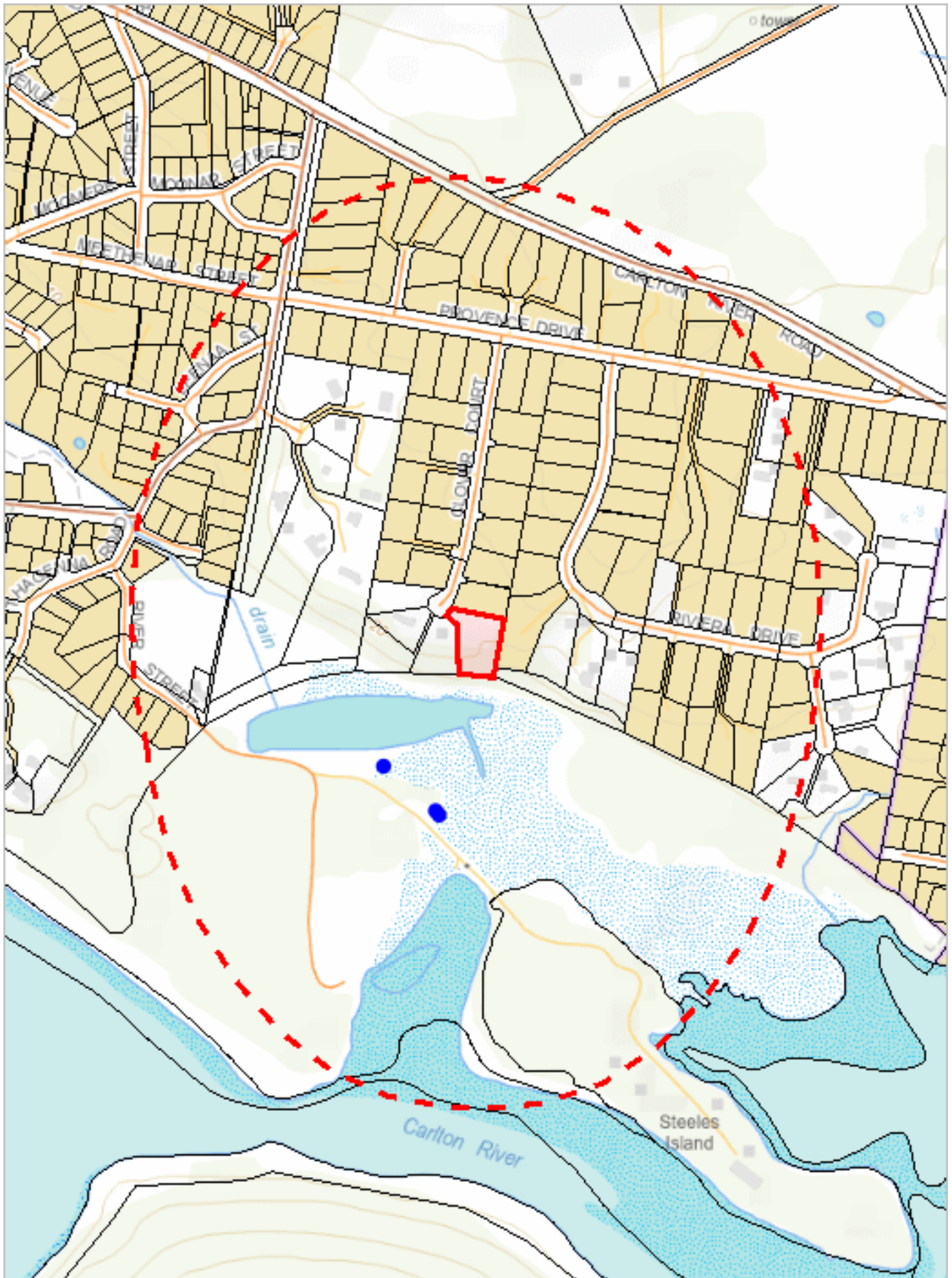
Tasmanian Reserve Estate: buffer 1000m

Biosecurity Risks: buffer 1000m



The centroid for this query GDA94: 552870.0, 5253173.0 falls within:

Property: 9861800



552314, 5252430

Please note that some layers may not display at all requested map scales

Threatened flora within 500 metres

Legend: Verified and Unverified observations

- Point Verified

●

Point Unverified

▬

Line Verified

▬

Line Unverified

■

Polygon Verified

■

Polygon Unverified

Legend: Cadastral Parcels



Threatened flora within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Ruppia tuberosa	tuberous seatassel	r		n	3	12-Oct-2017

Unverified Records

No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.

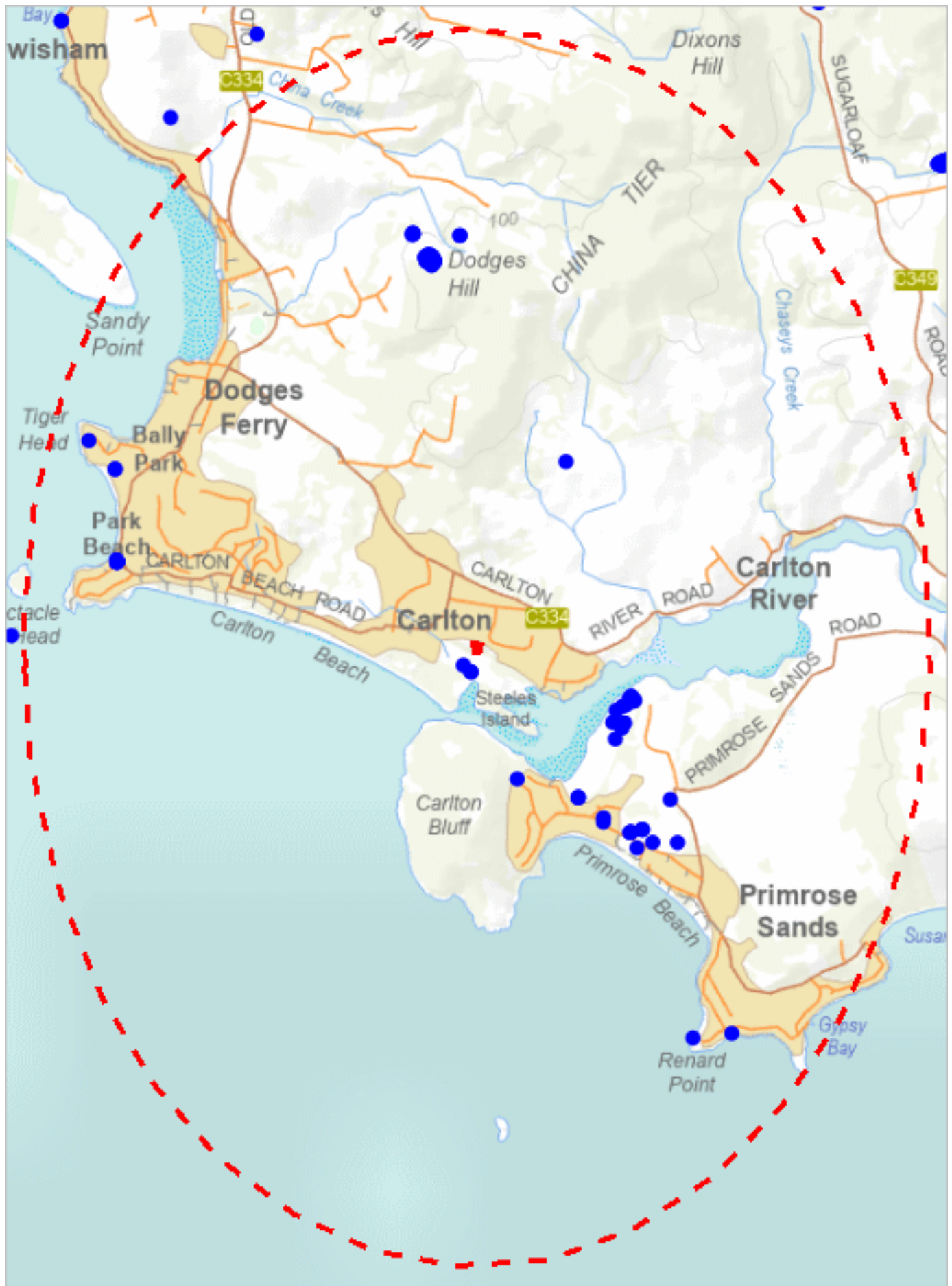
Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened flora within 5000 metres

556765, 5258438



548975, 5247909

Please note that some layers may not display at all requested map scales

Threatened flora within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Threatened flora within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Caladenia caudata</i>	tailed spider-orchid	v	VU	e	8	17-Sep-2016
<i>Caladenia saggicola</i>	sagg spider-orchid	e	CR	e	4	17-Sep-2016
<i>Cotula vulgaris</i> var. <i>australasica</i>	slender buttons	r		n	1	19-Nov-2003
<i>Cuscuta tasmanica</i>	golden dodder	r		n	7	02-Jan-2024
<i>Lepilaena preissii</i>	slender watermat	r		n	1	01-Oct-1978
<i>Limonium australe</i> var. <i>australe</i>	yellow sea-lavender	r		n	1	01-May-1978
<i>Pterostylis wapstrarum</i>	fleshy greenhood	e	CR	e	1	08-Apr-1905
<i>Ruppia megacarpa</i>	largefruit seatassel	r		n	7	24-Feb-2021
<i>Ruppia tuberosa</i>	tuberous seatassel	r		n	17	08-Dec-2020
<i>Stuckenia pectinata</i>	fennel pondweed	r		n	2	08-Dec-2020
<i>Vittadinia muelleri</i>	narrowleaf new-holland-daisy	r		n	71	12-Sep-2024

Unverified Records

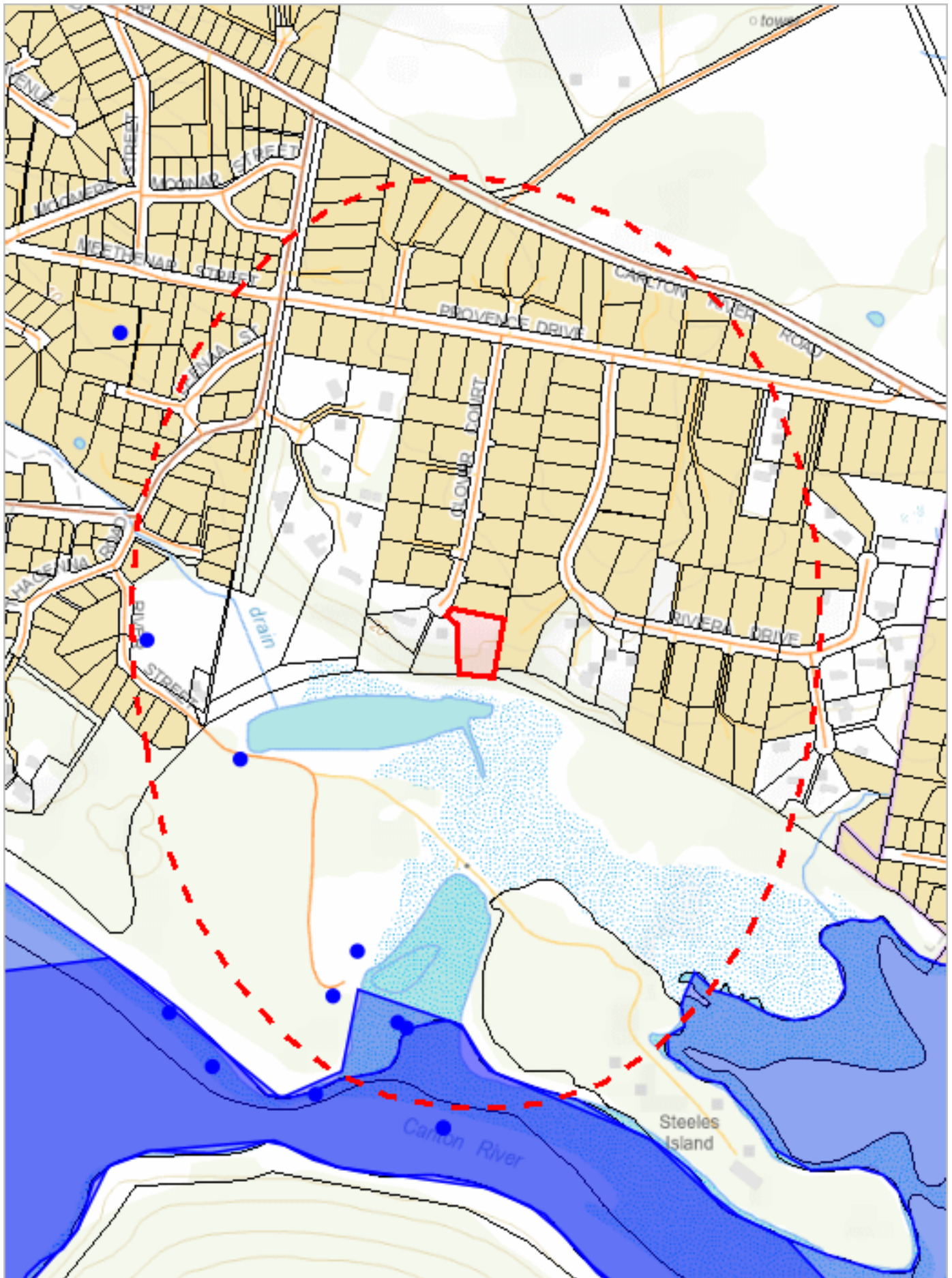
No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.

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Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



552314, 5252430

Please note that some layers may not display at all requested map scales

Threatened fauna within 500 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Threatened fauna within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	n	1	28-Feb-2013
<i>Brachionichthys hirsutus</i>	spotted handfish	e	CR	e	1	03-Sep-2013
<i>Litoria raniformis</i>	green and gold frog	v	VU	ae	1	17-Sep-2007
<i>Theclinesthes serpentatus</i>	chequered blue	pr		n	1	23-Apr-2024
<i>Thinornis cucullatus</i>	hooded plover		PVU	ae	3	08-Sep-2024
<i>Thymichthys politus</i>	red handfish	e	CR	e	1	30-Apr-2021
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	n	1	30-Dec-1985

Unverified Records

No unverified records were found!

Threatened fauna within 500 metres (based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
<i>Lathamus discolor</i>	swift parrot	e	CR	mbe	1	0	1
<i>Prototroctes maraena</i>	australian grayling	v	VU	ae	1	0	0
<i>Antipodia chaostola</i>	chaostola skipper	e	EN	ae	1	0	0
<i>Pseudemoia pagenstecheri</i>	tussock skink	v		n	1	0	0
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i>	masked owl (Tasmanian)	e	VU	e	1	0	1
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	2	0	0
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i>	spotted-tailed quoll	r	VU	n	1	0	0
<i>Litoria raniformis</i>	green and gold frog	v	VU	ae	1	0	1
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	0	0
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	1	0	0
<i>Antechinus vandycki</i>	Tasman Peninsula Dusky Antechinus	v		eH	1	0	0
<i>Thymichthys politus</i>	red handfish	e	CR	e	1	0	0
<i>Pardalotus quadragintus</i>	forty-spotted pardalote	e	EN	e	1	0	0
<i>Aquila audax</i> subsp. <i>fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	0	0	1

For more information about threatened species, please contact Threatened Species Enquiries.

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Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

556765, 5258438



548975, 5247909

Please note that some layers may not display at all requested map scales

Threatened fauna within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Threatened fauna within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	21-Sep-2017
<i>Aquila audax</i>	wedge-tailed eagle	pe	PEN	n	7	21-Dec-2023
<i>Aquila audax</i> subsp. <i>fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	9	06-Oct-2024
<i>Arctocephalus forsteri</i>	new zealand fur seal	r		n	2	04-Jul-2018
<i>Arctocephalus forsteri</i> subsp. <i>doriferus</i>	new zealand fur seal	r		n	2	25-Jul-2005
<i>Arctocephalus tropicalis</i>	sub-antarctic fur seal	e	VU	n	1	05-Jun-2021
<i>Brachionichthys hirsutus</i>	spotted handfish	e	CR	e	3	03-Sep-2013
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	1	20-Mar-2023
Eagle sp.	Eagle	e	EN	n	3	13-Feb-2025
<i>Eubalaena australis</i>	southern right whale	e	EN	m	49	26-Jun-2021
<i>Gazameda gunnii</i>	Gunn's screw shell	v		ae	8	05-Dec-2011
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	22	30-Jan-2023
<i>Hirundapus caudacutus</i>	white-throated needletail		VU	n	3	09-Feb-2019
<i>Lathamus discolor</i>	swift parrot	e	CR	mbe	7	25-Jan-2025
<i>Litoria raniformis</i>	green and gold frog	v	VU	ae	2	06-Nov-2021
<i>Mirounga leonina</i> subsp. <i>macquariensis</i>	southern elephant seal	pe	PVU	n	3	05-Mar-2008
<i>Parvulastra vivipara</i>	live-bearing seastar	e	VU	e	12	16-Sep-2021
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	9	02-Aug-2024
<i>Pterodroma lessonii</i>	white-headed petrel	v		n	1	13-Nov-1984
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	19	01-Jan-2025
<i>Seriolella brama</i>	Blue Warehou		CD	n	1	01-Jan-1995
<i>Sterna striata</i>	white-fronted tern	v		n	1	01-Jan-1900
<i>Theclinesthes serpentatus</i>	chequered blue	pr		n	1	23-Apr-2024
<i>Thinornis cucullatus</i>	hooded plover		PVU	ae	17	08-Sep-2024
<i>Thinornis rubricollis</i>	hooded plover		VU	n	2	19-May-2012
<i>Thymichthys politus</i>	red handfish	e	CR	e	2	30-Apr-2021
<i>Tyto novaehollandiae</i>	masked owl	pe	PVU	n	2	30-Dec-1985

Unverified Records

No unverified records were found!

Threatened fauna within 5000 metres (based on Range Boundaries)

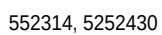
Species	Common Name	SS	NS	BO	Potential	Known	Core
<i>Lathamus discolor</i>	swift parrot	e	CR	mbe	1	0	1
<i>Prototroctes maraena</i>	australian grayling	v	VU	ae	11	0	0
<i>Theclinesthes serpentatus</i> <i>lavara</i>	chequered blue	r		e	1	0	0
<i>Antipodia chaostola</i>	chaostola skipper	e	EN	ae	1	0	0
<i>Pseudemoia pagenstecheri</i>	tussock skink	v		n	1	0	0
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i>	masked owl (Tasmanian)	e	VU	e	1	0	1
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	3	0	0
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i>	spotted-tailed quoll	r	VU	n	1	0	0
<i>Litoria raniformis</i>	green and gold frog	v	VU	ae	1	0	1
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	0	0
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	1	0	0
<i>Pardalotus quadragintus</i>	forty-spotted pardalote	e	EN	e	3	0	0
<i>Antechinus vandycki</i>	Tasman Peninsula Dusky Antechinus	v		eH	1	0	0
<i>Thymichthys politus</i>	red handfish	e	CR	e	1	1	0
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	1	0	1
<i>Aquila audax</i> subsp. <i>fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
<i>Brachionichthys hirsutus</i>	spotted handfish	e	CR	e	1	0	0
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	0	0	1

For more information about threatened species, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



Department of Natural Resources and Environment Tasmania

Raptor nests and sightings within 500 metres

Legend: Verified and Unverified observations

- Point Verified

●

Point Unverified

▬

Line Verified

▬

Line Unverified

▭

Polygon Verified

▭

Polygon Unverified

Legend: Cadastral Parcels



Raptor nests and sightings within 500 metres

Verified Records

Nest Id/Location Foreign Id	Species	Common Name	Obs Type	Observation Count	Last Recorded
	Aquila audax	wedge-tailed eagle	Not Recorded	1	28-Feb-2013
	Tyto novaehollandiae	masked owl	Sighting	1	30-Dec-1985

Unverified Records

No unverified records were found!

Raptor nests and sightings within 500 metres (based on Range Boundaries)

Species	Common Name	SS	NS	Potential	Known	Core
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	1	0	0
Accipiter novaehollandiae	grey goshawk	e		1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		2	0	0

For more information about raptor nests, please contact Threatened Species Enquiries.

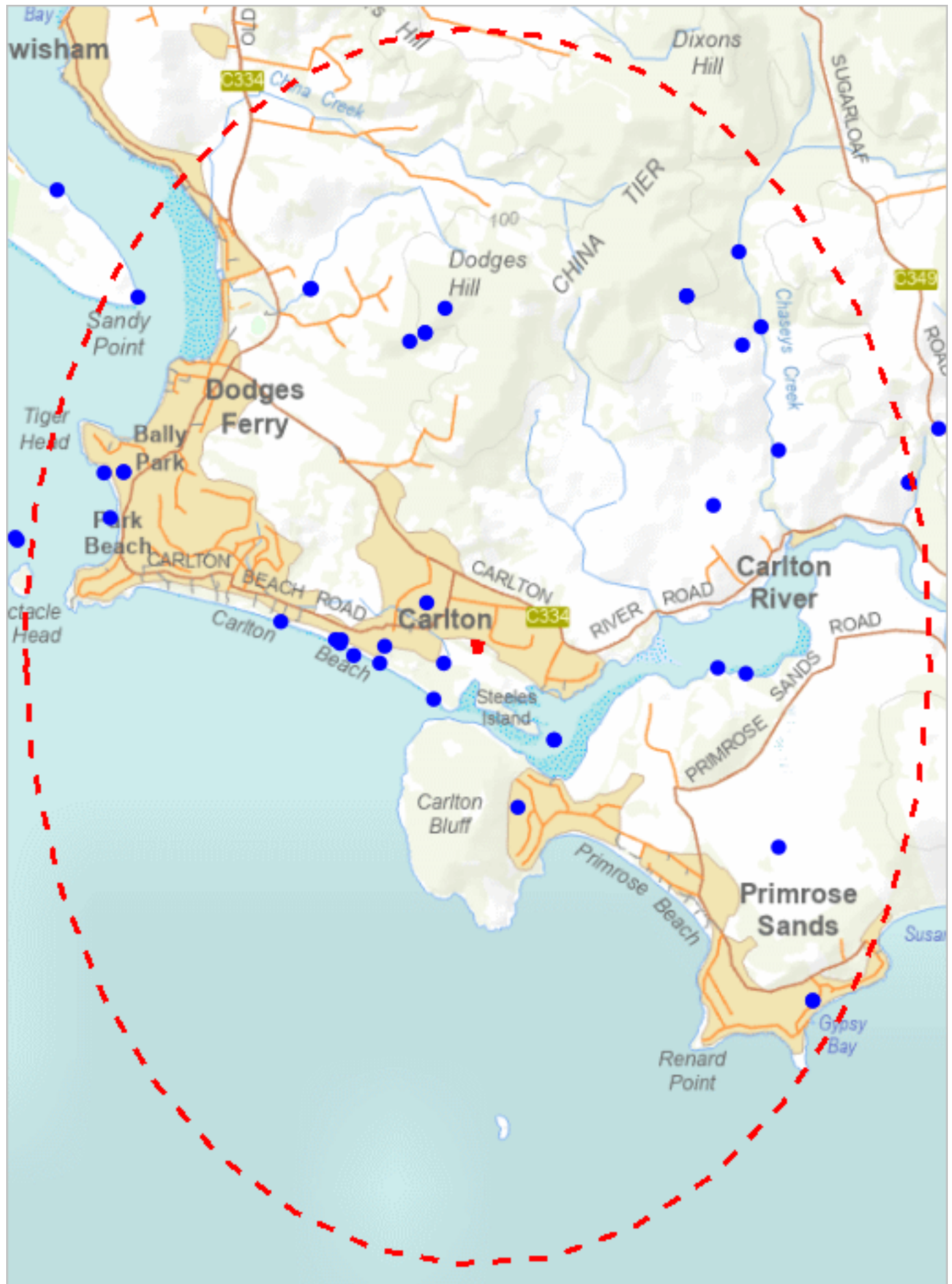
Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Raptor nests and sightings within 5000 metres

556765, 5258438



548975, 5247909

Please note that some layers may not display at all requested map scales

Raptor nests and sightings within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Raptor nests and sightings within 5000 metres

Verified Records

Nest Id/Location Foreign Id	Species	Common Name	Obs Type	Observation Count	Last Recorded
1058	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	2	16-Jan-2011
2014	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	3	10-Jul-2014
2015	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	21-Aug-2012
2030	Eagle sp.	Eagle	Nest	1	08-Aug-2012
2030	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	05-Sep-2012
2031	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	08-Aug-2012
2220	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	14-Jul-2015
2825	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	26-Oct-2020
3003	Eagle sp.	Eagle	Nest	2	13-Feb-2025
	Accipiter novaehollandiae	grey goshawk	Not Recorded	1	21-Sep-2017
	Aquila audax	wedge-tailed eagle	Not Recorded	3	12-Jul-2014
	Aquila audax	wedge-tailed eagle	Sighting	4	21-Dec-2023
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	5	06-Oct-2024
	Falco peregrinus	peregrine falcon	Not Recorded	1	25-Jan-2012
	Falco peregrinus	peregrine falcon	Sighting	1	12-Sep-2021
	Haliaeetus leucogaster	white-bellied sea-eagle	Not Recorded	7	19-May-2018
	Haliaeetus leucogaster	white-bellied sea-eagle	Sighting	9	30-Jan-2023
	Tyto novaehollandiae	masked owl	Sighting	2	30-Dec-1985

Unverified Records

No unverified records were found!

Raptor nests and sightings within 5000 metres (based on Range Boundaries)

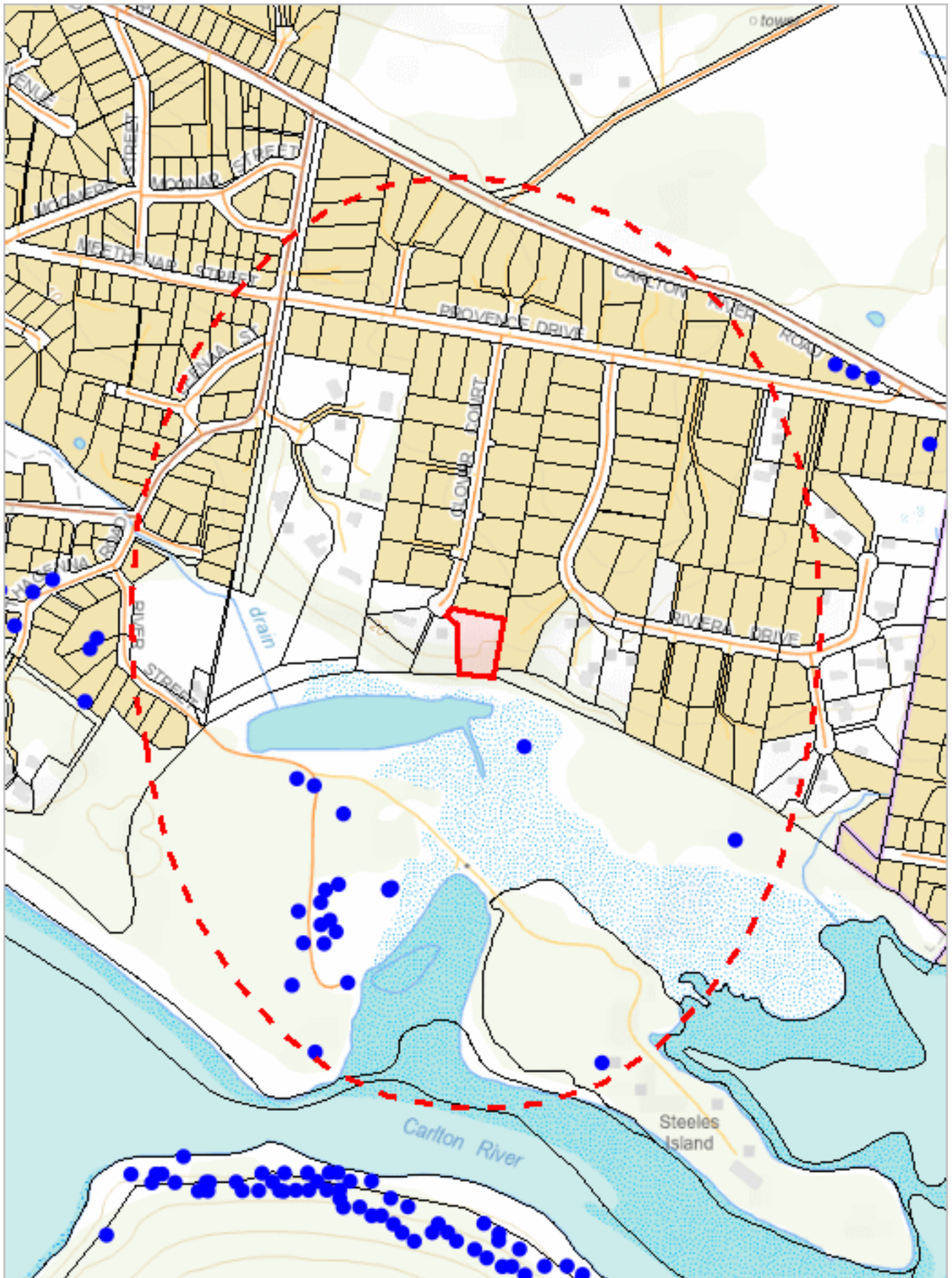
Species	Common Name	SS	NS	Potential	Known	Core
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	1	0	0
Accipiter novaehollandiae	grey goshawk	e		1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		3	0	0

For more information about raptor nests, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



552314, 5252430

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 500 m

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Tas Management Act Weeds within 500 m

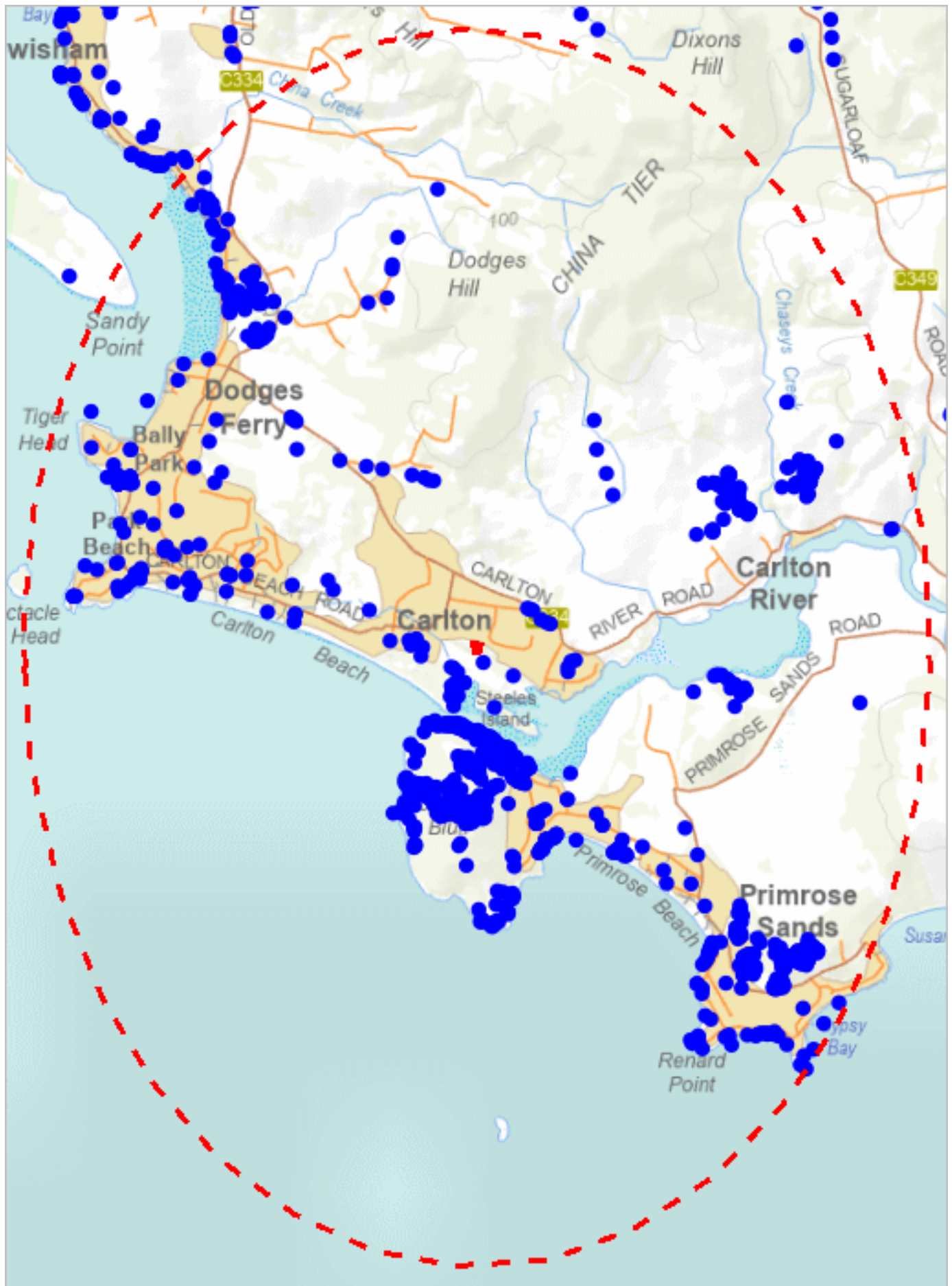
Verified Records

Species	Common Name	Observation Count	Last Recorded
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	11	13-Oct-2023
<i>Cortaderia</i> sp.	pampas grass	2	02-Jul-2008
<i>Erica arborea</i>	tree heath	6	13-Oct-2023
<i>Erica lusitanica</i>	spanish heath	6	29-Jun-2024
<i>Lycium ferocissimum</i>	african boxthorn	2	13-Oct-2023
<i>Rubus fruticosus</i>	blackberry	2	13-Oct-2023

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>



548975, 5247909

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 5000 m

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Tas Management Act Weeds within 5000 m

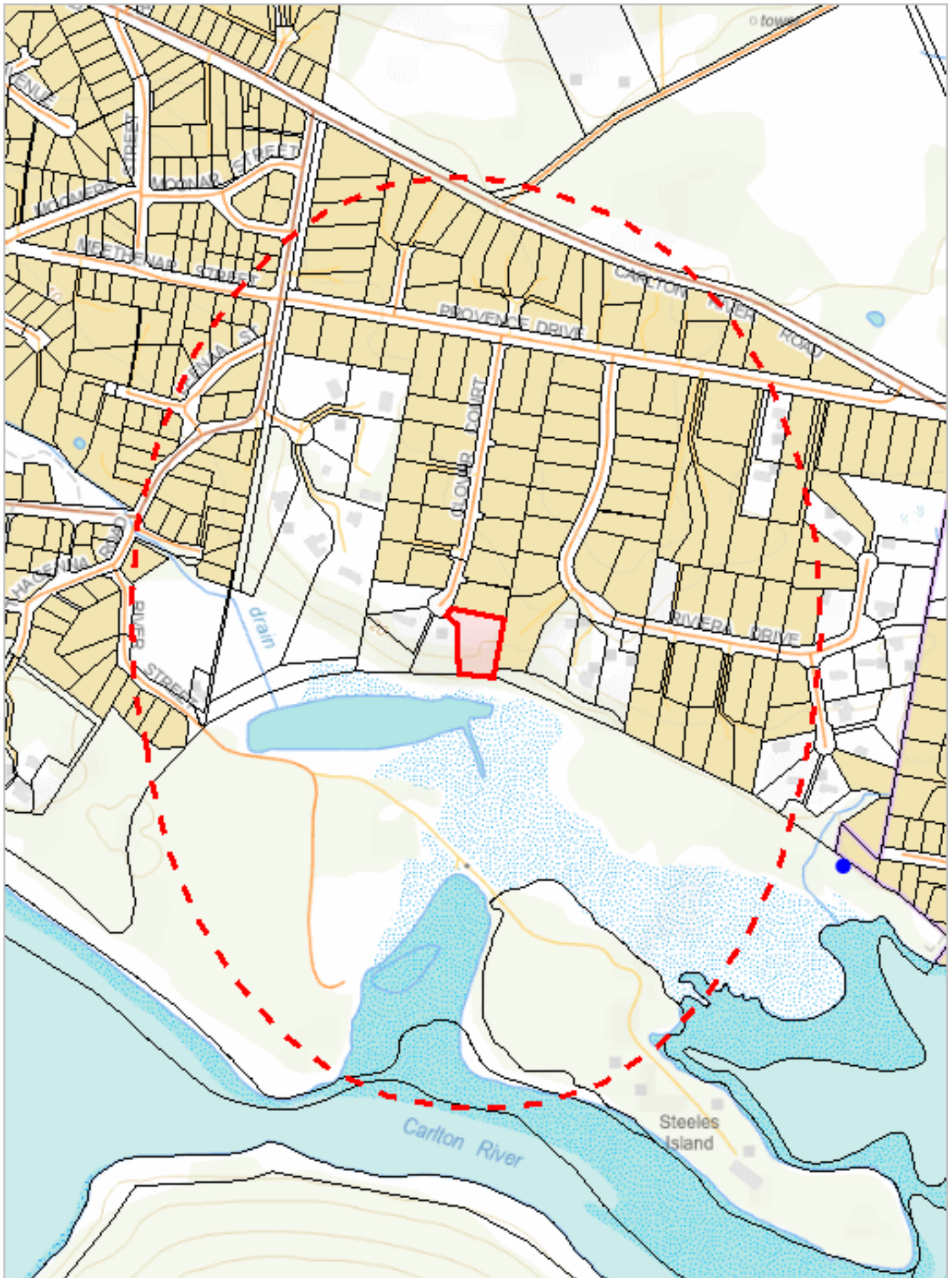
Verified Records

Species	Common Name	Observation Count	Last Recorded
<i>Asparagus asparagoides</i>	bridal creeper	53	09-Jul-2024
<i>Austroderia richardii</i>	toe-toe pampasgrass	1	19-Nov-2003
<i>Carduus pycnocephalus</i>	slender thistle	3	12-Dec-2023
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	384	24-Jun-2024
<i>Cirsium arvense</i> var. <i>arvense</i>	creeping thistle	5	24-Jun-2024
<i>Cortaderia</i> sp.	pampas grass	75	09-Jul-2008
<i>Cytisus scoparius</i>	english broom	1	01-Nov-2000
<i>Echium plantagineum</i>	patersons curse	16	16-Dec-2022
<i>Eragrostis curvula</i>	african lovegrass	10	01-May-2024
<i>Erica arborea</i>	tree heath	6	13-Oct-2023
<i>Erica baccans</i>	berryflower heath	1	11-Jul-2019
<i>Erica lusitanica</i>	spanish heath	13	11-Oct-2024
<i>Foeniculum vulgare</i>	fennel	1	01-Nov-2000
<i>Genista monspessulana</i>	montpellier broom or canary broom	6	18-Dec-2023
<i>Lycium ferocissimum</i>	african boxthorn	14	18-Dec-2023
<i>Marrubium vulgare</i>	white horehound	1	19-Feb-1959
<i>Nassella neesiana</i>	chilean needlegrass	155	01-Mar-2023
<i>Nassella trichotoma</i>	serrated tussock	462	18-Nov-2024
<i>Opuntia stricta</i>	common prickly pear	1	23-Nov-2023
<i>Rubus fruticosus</i>	blackberry	3	13-Oct-2023
<i>Ulex europaeus</i>	gorse	25	04-Oct-2013

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>



552314, 5252430

Please note that some layers may not display at all requested map scales

Priority Weeds within 500 m

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Priority Weeds within 500 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Grevillea rosmarinifolia	rosemary grevillea	1	13-Oct-2023

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>



548975, 5247909

Please note that some layers may not display at all requested map scales

Priority Weeds within 5000 m

Legend: Verified and Unverified observations

- Point Verified

●

Point Unverified

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Line Verified

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Line Unverified

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Polygon Verified

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Polygon Unverified

Legend: Cadastral Parcels



Priority Weeds within 5000 m

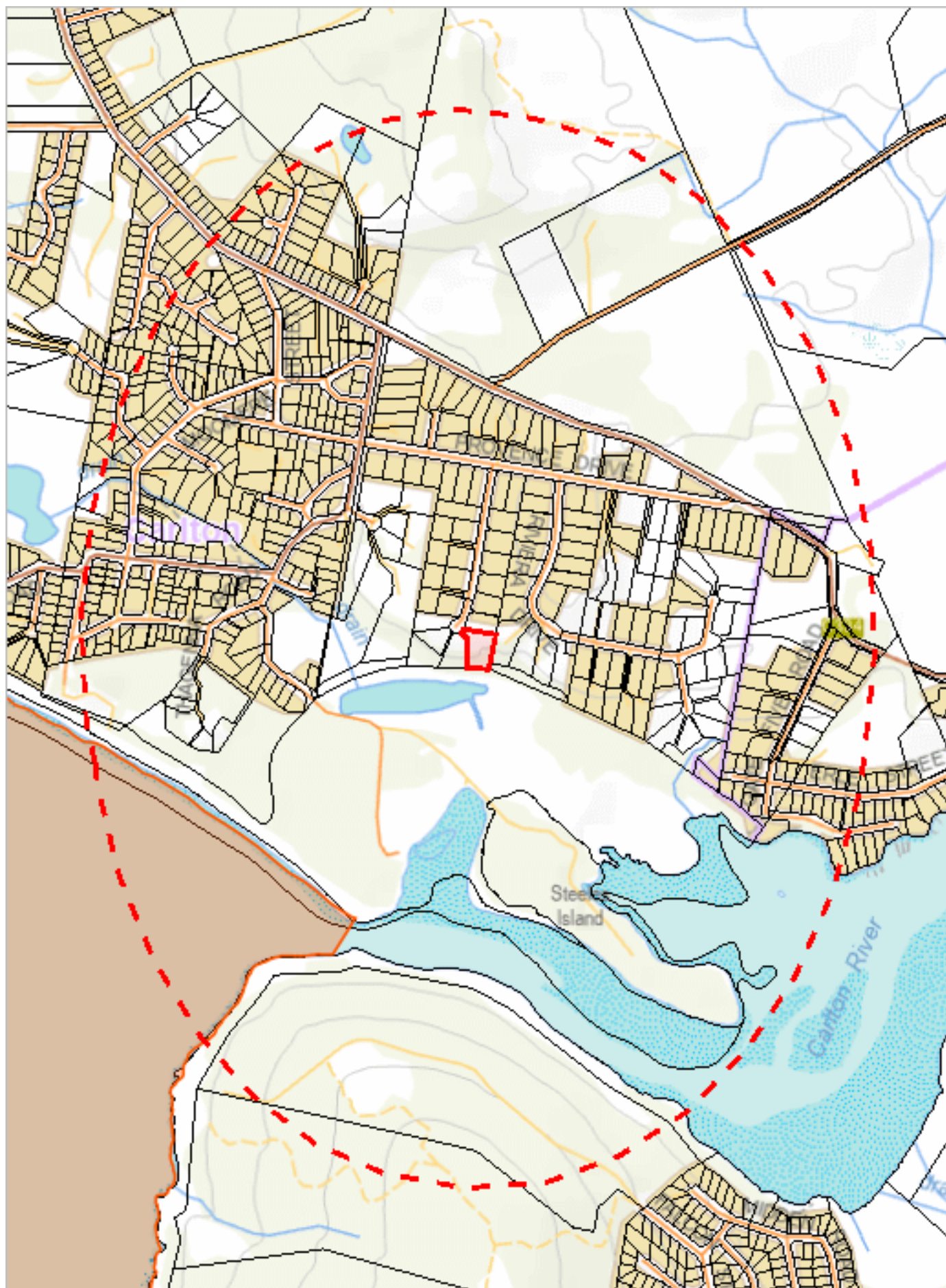
Verified Records

Species	Common Name	Observation Count	Last Recorded
Billardiera heterophylla	bluebell creeper	2	02-Feb-2023
Echium candicans	pride-of-madeira	2	10-Nov-2023
Gomphocarpus fruticosus subsp. fruticosus	swanplant	1	24-Mar-2023
Grevillea rosmarinifolia	rosemary grevillea	1	13-Oct-2023
Pittosporum undulatum	sweet pittosporum	2	23-Nov-2023
Polygala myrtifolia	myrtleleaf milkwort	1	15-Sep-2023

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>



551943, 5251928

Please note that some layers may not display at all requested map scales

Geoconservation sites within 1000 metres

Legend: Geoconservation (NVA)



Legend: Cadastral Parcels



Geoconservation sites within 1000 metres

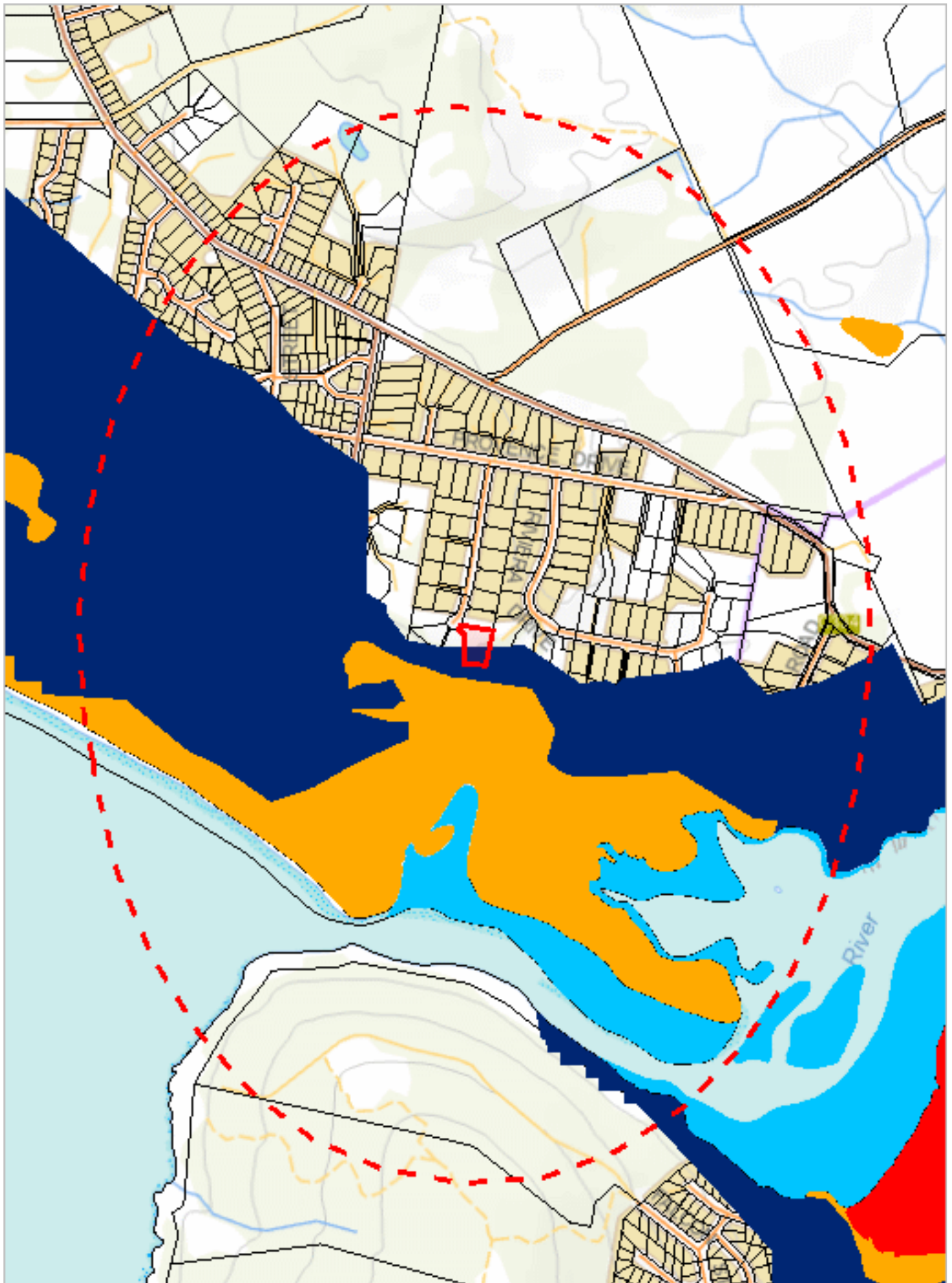
Id	Name	Statement of Significance	Significance Level	Status
2768	Frederick Henry Bay Beach Alignment	Notable example of type.	National	Listed

For more information about the Geoconservation Database, please visit the website: <https://www.nre.tas.gov.au/conservation/geoconservation> or contact the Geoconservation Officer:

Telephone: (03) 6165 4401

Email: Geoconservation.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



551943, 5251928

Please note that some layers may not display at all requested map scales

Acid Sulfate Soils within 1000 metres

Legend: Coastal Acid Sulfate Soils (0 - 20m AHD)

 High  Low  Extremely Low

Legend: Inland Acid Sulfate Soils (>20m AHD)

 High  Low  Extremely Low

Legend: Marine Subaqueous/Intertidal Acid Sulfate Soil

 High (Intertidal)  High (Subtidal)

Legend: Cadastral Parcels



Acid Sulfate Soils within 1000 metres

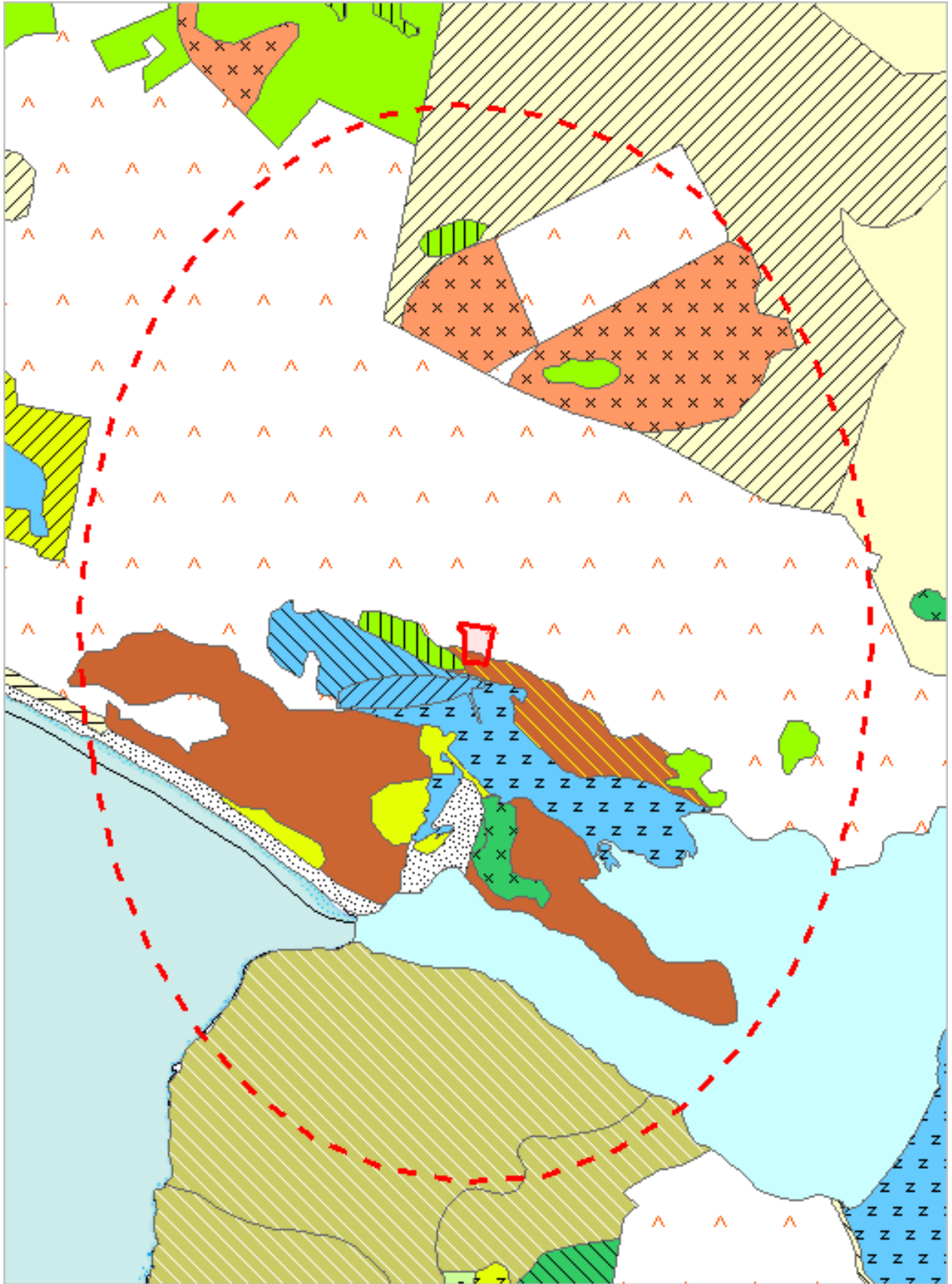
Dataset Name	Acid Sulfate Soil Probability	Acid Sulfate Soil Atlas	Description
Coastal Acid Sulfate Soils	Extremely Low	Ci(p3)	Extremely low probability of occurrence (1-5% of mapping unit). with occurrences in small areas. Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface. Heath, forests. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.
Coastal Acid Sulfate Soils	Extremely Low	Cj(p3)	Extremely low probability of occurrence (1-5% of mapping unit). with occurrences in small areas. Sandplains and dunes >10m AHD, ASS generally below 1m from the surface. Heath, forests. Mainly Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.
Coastal Acid Sulfate Soils	Low	Bh(p2)	Low probability of occurrence (6-70% chance of occurrence in mapping unit). Sandplains and dunes <2m AHD, ASS generally within 1m of the surface. Often wet heath. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence.
Coastal Acid Sulfate Soils	Low	Bi(p2)	Low probability of occurrence (6-70% chance of occurrence in mapping unit). Sandplains and dunes 2-10m AHD, ASS generally below 1m from the surface. Heath, forests. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence.
Marine Subaqueous and Intertidal Acid Sulfate Soils	High	Ab(p3)	High probability of occurrence (>70% chance of occurrence in mapping unit). Intertidal flats, PASS generally within upper 1m. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.

For more information about Acid Sulfate Soils, please contact Land Management Enquiries.

Telephone: (03) 6777 2227

Email: LandManagement.Enquiries@nre.tas.gov.au

Address: 171 Westbury Road, Prospect, Tasmania, Australia, 7250



551943, 5251928

Please note that some layers may not display at all requested map scales

Legend: TASVEG 4.0

	(AAP) Alkaline pans
	(AHF) Freshwater aquatic herbland
	(AHL) Lacustrine herbland
	(AHS) Saline aquatic herbland
	(ARS) Saline sedgeland / rushland
	(ASF) Fresh water aquatic sedgeland and rushland
	(ASP) Sphagnum peatland
	(ASS) Succulent saline herbland
	(AUS) Saltmarsh (undifferentiated)
	(AWU) Wetland (undifferentiated)
	(DAC) Eucalyptus amygdalina coastal forest and woodland
	(DAD) Eucalyptus amygdalina forest and woodland on dolerite
	(DAM) Eucalyptus amygdalina forest on mudstone
	(DAS) Eucalyptus amygdalina forest and woodland on sandstone
	(DAZ) Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits
	(DBA) Eucalyptus barberi forest and woodland
	(DCO) Eucalyptus coccifera forest and woodland
	(DCR) Eucalyptus cordata forest
	(DDE) Eucalyptus delegatensis dry forest and woodland
	(DDP) Eucalyptus dalrympleana - Eucalyptus pauciflora forest and woodland
	(DGL) Eucalyptus globulus dry forest and woodland
	(DGW) Eucalyptus gunnii woodland
	(DKW) King Island Eucalypt woodland
	(DMO) Eucalyptus morrisbyi forest and woodland
	(DMW) Midlands woodland complex
	(DNF) Eucalyptus nitida Furneaux forest
	(DNI) Eucalyptus nitida dry forest and woodland
	(DOB) Eucalyptus obliqua dry forest
	(DOV) Eucalyptus ovata forest and woodland
	(DOW) Eucalyptus ovata heathy woodland
	(DPD) Eucalyptus pauciflora forest and woodland on dolerite
	(DPE) Eucalyptus perriniana forest and woodland
	(DPO) Eucalyptus pauciflora forest and woodland not on dolerite
	(DPU) Eucalyptus pulchella forest and woodland
	(DRI) Eucalyptus risdonii forest and woodland
	(DRO) Eucalyptus rodwayi forest and woodland
	(DSC) Eucalyptus amygdalina - Eucalyptus obliqua damp sclerophyll forest
	(DSG) Eucalyptus sieberi forest and woodland on granite
	(DSO) Eucalyptus sieberi forest and woodland not on granite
	(DTD) Eucalyptus tenuiramis forest and woodland on dolerite
	(DTG) Eucalyptus tenuiramis forest and woodland on granite
	(DTO) Eucalyptus tenuiramis forest and woodland on sediments
	(DVC) Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
	(DVF) Eucalyptus viminalis Furneaux forest and woodland
	(DVG) Eucalyptus viminalis grassy forest and woodland
	(FAC) Improved pasture with native tree canopy
	(FAG) Agricultural land
	(FMG) Marram grassland
	(FPE) Permanent easements
	(FPF) Pteridium esculentum fernland
	(FPH) Plantations for silviculture - hardwood
	(FPS) Plantations for silviculture - softwood
	(FPU) Unverified plantations for silviculture
	(FRG) Regenerating cleared land
	(FSM) Spartina marshland
	(FUM) Extra-urban miscellaneous
	(FUR) Urban areas
	(FWU) Weed infestation
	(GCL) Lowland grassland complex

TASVEG 4.0 Communities within 1000 metres

	{GHC} Coastal grass and herbfield
	{GPH} Highland Poa grassland
	{GPL} Lowland Poa labillardierei grassland
	{GRP} Rockplate grassland
	{GSL} Lowland grassy sedgeland
	{GTL} Lowland Themeda triandra grassland
	{HCH} Alpine coniferous heathland
	{HCM} Cushion moorland
	{HHE} Eastern alpine heathland
	{HHW} Western alpine heathland
	{HSE} Eastern alpine sedgeland
	{HSW} Western alpine sedgeland/herbland
	{HUE} Eastern alpine vegetation (undifferentiated)
	{MBE} Eastern buttongrass moorland
	{MBP} Pure buttongrass moorland
	{MBR} Sparse buttongrass moorland on slopes
	{MBS} Buttongrass moorland with emergent shrubs
	{MBU} Buttongrass moorland (undifferentiated)
	{MBW} Western buttongrass moorland
	{MDS} Subalpine Diplarrena latifolia rushland
	{MGH} Highland grassy sedgeland
	{MRR} Restionaceae rushland
	{MSW} Western lowland sedgeland
	{NAD} Acacia dealbata forest
	{NAF} Acacia melanoxylon swamp forest
	{NAL} Allocasuarina littoralis forest
	{NAR} Acacia melanoxylon forest on rises
	{NAV} Allocasuarina verticillata forest
	{NBA} Bursaria - Acacia woodland
	{NBS} Banksia serrata woodland
	{NCR} Callitris rhomboidea forest
	{NLA} Leptospermum scoparium - Acacia mucronata forest
	{NLE} Leptospermum forest
	{NLM} Leptospermum lanigerum - Melaleuca squarrosa swamp forest
	{NLN} Subalpine Leptospermum nitidum woodland
	{NME} Melaleuca ericifolia swamp forest
	{OAQ} Water, sea
	{ORO} Lichen lithosere
	{OSM} Sand, mud
	{RCO} Coastal rainforest
	{RFE} Rainforest fernland
	{RFS} Nothofagus gunnii rainforest scrub
	{RHP} Lagarostrobos franklinii rainforest and scrub
	{RKF} Athrotaxis selaginoides - Nothofagus gunnii short rainforest
	{RKP} Athrotaxis selaginoides rainforest
	{RKS} Athrotaxis selaginoides subalpine scrub
	{RKX} Highland rainforest scrub with dead Athrotaxis selaginoides
	{RML} Nothofagus - Leptospermum short rainforest
	{RMS} Nothofagus - Phyllocladus short rainforest
	{RMT} Nothofagus - Atherosperma rainforest
	{RMU} Nothofagus rainforest (undifferentiated)
	{RPF} Athrotaxis cupressoides - Nothofagus gunnii short rainforest
	{RPP} Athrotaxis cupressoides rainforest
	{RPW} Athrotaxis cupressoides open woodland
	{RSH} Highland low rainforest and scrub
	{SAL} Acacia longifolia coastal scrub
	{SBM} Banksia marginata wet scrub
	{SBR} Broad-leaf scrub
	{SCA} Coastal scrub on alkaline sands
	{SCH} Coastal heathland
	{SCL} Heathland on calcareous substrates

TASVEG 4.0 Communities within 1000 metres

	{SED} Eastern scrub on dolerite
	{SHS} Subalpine heathland
	{SHW} Wet heathland
	{SKA} Kunzea ambigua regrowth scrub
	{SLG} Leptospermum glaucescens heathland and scrub
	{SLL} Leptospermum lanigerum scrub
	{SLS} Leptospermum scoparium heathland and scrub
	{SMM} Melaleuca squamea heathland
	{SMP} Melaleuca pustulata scrub
	{SMR} Melaleuca squarrosa scrub
	{SRE} Eastern riparian scrub
	{SRF} Leptospermum with rainforest scrub
	{SRH} Rookery halophytic herbland
	{SSC} Coastal scrub
	{SSK} Scrub complex on King Island
	{SSW} Western subalpine scrub
	{SSZ} Spray zone coastal complex
	{SWR} Western regrowth complex
	{SWW} Western wet scrub
	{WBR} Eucalyptus brookeriana wet forest
	{WDA} Eucalyptus dalrympleana forest
	{WDB} Eucalyptus delegatensis forest with broad-leaf shrubs
	{WDL} Eucalyptus delegatensis forest over Leptospermum
	{WDR} Eucalyptus delegatensis forest over rainforest
	{WDU} Eucalyptus delegatensis wet forest (undifferentiated)
	{WGL} Eucalyptus globulus King Island forest
	{WGL} Eucalyptus globulus wet forest
	{WNL} Eucalyptus nitida forest over Leptospermum
	{WNR} Eucalyptus nitida forest over rainforest
	{WNU} Eucalyptus nitida wet forest (undifferentiated)
	{WOB} Eucalyptus obliqua forest with broad-leaf shrubs
	{WOL} Eucalyptus obliqua forest over Leptospermum
	{WOR} Eucalyptus obliqua forest over rainforest
	{WOU} Eucalyptus obliqua wet forest (undifferentiated)
	{WRE} Eucalyptus regnans forest
	{WSU} Eucalyptus subcrenulata forest and woodland
	{WVI} Eucalyptus viminalis wet forest

Legend: Cadastral Parcels



TASVEG 4.0 Communities within 1000 metres

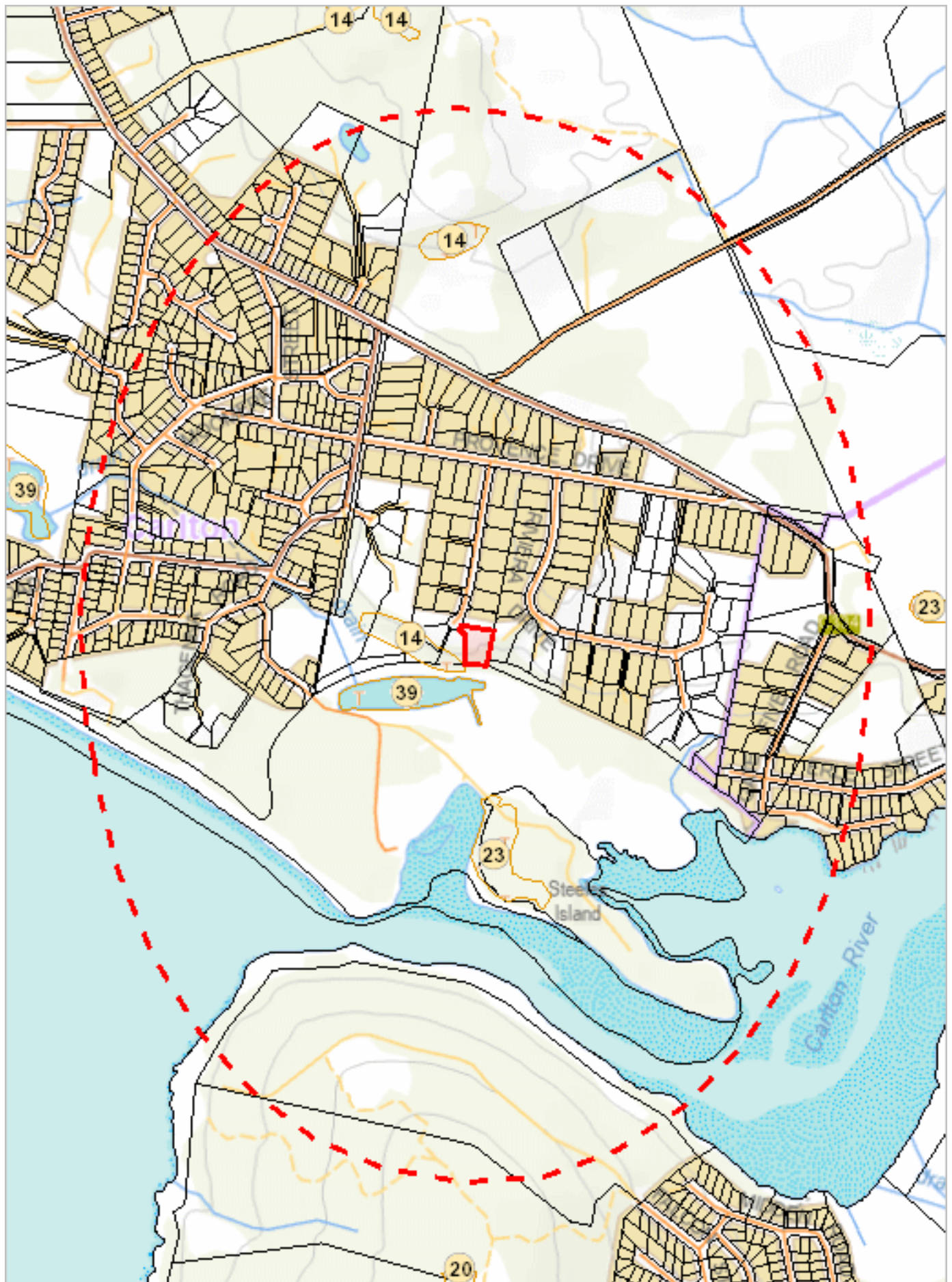
Code	Community	Canopy Tree
AHS	(AHS) Saline aquatic herbland	
ARS	(ARS) Saline sedgeland / rushland	
ASS	(ASS) Succulent saline herbland	
DAC	(DAC) Eucalyptus amygdalina coastal forest and woodland	EV
DAC	(DAC) Eucalyptus amygdalina coastal forest and woodland	
DAS	(DAS) Eucalyptus amygdalina forest and woodland on sandstone	
DVC	(DVC) Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland	
FAG	(FAG) Agricultural land	EV
FMG	(FMG) Marram grassland	EV
FPF	(FPF) Pteridium esculentum fernland	EV
FUR	(FUR) Urban areas	EV
GHC	(GHC) Coastal grass and herbfield	
NAV	(NAV) Allocasuarina verticillata forest	
OAQ	(OAQ) Water, sea	
OSM	(OSM) Sand, mud	
SAL	(SAL) Acacia longifolia coastal scrub	
SLS	(SLS) Leptospermum scoparium heathland and scrub	EV
SSC	(SSC) Coastal scrub	EA

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.

Telephone: (03) 6165 4320

Email: TVMMPsupport@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Threatened Communities (TNVC 2020) within 1000 metres

Legend: Threatened Communities

- ☐ 1 - Alkaline pans
- ☐ 2 - Allocasuarina littoralis forest
- ☐ 3 - Athrotaxis cupressoides/Nothofagus gunnii short rainforest
- ☐ 4 - Athrotaxis cupressoides open woodland
- ☐ 5 - Athrotaxis cupressoides rainforest
- ☐ 6 - Athrotaxis selaginoides/Nothofagus gunnii short rainforest
- ☐ 7 - Athrotaxis selaginoides rainforest
- ☐ 8 - Athrotaxis selaginoides subalpine scrub
- ☐ 9 - Banksia marginata wet scrub
- ☐ 10 - Banksia serrata woodland
- ☐ 11 - Callitris rhomboidea forest
- ☐ 13 - Cushion moorland
- ☐ 14 - Eucalyptus amygdalina forest and woodland on sandstone
- ☐ 15 - Eucalyptus amygdalina inland forest and woodland on cainozoic deposits
- ☐ 16 - Eucalyptus brookeriana wet forest
- ☐ 17 - Eucalyptus globulus dry forest and woodland
- ☐ 18 - Eucalyptus globulus King Island forest
- ☐ 19 - Eucalyptus morrisbyi forest and woodland
- ☐ 20 - Eucalyptus ovata forest and woodland
- ☐ 21 - Eucalyptus risdonii forest and woodland
- ☐ 22 - Eucalyptus tenuiramis forest and woodland on sediments
- ☐ 23 - Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
- ☐ 24 - Eucalyptus viminalis Furneaux forest and woodland
- ☐ 25 - Eucalyptus viminalis wet forest
- ☐ 26 - Heathland on calcareous substrates
- ☐ 27 - Heathland scrub complex at Wingaroo
- ☐ 28 - Highland grassy sedge land
- ☐ 29 - Highland Poa grassland
- ☐ 30 - Melaleuca ericifolia swamp forest
- ☐ 31 - Melaleuca pustulata scrub
- ☐ 32 - Notelaea - Pomaderris - Beyeria forest
- ☐ 33 - Rainforest fernland
- ☐ 34 - Riparian scrub
- ☐ 35 - Seabird rookery complex
- ☐ 36 - Sphagnum peatland
- ☐ 36A - Spray zone coastal complex
- ☐ 37 - Subalpine Diplarrena latifolia rushland
- ☐ 38 - Subalpine Leptospermum nitidum woodland
- ☐ 39 - Wetlands

Legend: Cadastral Parcels



Threatened Communities (TNVC 2020) within 1000 metres

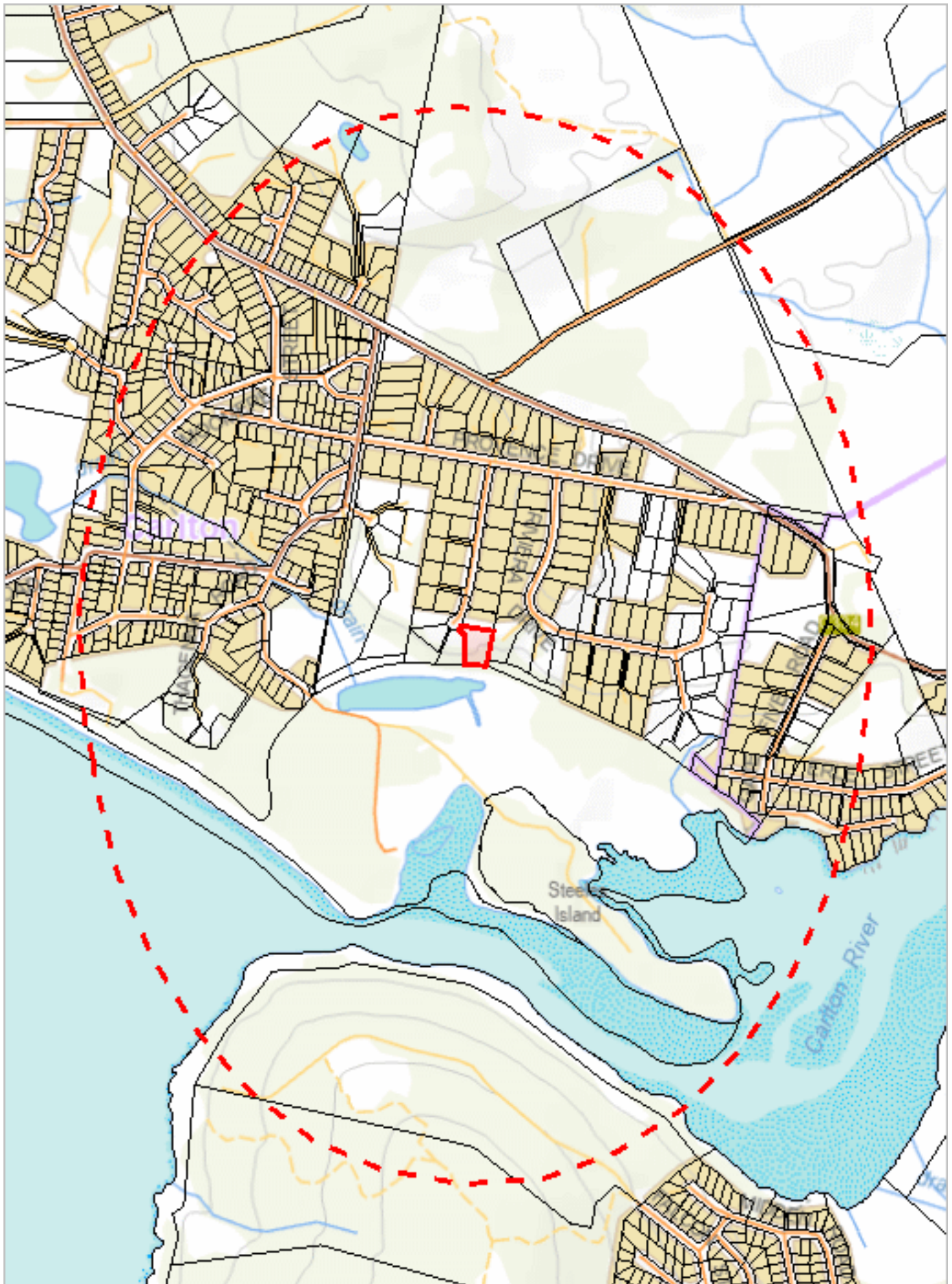
Scheduled Community Id	Scheduled Community Name
14	Eucalyptus amygdalina forest and woodland on sandstone
23	Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
39	Wetlands

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.

Telephone: (03) 6165 4320

Email: TVMMPsupport@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Fire History (All) within 1000 metres

Legend: Fire History All

- 

Bushfire-Unknown Category
- 

Completed Planned Burn
- 

Bushfire

Legend: Cadastral Parcels



Fire History (All) within 1000 metres

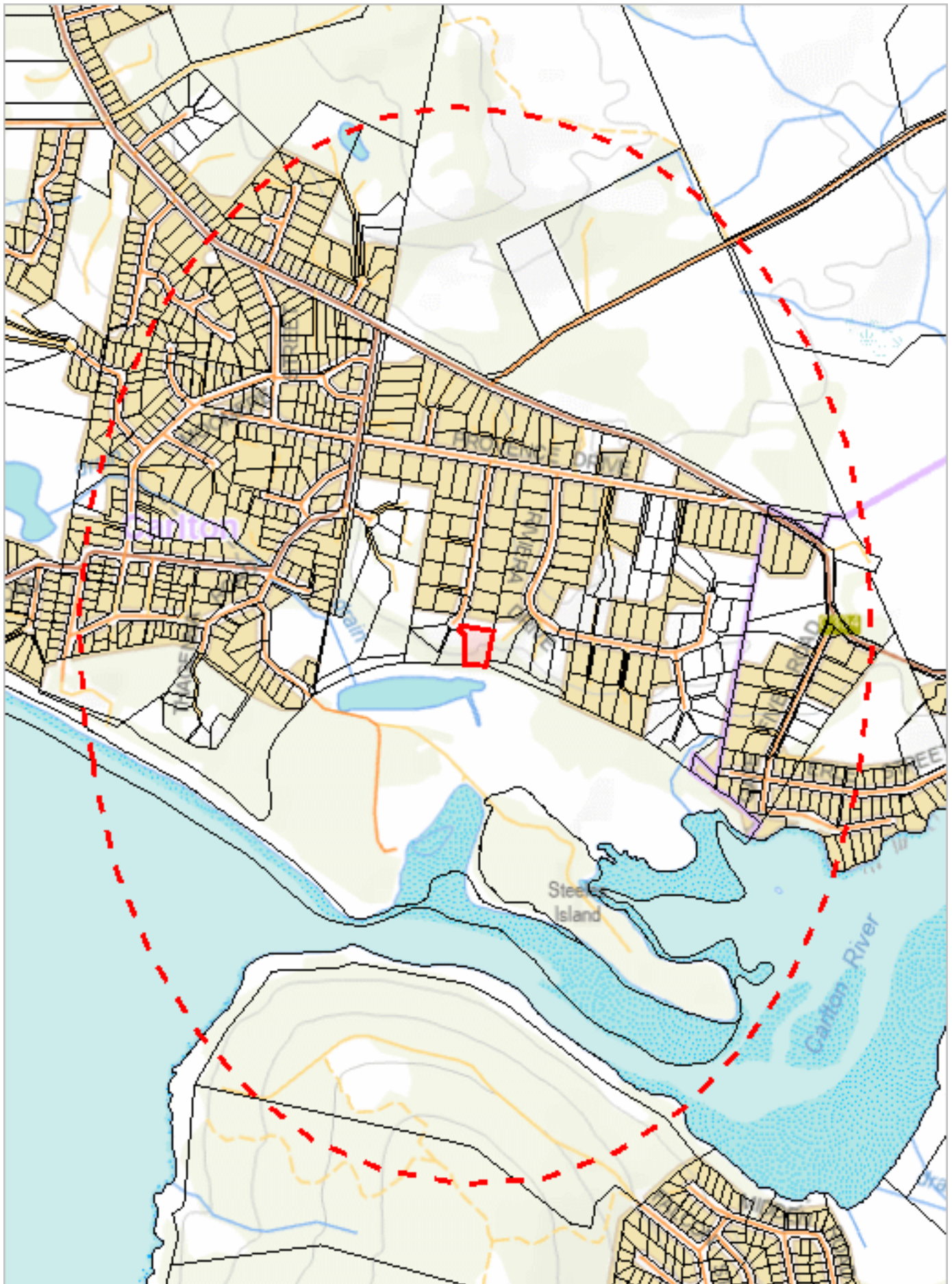
Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
600438	Carlton River mouth	15-Mar-2014	Bushfire	Deliberate	2.7524E-4

For more information about Fire History, please contact the Manager Community Protection Planning, Tasmania Fire Service.

Telephone: 1800 000 699

Email: planning@fire.tas.gov.au

Address: cnr Argyle and Melville Streets, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Fire History (Last Burnt) within 1000 metres

Legend: Fire History Last

-  Bushfire-Unknown category
-  Completed Planned Burn

 Bushfire

Legend: Cadastral Parcels



Fire History (Last Burnt) within 1000 metres

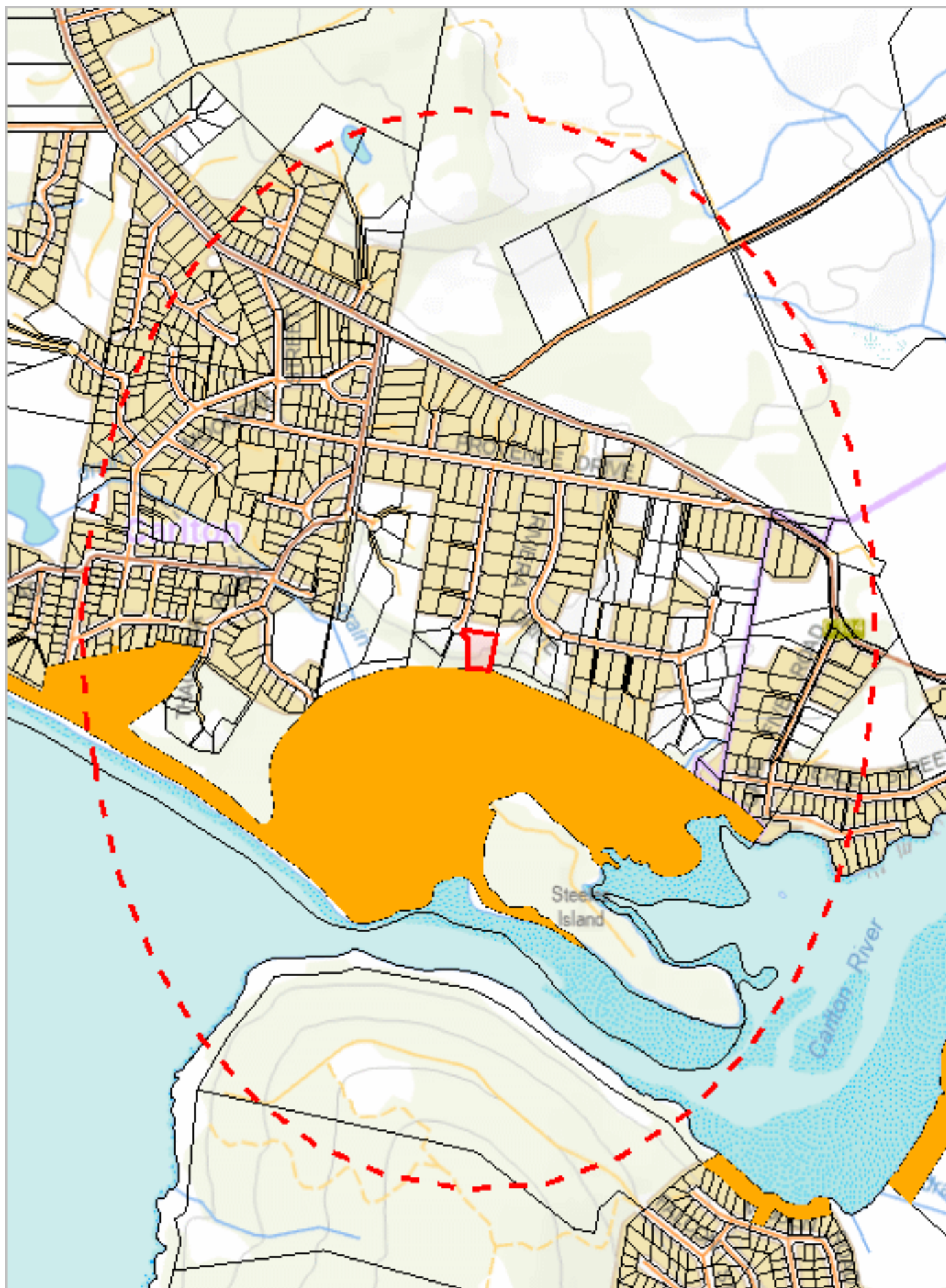
Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
600438	Carlton River mouth	15-Mar-2014	Bushfire	Deliberate	2.7524E-4

For more information about Fire History, please contact the Manager Community Protection Planning, Tasmania Fire Service.

Telephone: 1800 000 699

Email: planning@fire.tas.gov.au

Address: cnr Argyle and Melville Streets, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Reserves within 1000 metres

Legend: Tasmanian Reserve Estate

-  Conservation Area
-  Conservation Area and Conservation Covenant (NCA)
-  Game Reserve
-  Historic Site
-  Indigenous Protected Area
-  National Park
-  Nature Reserve
-  Nature Recreation Area
-  Regional Reserve
-  State Reserve
-  Wellington Park
-  Other Public Authority Land within TWWHA
-  Future Potential Production Forest
-  Informal Reserve on Permanent Timber Production Zone Land or STT managed land
-  Informal Reserve on other public land
-  Roadside Conservation Site
-  Conservation Covenant (NCA)
-  Private Nature Reserve and Conservation Covenant (NCA)
-  Private Sanctuary and Conservation Covenant (NCA)
-  Private Sanctuary
-  Private land within TWWHA
-  Private land within other WHA (Convict Sites)
-  Management Agreement
-  Stewardship Agreement
-  Part 5 Agreement (Meander Dam Offset)
-  Other Private Reserve

Legend: Cadastral Parcels



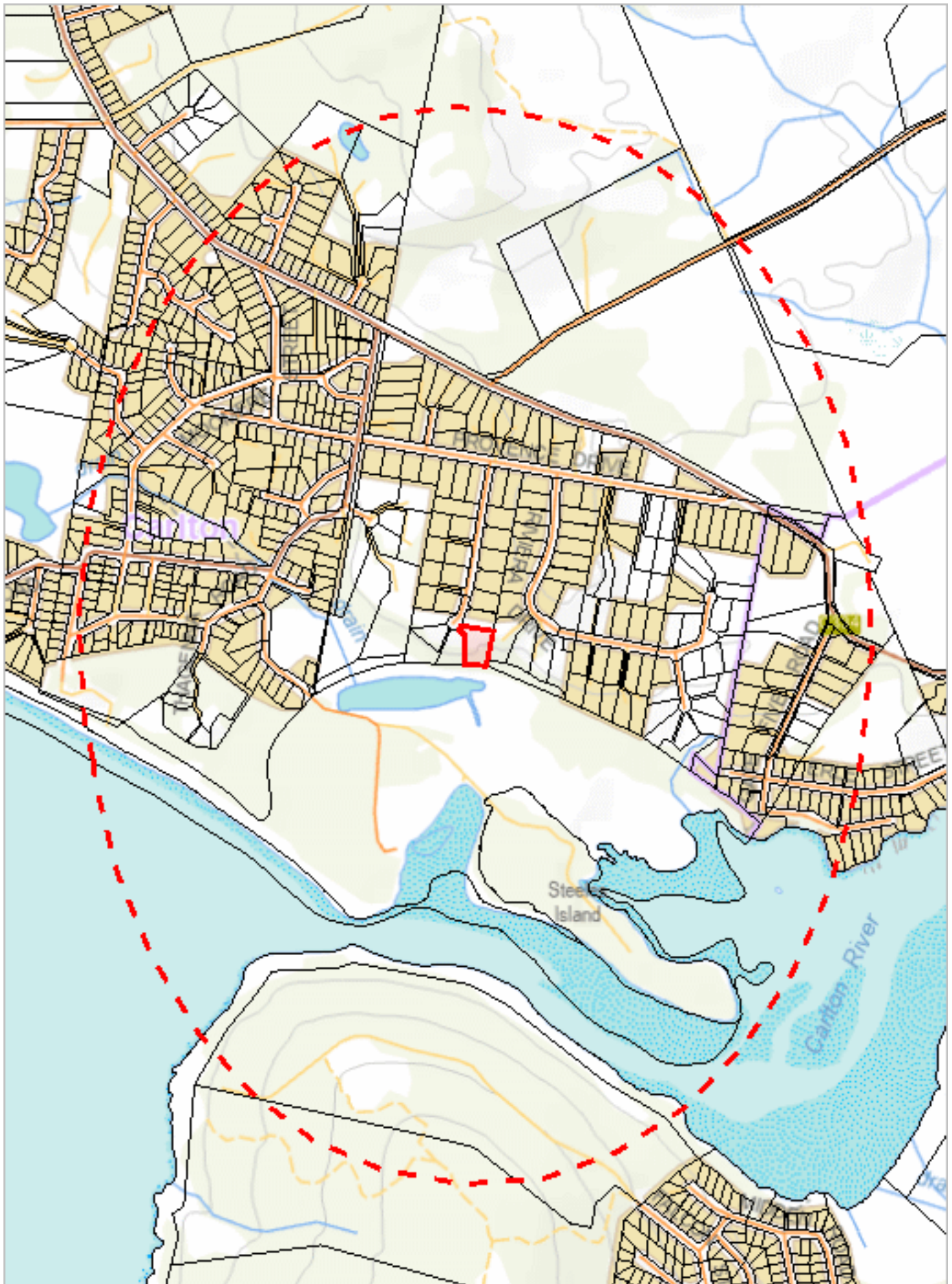
Reserves within 1000 metres

Name	Classification	Status	Area (HA)
	Informal Reserve on other public land	Informal Reserve	0.0534372
	Informal Reserve on other public land	Informal Reserve	0.22612261
	Informal Reserve on other public land	Informal Reserve	1.74887378
	Informal Reserve on other public land	Informal Reserve	3.00365539
	Informal Reserve on other public land	Informal Reserve	52.5294239

For more information about the Tasmanian Reserve Estate, please contact the Natural Values Science Services Branch.

Email: LandManagement.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Known biosecurity risks within 1000 meters

Legend: Biosecurity Risk Species

- Point Verified
- Point Unverified
- Line Unverified
- Polygon Verified
- Line Verified
- Polygon Unverified

Legend: Hygiene infrastructure

- Location Point Verified
- Location Point Unverified
- Location Line Verified
- Location Line Unverified
- Location Polygon Verified
- Location Polygon Unverified

Legend: Cadastral Parcels



Known biosecurity risks within 1000 meters

Verified Species of biosecurity risk

No verified species of biosecurity risk found within 1000 metres

Unverified Species of biosecurity risk

No unverified species of biosecurity risk found within 1000 metres

Generic Biosecurity Guidelines

The level and type of hygiene protocols required will vary depending on the tenure, activity and land use of the area. In all cases adhere to the land manager's biosecurity (hygiene) protocols. As a minimum always Check / Clean / Dry (Disinfect) clothing and equipment before trips and between sites within a trip as needed <https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>

On Reserved land, the more remote, infrequently visited and undisturbed areas require tighter biosecurity measures.

In addition, where susceptible species and communities are known to occur, tighter biosecurity measures are required.

Apply controls relevant to the area / activity:

- Don't access sites infested with pathogen or weed species unless absolutely necessary. If it is necessary to visit, adopt high level hygiene protocols.
- Consider not accessing non-infested sites containing known susceptible species / communities. If it is necessary to visit, adopt high level hygiene protocols.
- Don't undertake activities that might spread pest / pathogen / weed species such as deliberately moving soil or water between areas.
- Modify / restrict activities to reduce the chance of spreading pest / pathogen / weed species e.g. avoid periods when weeds are seeding, avoid clothing/equipment that excessively collects soil and plant material e.g. Velcro, excessive tread on boots.
- Plan routes to visit clean (uninfested) sites prior to dirty (infested) sites. Do not travel through infested areas when moving between sites.
- Minimise the movement of soil, water, plant material and hitchhiking wildlife between areas by using the Check / Clean / Dry (Disinfect when drying is not possible) procedure for all clothing, footwear, equipment, hand tools and vehicles <https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>
- Neoprene and netting can take 48 hours to dry, use non-porous gear wherever possible.
- Use walking track boot wash stations where available.
- Keep a hygiene kit in the vehicle that includes a scrubbing brush, boot pick, and disinfectant <https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>
- Dispose of all freshwater away from natural water bodies e.g. do not empty water into streams or ponds.
- Dispose of used disinfectant ideally in town through a treatment or septic system. Always keep disinfectant well away from natural water systems.
- Securely contain any high risk pest / pathogen / weed species that must be collected and moved e.g. biological samples.

Hygiene Infrastructure

No known hygiene infrastructure found within 1000 metres

Threatened Fauna Range Boundaries

Search Point 552870E, 5253173N is within the following fauna range boundaries as at Wed Oct 08 2025 12:33:29 GMT+1100 (Australian Eastern Daylight Time)

Common name	Species name	Range Class
grey goshawk	Accipiter novaehollandiae	Potential Range
Tasman Peninsula dusky antechinus	Antechinus vandycki	Potential Range
chaostola skipper	Antipodia chaostola subsp. leucophaea	Potential Range
wedge-tailed eagle	Aquila audax subsp. fleayi	Potential Range
spotted-tailed quoll	Dasyurus maculatus subsp. maculatus	Potential Range
eastern quoll	Dasyurus viverrinus	Potential Range
eastern quoll	Dasyurus viverrinus	Core Range
white-bellied sea-eagle	Haliaeetus leucogaster	Potential Range
swift parrot	Lathamus discolor	SE Potential Range
swift parrot	Lathamus discolor	Core Breeding Range
swift parrot	Lathamus discolor SPIBA	SPIBA - Wielangta
green and golden frog	Litoria raniformis	Core Range
green and golden frog	Litoria raniformis	Potential Range
blue wing parrot	Neophema chrysostoma	Potential Range
forty-spotted pardalote	Pardalotus quadragintus	Potential Range
australian grayling	Prototroctes maraena	Potential Range
tasmanian devil	Sarcophilus harrisii	Potential Range
masked owl	Tyto novaehollandiae	Core Range
masked owl	Tyto novaehollandiae	Potential Range

Showing 1 to 19 of 19 entries

Threatened Fauna Records

Fauna Records within 5000m of 552870E,5253173N

NVA Data Currency: 8/10/2025 (7am)

Species name	Common name	Position accuracy (m)	X	Y	Distance (m)	Obs. type	Obs. date	Obs. state	Project code + Foreign id	NVA id
Tyto novaehollandiae	masked owl	5000	552112	5253183	758	Sighting	1985-12-30	Present	tmag-fos	NVA
Lathamus discolor	swift parrot	1850	551859	5255813	2827	Sighting	1978-03-06	Present	tpo	NVA
Litoria raniformis	green and gold frog	100	552487	5253179	383	Sighting	2007-09-17	Present	fpa	NVA
Lathamus discolor	swift parrot	100	556328	5251386	3892	Sighting	2000-01-01	Present	fpa	NVA
Haliaeetus leucogaster	white-bellied sea-eagle	200	556413	5254484	3778	Nest	2011-01-16	Present	rnd 1058	NVA
Tyto novaehollandiae	masked owl	5000	552458	5253535	548	Sighting	1985-12-30	Present	tmagvert	NVA
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	10	555036	5256377	3867	Nest	2013-01-09	Absent	rnd 2015	NVA
Haliaeetus leucogaster	white-bellied sea-eagle	100	555067	5252937	2210	Nest	2015-07-14	Present	rnd 2220	NVA
Haliaeetus leucogaster	white-bellied sea-eagle	100	552462	5255737	2596	Nest	2012-09-05	Present	rnd 2030	NVA
Haliaeetus leucogaster	white-bellied sea-eagle	25	552336	5255668	2552	Nest	2012-09-05	Absent	rnd 2031	NVA
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	10	554606	5256020	3335	Nest	2014-07-10	Present	rnd 2014	NVA
Haliaeetus leucogaster	white-bellied sea-eagle	10	552627	5255935	2773	Nest	2020-10-26	Present	rnd 2825	NVA
Lathamus discolor	swift parrot	50	555593	5250266	3983	Sighting	2023-02-06	Present	dr2009	NVA
Lathamus discolor	swift parrot	10	554198	5255505	2684	Sighting	2025-01-18	Present	dpiw-fauna	NVA
Lathamus discolor	swift parrot	10	554198	5255505	2684	Sighting	2025-01-19	Present	dpiw-fauna	NVA
Lathamus discolor	swift parrot	10	554198	5255505	2684	Sighting	2025-01-25	Present	dpiw-fauna	NVA
Theclinesches serpentatus	chequered blue	5	552699	5252766	441	Sighting	2024-04-23	Present	ent-thr-fna	NVA
Eagle sp.	Eagle	20	557463	5251653	4838	Nest	2025-02-13	Present	rnd 3003	NVA

Showing 1 to 18 of 18 entries

Summary of Threatened Flora Species in Search

Species name	Common name
<i>Caladenia caudata</i>	tailed spider-orchid
<i>Cuscuta tasmanica</i>	golden dodder
<i>Ruppia tuberosa</i>	tuberous seatassel
<i>Ruppia megacarpa</i>	largefruit seatassel

Showing 1 to 4 of 4 entries

Threatened Flora Records

Flora Records within 2000m of 552870E, 5253173N

NVA Data Currency: 8/10/2025 (7am)

Species name	Common name	Position accuracy (m)	X	Y	Distance (m)	Obs. type	Obs. date	Obs. state	NVA id
Caladenia caudata	tailed spider-orchid	500	553612	5254683	1682	Sighting	1972-01-01	Present	NVA
Cuscuta tasmanica	golden dodder	5	553895	5251746	1757	Sighting	2017-03-31	Present	NVA
Cuscuta tasmanica	golden dodder	5	553896	5251775	1734	Sighting	2017-02-25	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554159	5252735	1361	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554131	5252771	1324	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554113	5252748	1314	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554146	5252727	1352	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554086	5252697	1306	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554051	5252531	1344	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554051	5252510	1354	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	553977	5252556	1267	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554007	5252653	1250	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554058	5252688	1283	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	553998	5252422	1355	Sighting	2017-10-06	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	552820	5252979	200	Sighting	2017-10-12	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	552760	5253031	180	Sighting	2017-10-12	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	552824	5252974	204	Sighting	2017-10-12	Present	NVA
Ruppia tuberosa	tuberous seatassel	4	554071	5252550	1353	Sighting	2020-09-30	Present	NVA
Ruppia megacarpa	largefruit seatassel	5	554112	5251659	1958	Sighting	2020-12-08	Present	NVA
Ruppia megacarpa	largefruit seatassel	5	553690	5251947	1475	Sighting	2020-12-08	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	553690	5251947	1475	Sighting	2020-12-08	Present	NVA
Ruppia megacarpa	largefruit seatassel	5	554120	5251661	1962	Sighting	2021-02-24	Present	NVA
Cuscuta tasmanica	golden dodder	50	553896	5251778	1732	Specimen	2017-02-25	Present	NVA
Ruppia megacarpa	largefruit seatassel	5	553691	5251947	1476	Specimen	2020-12-08	Present	NVA
Ruppia megacarpa	largefruit seatassel	5	554112	5251659	1958	Specimen	2020-12-08	Present	NVA
Ruppia megacarpa	largefruit seatassel	5	554121	5251661	1962	Specimen	2021-02-24	Present	NVA
Ruppia tuberosa	tuberous seatassel	5	554072	5252551	1353	Specimen	2020-09-30	Present	NVA
Ruppia megacarpa	largefruit seatassel	1200	553194	5252102	1119	Specimen	1959-02-28	Present	NVA

Showing 1 to 28 of 28 entries



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.



Sorell Council

Development Application: 5.2025.260.1 -
Response to Request For Information - 16
Clover Court, Carlton - P2.pdf
Plans Reference: P2
Date Received: 10/10/2025

Report created: 08-Oct-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	76
Listed Migratory Species:	49

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	73
Whales and Other Cetaceans:	9
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	8
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	8
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Pitt water-orielton lagoon	Within 10km of Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
--	--------------------------

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Giant Kelp Marine Forests of South East Australia	Endangered	Community likely to occur within area	In feature area
Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana)	Critically Endangered	Community likely to occur within area	In feature area
Tasmanian white gum (Eucalyptus viminalis) wet forest	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species	[Resource Information]
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Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aquila audax fleayi			
Tasmanian Wedge-tailed Eagle, Wedge-tailed Eagle (Tasmanian) [64435]	Endangered	Breeding likely to occur within area	In feature area
Ardenna grisea			
Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Arenaria interpres			
Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In feature area
Ceyx azureus diemenensis Tasmanian Azure Kingfisher [25977]	Endangered	Species or species habitat likely to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Breeding known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat likely to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pardalotus quadragintus Forty-spotted Pardalote [418]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In feature area
Sternula albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
Tyto novaehollandiae castanops (Tasmanian population) Masked Owl (Tasmanian) [67051]	Vulnerable	Breeding known to occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat known to occur within area	In feature area

FISH

Scientific Name	Threatened Category	Presence Text	Buffer Status
Brachionichthys hirsutus Spotted Handfish [64418]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Seriolella brama Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In feature area
Thymichthys politus Red Handfish [83756]	Critically Endangered	Species or species habitat known to occur within area	In feature area
FROG			
Litoria raniformis Southern Bell Frog, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (Tasmanian population) Spotted-tail Quoll, Spot-tailed Quoll, Tiger Quoll (Tasmanian population) [75183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dasyurus viverrinus Eastern Quoll, Luaner [333]	Endangered	Species or species habitat likely to occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Perameles gunnii gunnii Eastern Barred Bandicoot (Tasmania) [66651]	Vulnerable	Species or species habitat known to occur within area	In feature area
Sarcophilus harrisii Tasmanian Devil [299]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Boronia gunnii Gunn's Boronia, Cataract Gorge Boronia [29394]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Caladenia caudata Tailed Spider-orchid [17067]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caladenia saggicola Sagg Spider-orchid [64859]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Conospermum hookeri Variable Smoke-bush [68161]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dianella amoena Matted Flax-lily [64886]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Epacris virgata Pretty Heath, Dan Hill Heath [20375]	Endangered	Species or species habitat likely to occur within area	In feature area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lepidium hyssopifolium Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area	In feature area
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum apoxychilum Tapered Leek-orchid [64947]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum castaneum Chestnut Leek-orchid [64948]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pterostylis ziegeleri Grassland Greenhood, Cape Portland Greenhood [64971]	Vulnerable	Species or species habitat may occur within area	In feature area
Senecio psilocarpus Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat may occur within area	In feature area
Spyridium lawrencei Small-leaf Spyridium [27036]	Endangered	Species or species habitat may occur within area	In buffer area only
Stenanthemum pimeleoides Spreading Stenanthemum, Propellor Plant [15450]	Vulnerable	Species or species habitat may occur within area	In feature area
Thelymitra jonesii Sky-blue Sun-orchid [76352]	Endangered	Species or species habitat may occur within area	In buffer area only
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
SEASTAR			
Parvulastra vivipara Tasmanian Live-bearing Seastar [85451]	Vulnerable	Species or species habitat known to occur within area	In feature area
SHARK			
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]		Species or species habitat known to occur within area	In feature area
Charadrius bicinctus Double-banded Plover [895]	Endangered	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Species or species habitat known to occur within area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]	Endangered	Species or species habitat likely to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius phaeopus Whimbrel [849]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area	In feature area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Unknown		
Commonwealth Land - [60324]	TAS	In buffer area only
Commonwealth Land - [60322]	TAS	In buffer area only

Listed Marine Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris pugnax as Philomachus pugnax Ruff [91256]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In feature area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area overfly marine area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Breeding known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In feature area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Sterna striata White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In feature area
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Fish			
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In feature area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In feature area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
Mitotichthys mollisoni Mollison's Pipefish [66260]		Species or species habitat may occur within area	In feature area
Mitotichthys semistriatus Halfbanded Pipefish [66261]		Species or species habitat may occur within area	In feature area
Mitotichthys tuckeri Tucker's Pipefish [66262]		Species or species habitat may occur within area	In feature area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In feature area
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In feature area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In feature area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In feature area
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In feature area

Whales and Other Cetaceans		[Resource Information]	
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In feature area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In feature area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
Tursiops truncatus s. str.			
Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Drovers Rise #2	Conservation Covenant	TAS	In buffer area only
Drovers Rise #4	Conservation Covenant	TAS	In buffer area only
Drovers Rise #7	Conservation Covenant	TAS	In buffer area only
Drovers Rise #8	Conservation Covenant	TAS	In buffer area only
Isle of Caves	Nature Reserve	TAS	In buffer area only
Ringwood	Conservation Covenant	TAS	In buffer area only
Spectacle Islands	Nature Reserve	TAS	In buffer area only
Sugarloaf Road Forcett	Conservation Covenant	TAS	In buffer area only

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.	

RFA Name	State	Buffer Status
Tasmania RFA	Tasmania	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
South East Irrigation Scheme	2013/6843	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Referral decision				
Okines Beach, Lewisham ??? Foreshore Erosion Mitigation	2021/8940	Referral Decision	Referral Publication	In buffer area only

Biologically Important Areas		[Resource Information]		
Scientific Name		Behaviour	Presence	Buffer Status
Seabirds				
Ardenna grisea Sooty Shearwater [82651]		Foraging	Known to occur	In feature area
Ardenna tenuirostris Short-tailed Shearwater [82652]		Breeding	Known to occur	In buffer area only
Ardenna tenuirostris Short-tailed Shearwater [82652]		Foraging	Known to occur	In feature area
Eudyptula minor Little Penguin [1085]		Foraging	Known to occur	In feature area
Pelecanoides urinatrix Common Diving-petrel [1018]		Foraging	Known to occur	In feature area
Pterodroma mollis Soft-plumaged Petrel [1036]		Foraging	Known to occur	In feature area
Thalassarche cauta cauta Shy Albatross [82345]		Foraging likely	Likely to occur	In feature area
Whales				
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]		Foraging	Likely to be present	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

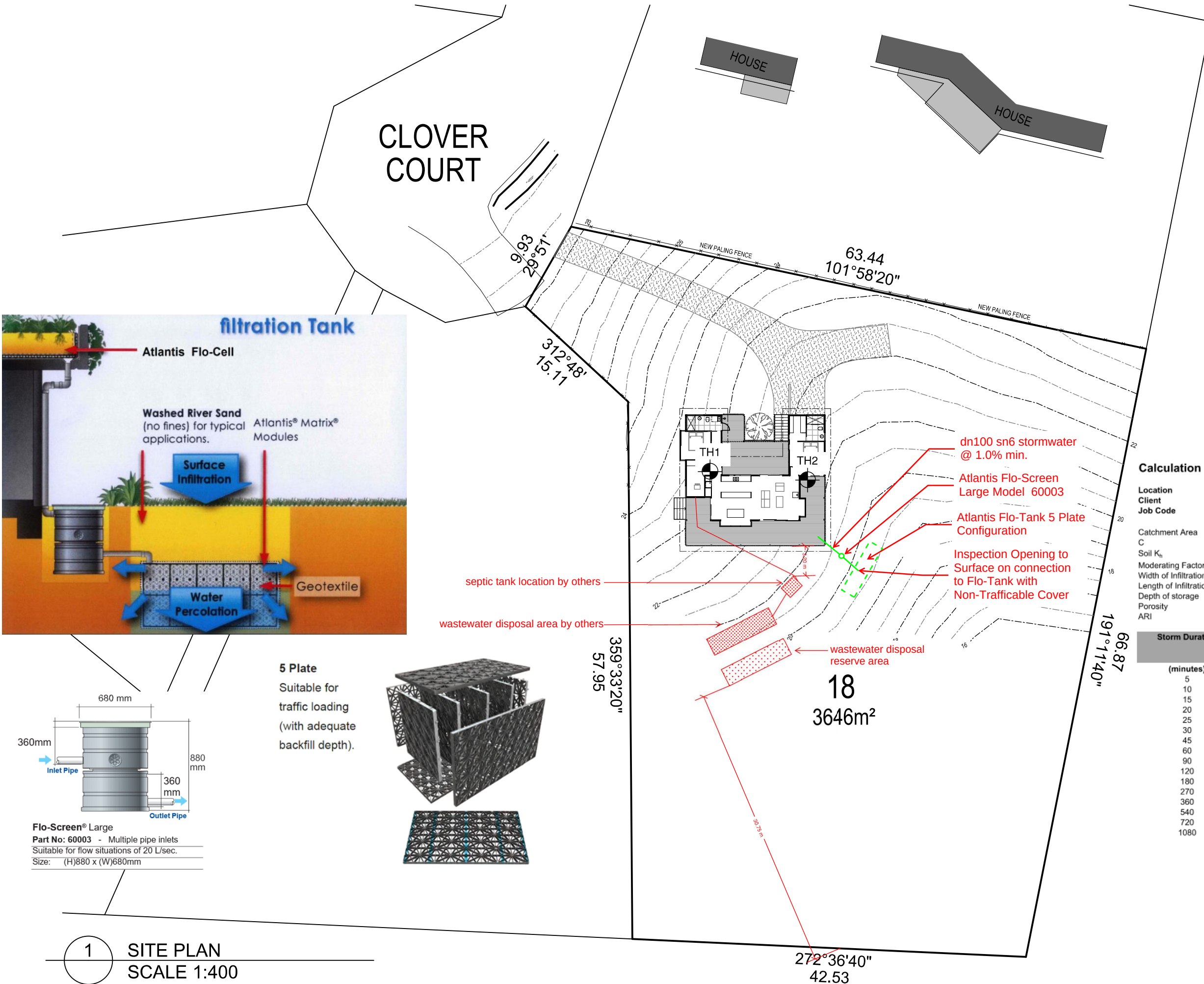
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Date Received:24/09/2025

Calculation of Dimensions for Infiltration Trenches



Location	16 Clover Court, Carlton				
Client	Caitlin Moffatt				
Job Code	25E42-3				
Catchment Area	330	m ²	Storage Volume	9.055152 m ³	
C	1	Runoff Coeff.	Perimeter of Inf A	15.594 m	
Soil K _n	125	mm/hr	Emptying Time	486 minutes	
Moderating Factor (U)	0.5			8.11 hours	
Width of Infiltration Area	1.632	m		0.34 days	
Length of Infiltration Area	6.165	t			
Depth of storage	0.9	m			
Porosity	0.9	Atlantis drainage cell 5 plate 685L x 408W x 450D			
ARI	1:20	cells 9 long x 4 wide x 2 deep			

Storm Duration	Storm Mean Intensity	Volume in	Volume out	Storage Volume Required	Percentage of storage provided
(minutes)	(mm/hr)	(m ³)	(m ³)	(m ³)	(%)
5	78.800	2.169	0.089	2.080	392% OK
10	58.900	3.242	0.178	3.064	266% OK
15	47.800	3.947	0.267	3.680	221% OK
20	40.800	4.492	0.356	4.136	197% OK
25	35.800	4.926	0.445	4.482	182% OK
30	32.100	5.301	0.534	4.767	171% OK
45	25.100	6.217	0.801	5.417	150% OK
60	21.000	6.936	1.067	5.868	139% OK
90	16.400	8.124	1.601	6.523	125% OK
120	13.800	9.115	2.135	6.980	117% OK
180	10.800	10.701	3.202	7.498	109% OK
270	8.550	12.707	4.803	7.904	103% OK
360	7.220	14.307	6.404	7.903	103% OK
540	5.670	16.853	9.607	7.247	112% OK
720	4.750	18.825	12.809	6.016	135% OK
1080	3.650	21.698	19.213	2.485	328% OK

Mr. DANIEL R J GARDNER

BEng (Hons) MIEAust

Signature  Date 10/09/2025

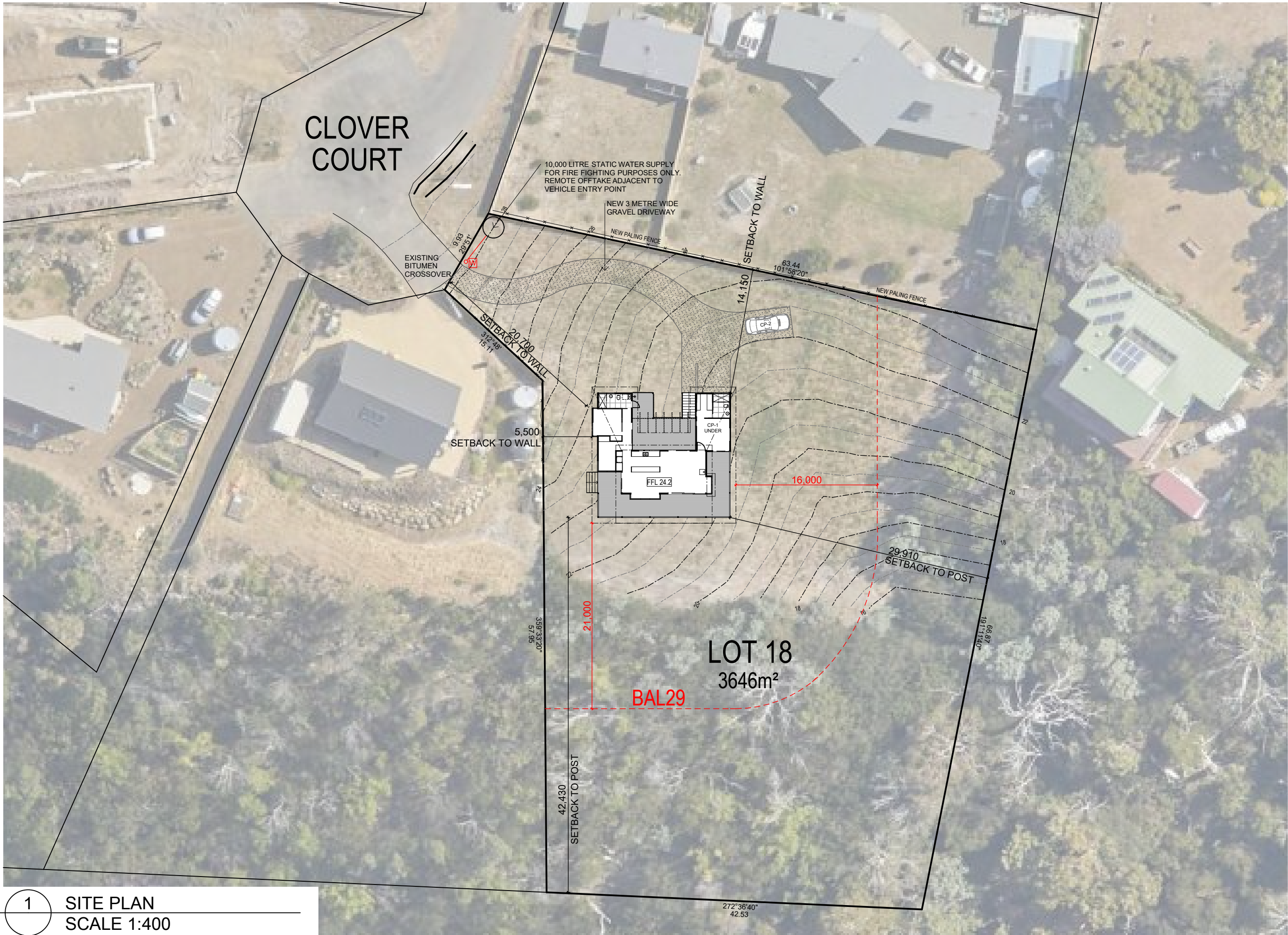
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Engineer Civil

Accreditation No. - CC 5147 U

Aldanmark Project No. 25E42-3





1

SITE PLAN
SCALE 1:400

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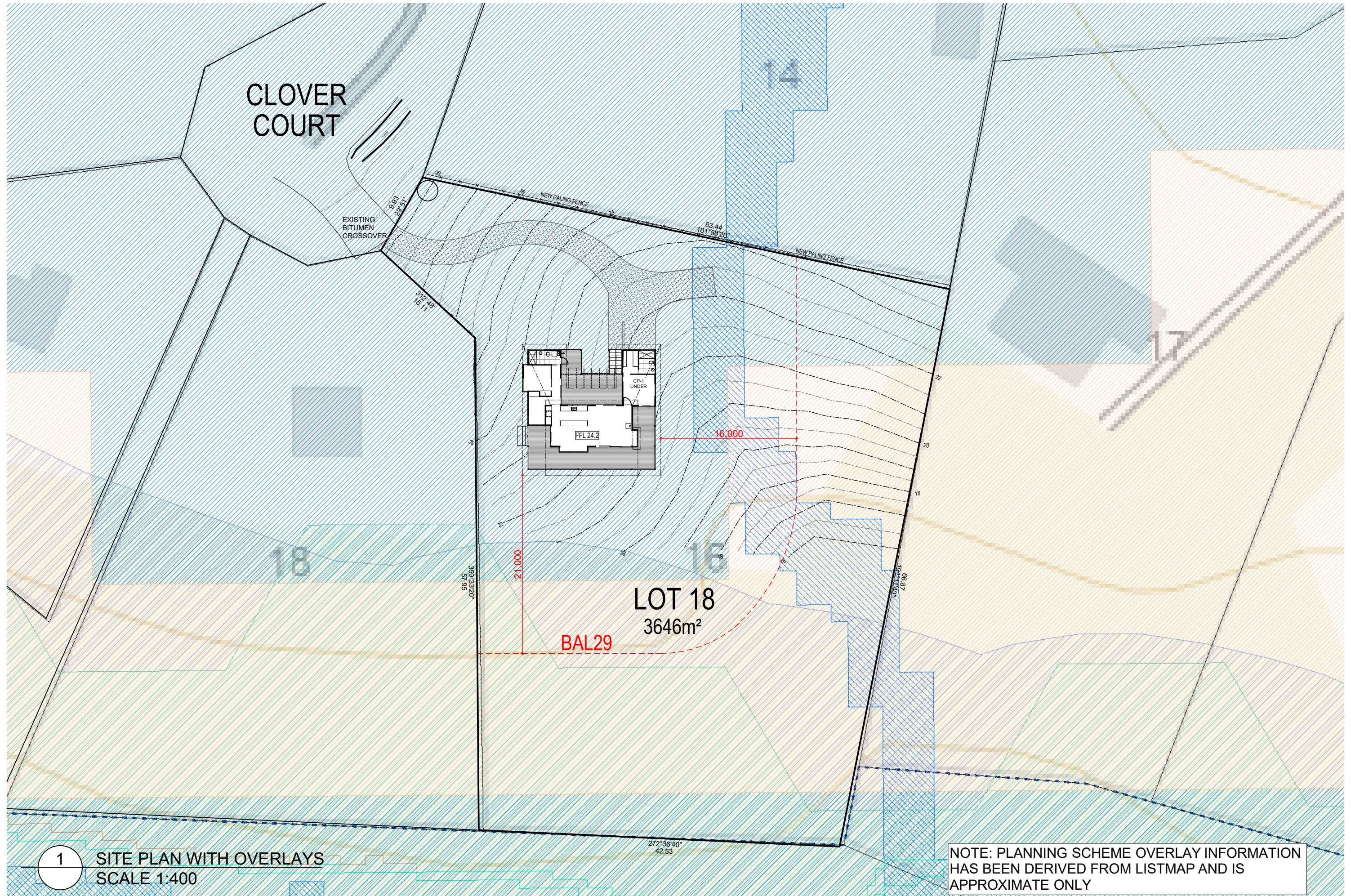
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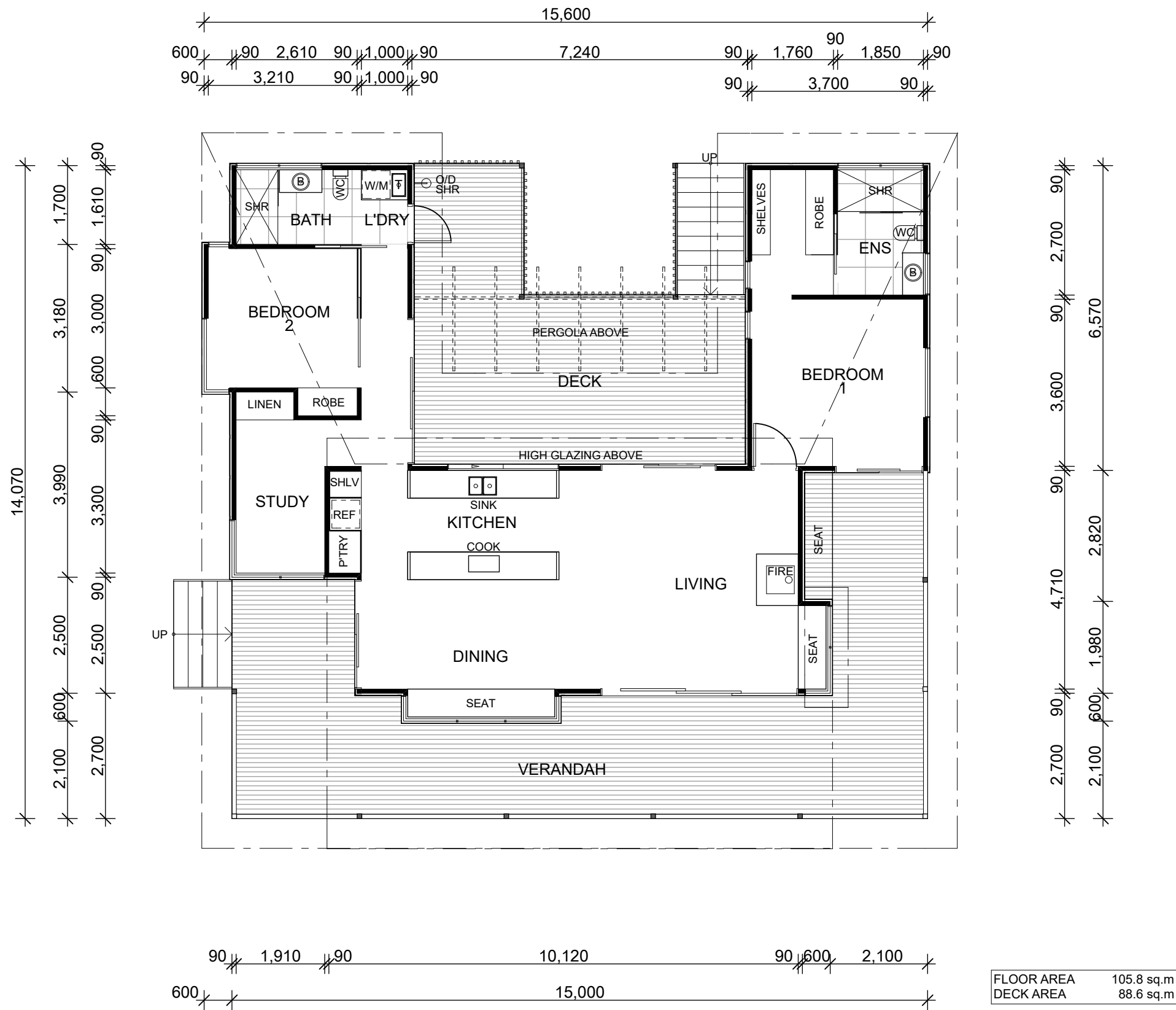
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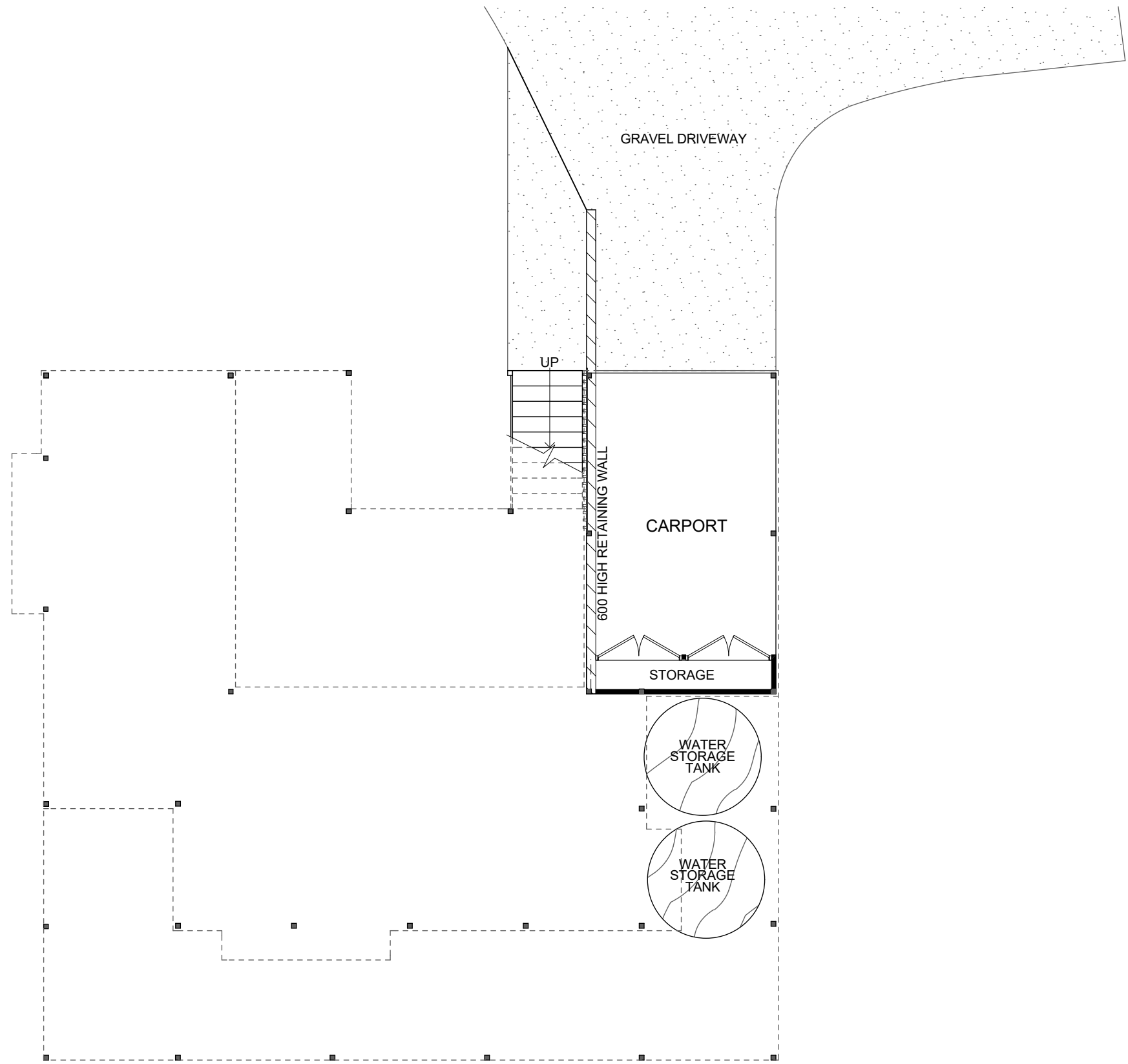


1 FLOOR PLAN
SCALE 1:100

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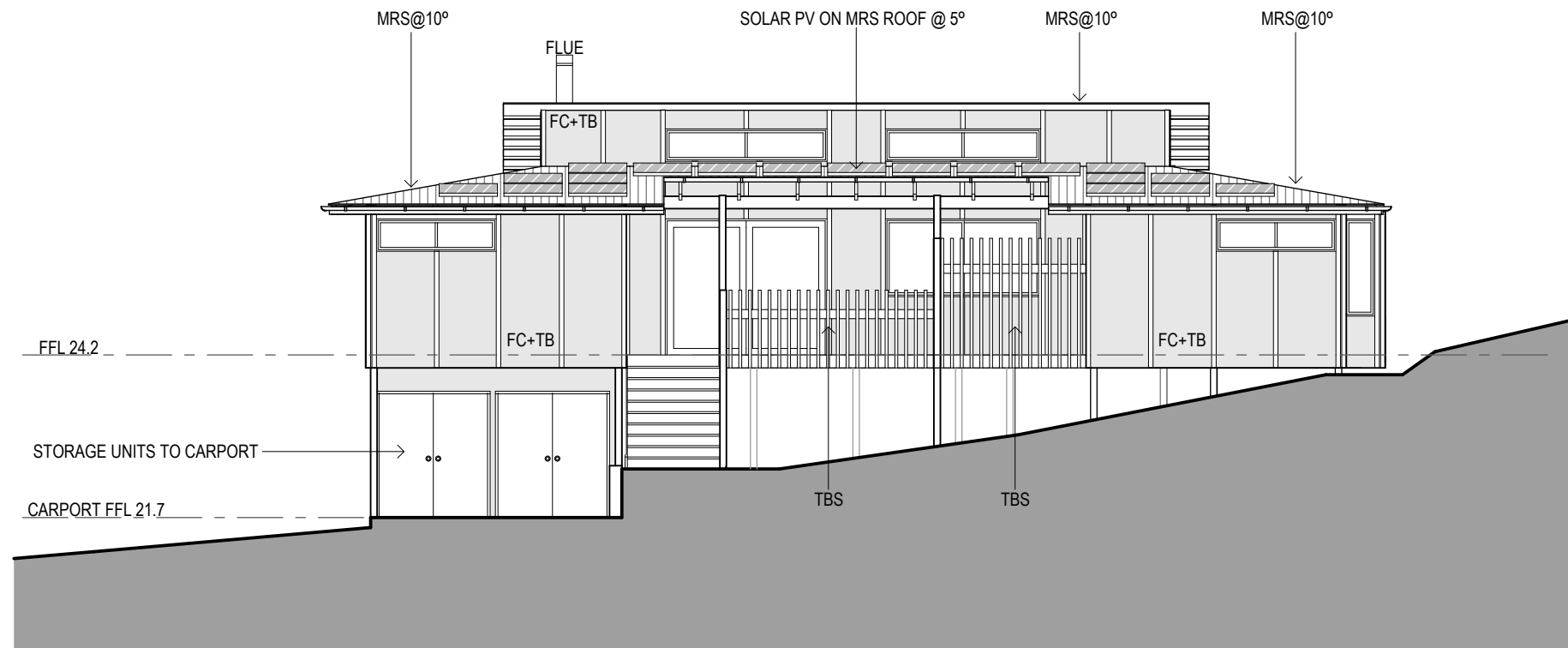




1 UNDERCROFT PLAN
SCALE 1:100

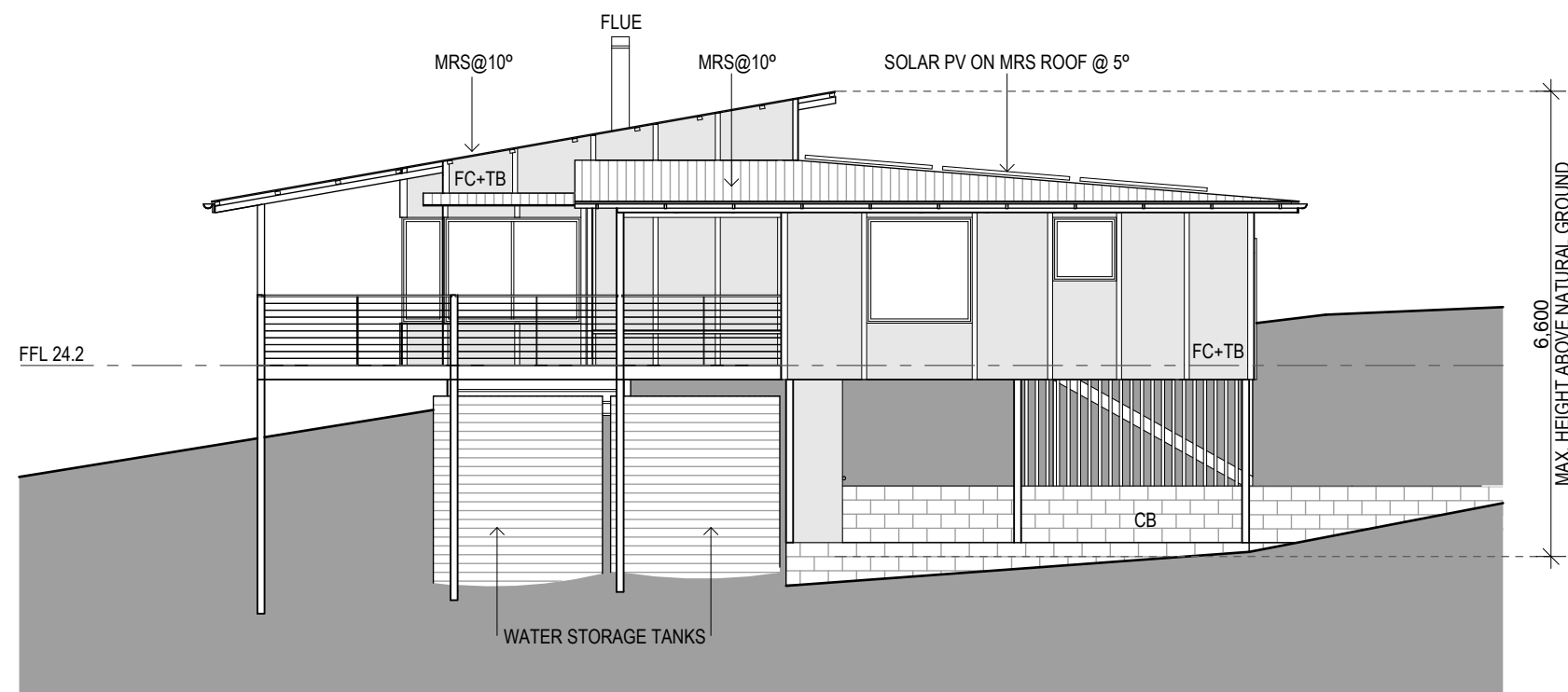
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MRS	METAL ROOF SHEET
FC+TB	FIBRE CEMENT WITH TIMBER BATTENS
TBS	TIMBER BATTEN SCREEN
BAL	WIRE BALUSTRADE WITH TIMBER HANDRAIL

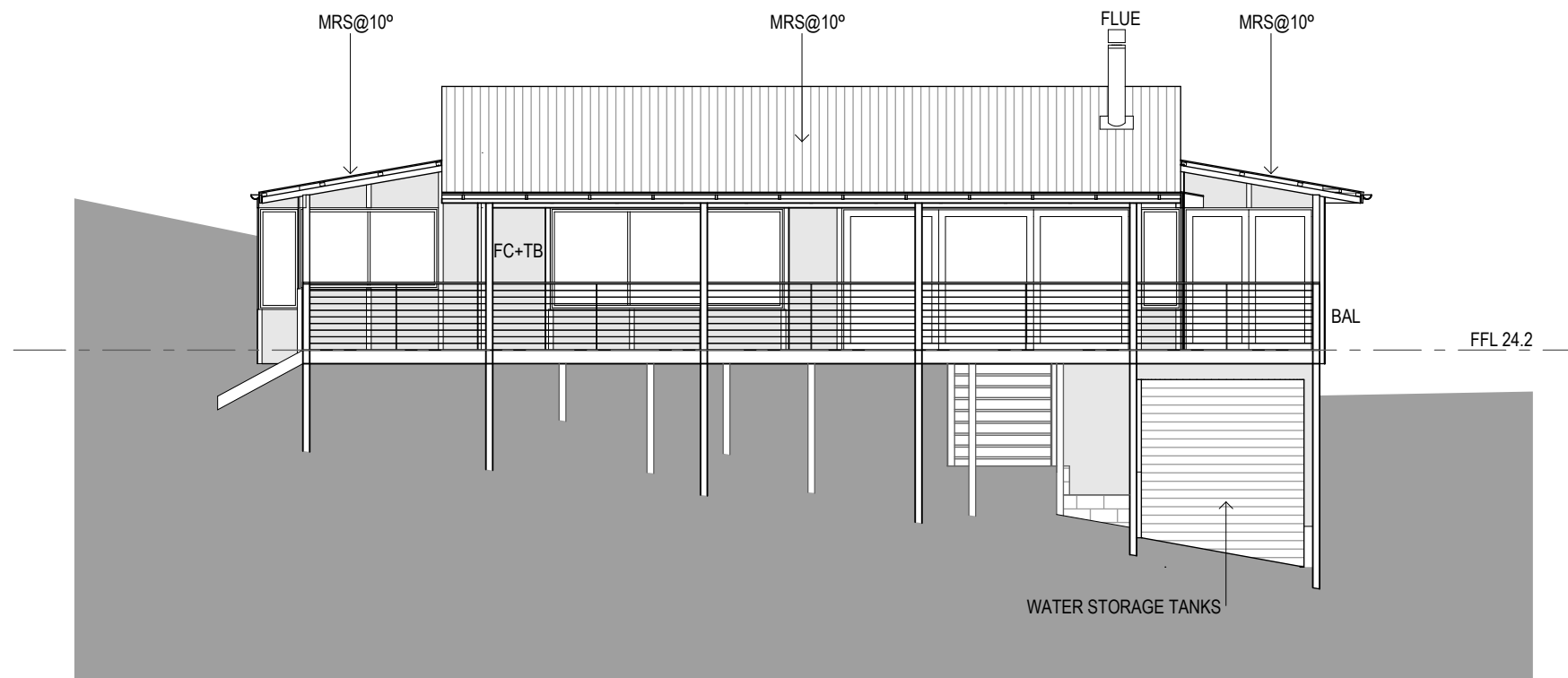
1 NORTH ELEVATION
SCALE 1:100



2 EAST ELEVATION
SCALE 1:100

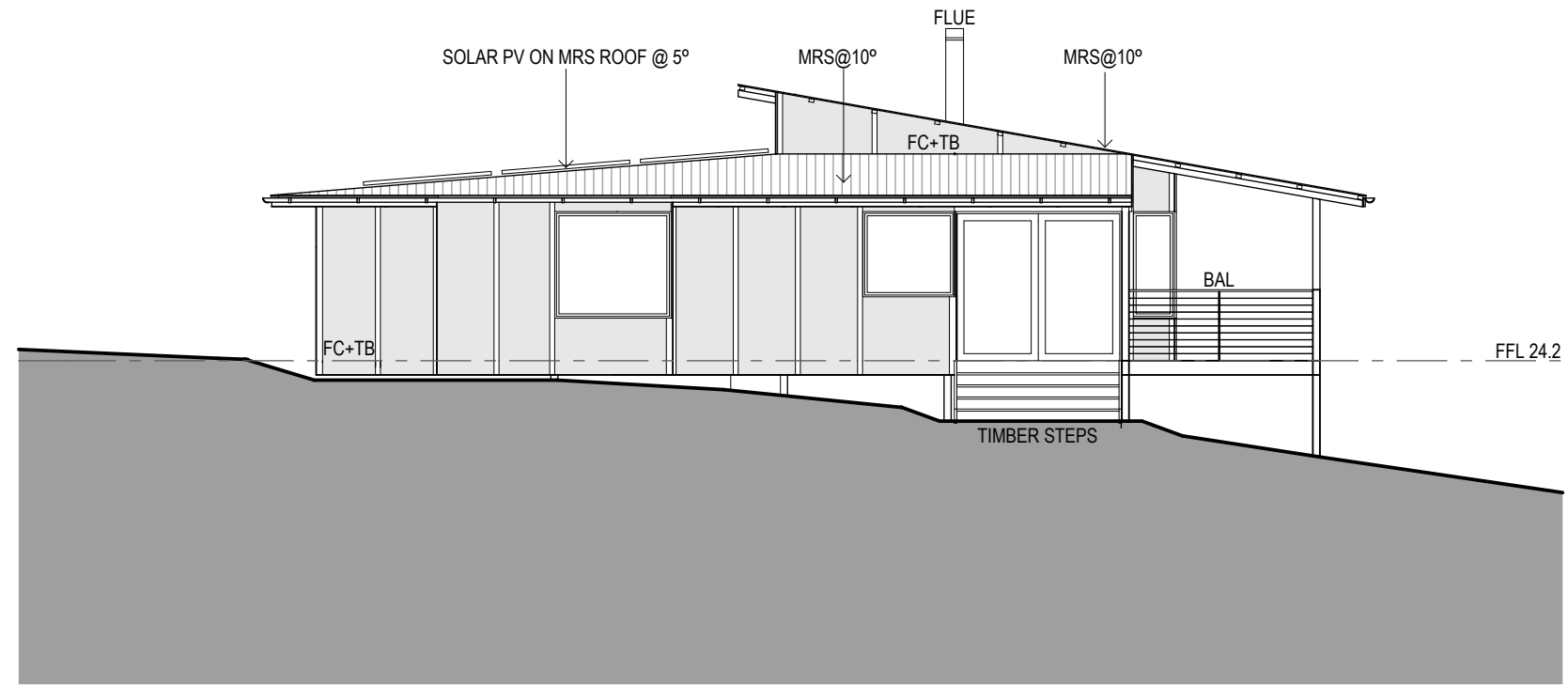
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MRS	METAL ROOF SHEET
FC+TB	FIBRE CEMENT WITH TIMBER BATTENS
TBS	TIMBER BATTEN SCREEN
BAL	WIRE BALUSTRADE WITH TIMBER HANDRAIL

1 SOUTH ELEVATION
SCALE 1:100

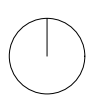


2 WEST ELEVATION
SCALE 1:100



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Soil & Water Management on Standard Building & Construction Sites



What is this?

A general overview of sediment and erosion control measures that are typically required for single residential building lots including when certain control measures should be installed. Useful for planning and for determining what practices might be suitable for your site. For further details about each of the control measures mentioned go to the relevant fact sheet in the series.

Why is it important?

Sediment generated from erosion on building and construction sites can be a major source of pollution to local waterways. Follow the practices discussed in this fact sheet and you will minimise erosion and control sediment run-off from your site, meet your legal requirements and help protect our waterways.

WHAT DO I NEED TO DO?

The timing of works and installation of control measures has a major influence on how effective soil and water management is in reducing on-site erosion and the amount of sediment that is carried off-site.

Before starting site works plan to:

- 1) Schedule earthworks in phases throughout the project so that the ground is disturbed for the shortest time possible (see Fact Sheet 5).
- 2) Avoid stripping and excavating until all necessary permits, licences and approvals have been obtained and you are ready to start work.
- 3) Install erosion and sediment control measures in accordance with an approved Soil and Water Management Plan (if required) (see Fact Sheet 3).

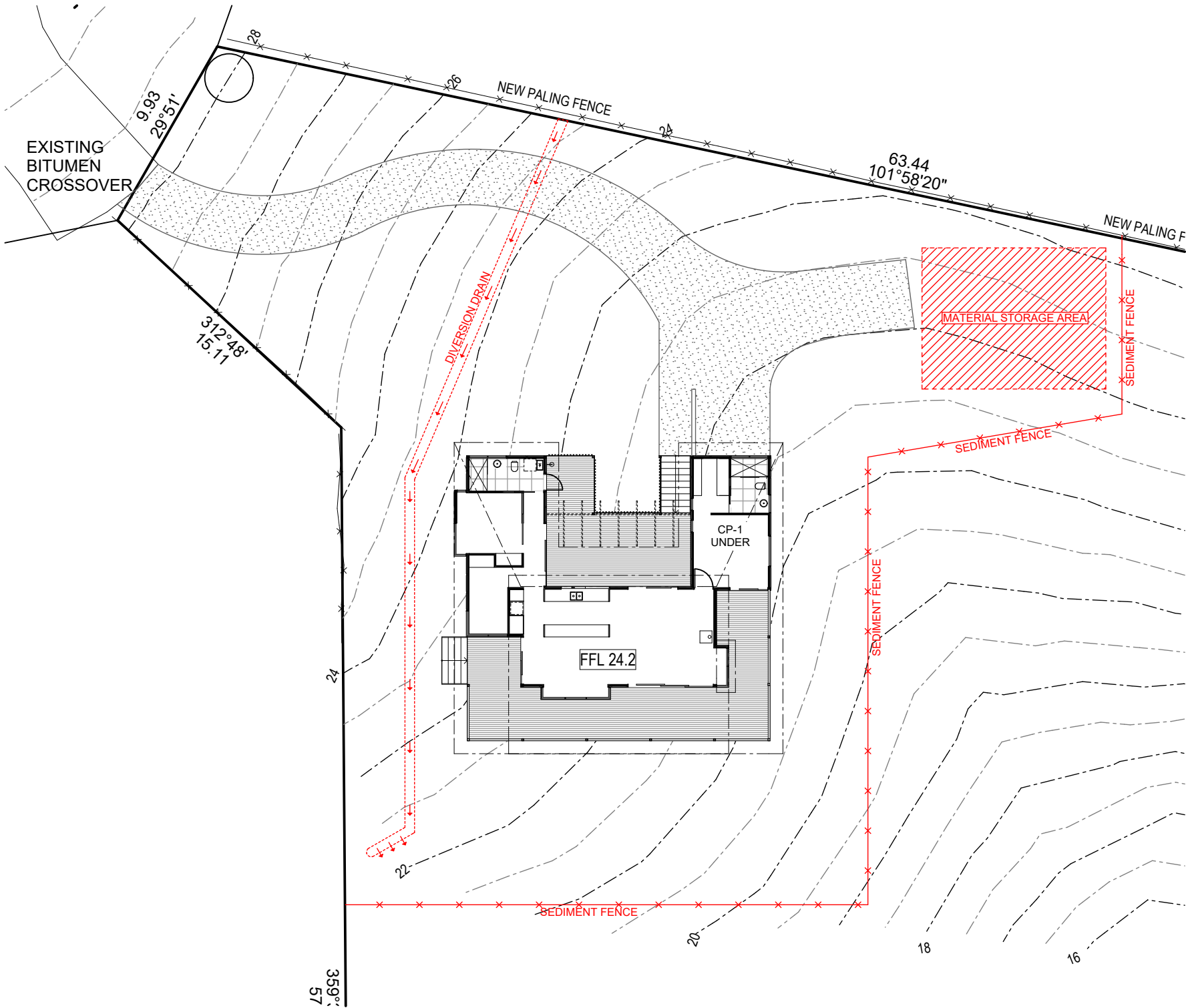
Install erosion and sediment control measures in sequence:

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

Once site works have commenced:

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

Fact Sheet 2



1

SOIL & WATER MANAGEMENT PLAN SCALE 1:250



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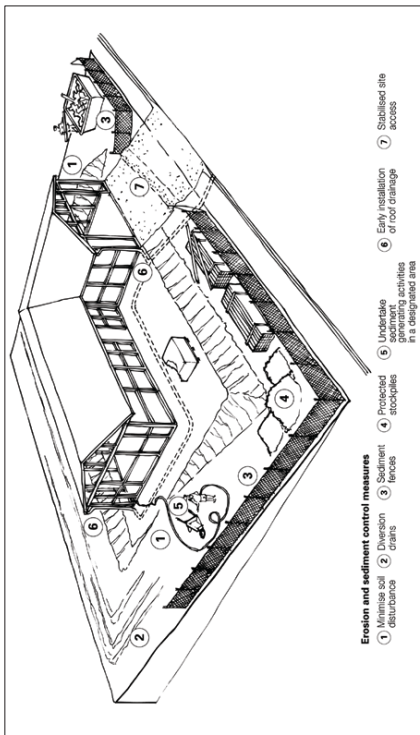


Figure 2A: Appropriate sediment and erosion control measures for single residential building lots.

List of fact sheets

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

Remember:

Everyone working on building and construction sites has a responsibility to prevent pollution. If you do have an accident and pollution occurs you are required by law to notify the site supervisor. If the site supervisor cannot be contacted, workers should immediately notify the local council so they can work with you to minimise any harm to the environment.

Acknowledgement:

Figure 2A was kindly provided by South East Queensland Healthy Waterways Partnership and Brisbane City Council. Text in this brochure has been obtained and modified from the "Do It Right On Site" brochure series, kindly provided by the Southern Sydney Regional Organisation of Councils.

Date of Issue: December 2008

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Scale 1:250, 1:2.11, 1:2.08, 1:1

Drawing number 01.07
Revision
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