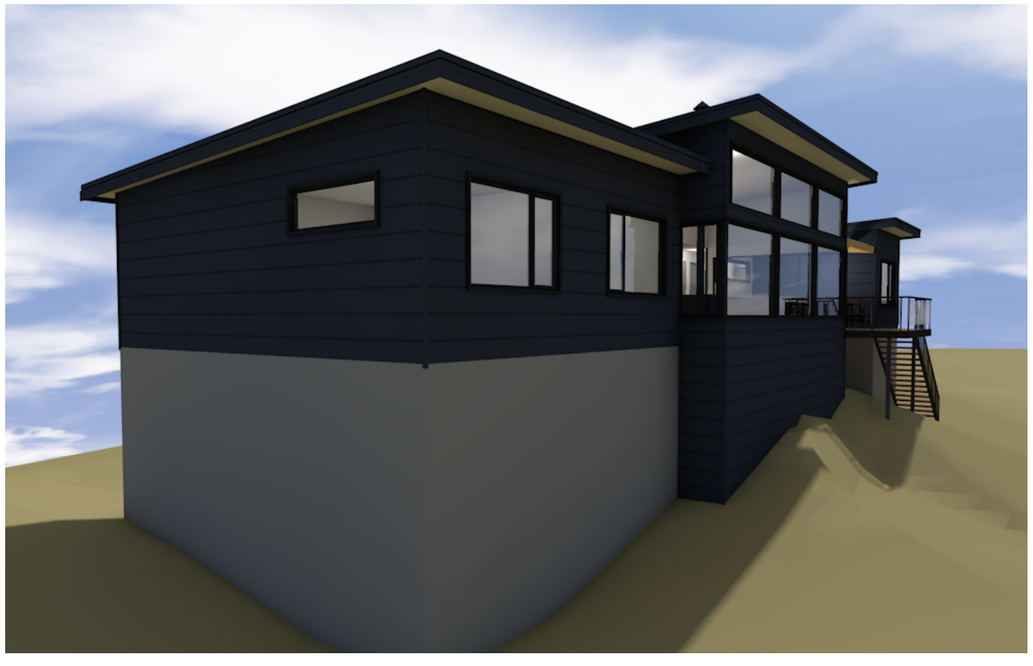
1533 Dolphin Sands Rd, Dolphin Sands 7190

pinnacle DRAFTING&DESIGN

General Information	
Designer	Jason Nickerson CC6073Y
Owner(s) or Clients	Tim & Sarah O'Connor
Building Classification	1a
Climate Zone	7
Corrosion Environment	Severe
Zoning	34.0 Particular Purpose
Title Reference	199-54666
Design Wind Speed	N3
Soil Classification	A
BAL	29

Drawing No:	Description
DA.01	Location Plan
DA.02	Site Plan
DA.03	Floor Plan
DA.04	Elevations
DA.05	Elevations



N

Amendments	
Date	Description

Location Plan

Proposal:	New Dwelling	Scale: 1:1000	Job No: 186 - 2018	Pg No: DA.01
Client:	Tim & Sarah O'Connor	Date: XX/XX/XX	Engineer:	
Address:	1533 Dolphin Sands Rd, Dolphin Sands 7190	Sheet Size: A3	Building Surveyor:	

PINNACLE DRAFTING & DESIGN. CC6073Y 2 Kennedy Drv, Cambridge 7170 P: 03 6248 4743 F: 03 6248 4745 E: jnickerson@pinnacledrafting.com.au

pinnacle DRAFTING&DESIGN

N

3000L
DUAL-PURPOSE
SEPTIC

PROPOSED
DRIVEWAY

2x10,000L RW TANKS UNDER
HOUSE. 1 TANK RESERVED FOR
FIRE FIGHTING PURPOSES

PROPOSED
NEW DWELLING
162.20 m²
FFL: 6,950

162.26 m²

43.13 m²

REMOTE OFFTAKE
FOR FIRE FIGHTING

WATER LINE

OVERFLOW AWAY FROM
DWELLING AND NEIGHBOURING
PROPERTIES

199

22100m²

CT: 199-54666

Site Areas	
Site area	22100 sqm
Total Building Area	183.12 sqm
Total Site Coverage	0.82%

edge of vegetation

Amendments	
Date	Description
17.04.19	Client Revisions
15.11.19	DA Drawings
24.01.2020	RFI Amendments

Site Plan

0 1 2 3 4 5 6 7 8 9

Proposal:	New Dwelling	Scale: 1:150 @ A3	Job No: 186 - 2018	Pg No: DA.02
Client:	Tim & Sarah O'Connor	Date: 10/12/2018	Engineer:	
Address:	1533 Dolphin Sands Rd, Dolphin Sands 7190	Drawn: JRN	Building Surveyor:	

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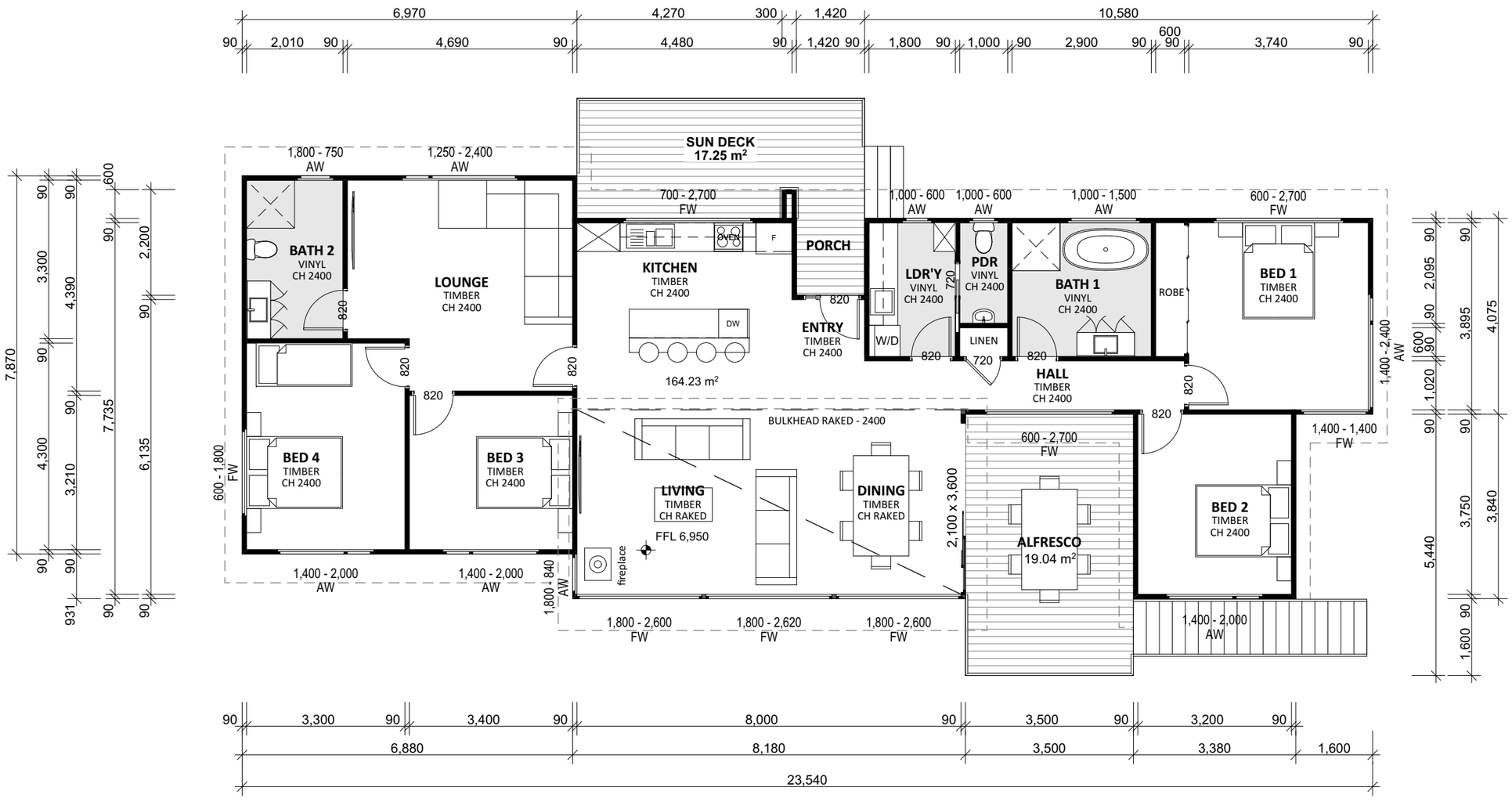
pinnacle DRAFTING&DESIGN



N

Floor Areas	
Floor Area	162.20 sqm
Deck	17.64 sqm
Porch	4.85 sqm

Amendments	
Date	Description
17.04.19	Client Revisions
15.11.19	DA Drawings
24.01.2020	RFI Amendments

Floor Plan

0 1 2 3 4 5 6 7 8 9

Proposal:	New Dwelling	Scale: 1:100 @ A3	Job No: 186 - 2018	Pg No: DA.03
Client:	Tim & Sarah O'Connor	Date: 10/12/2018	Engineer:	
Address:	1533 Dolphin Sands Rd, Dolphin Sands 7190	Drawn: JRN	Building Surveyor:	

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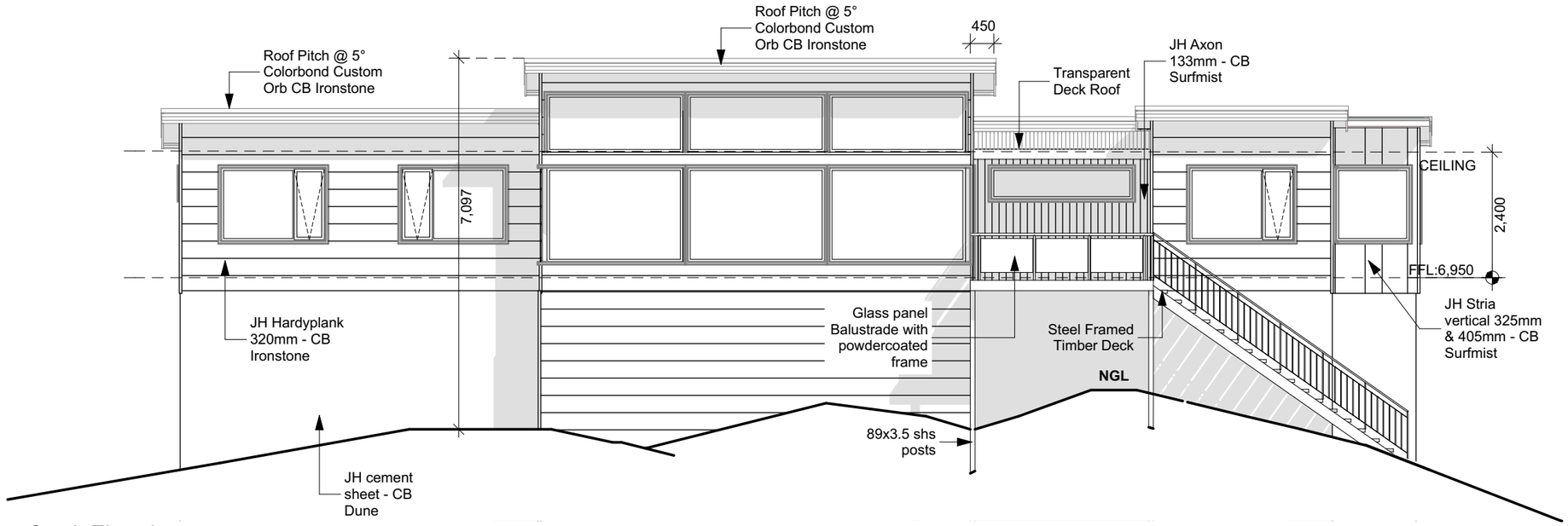
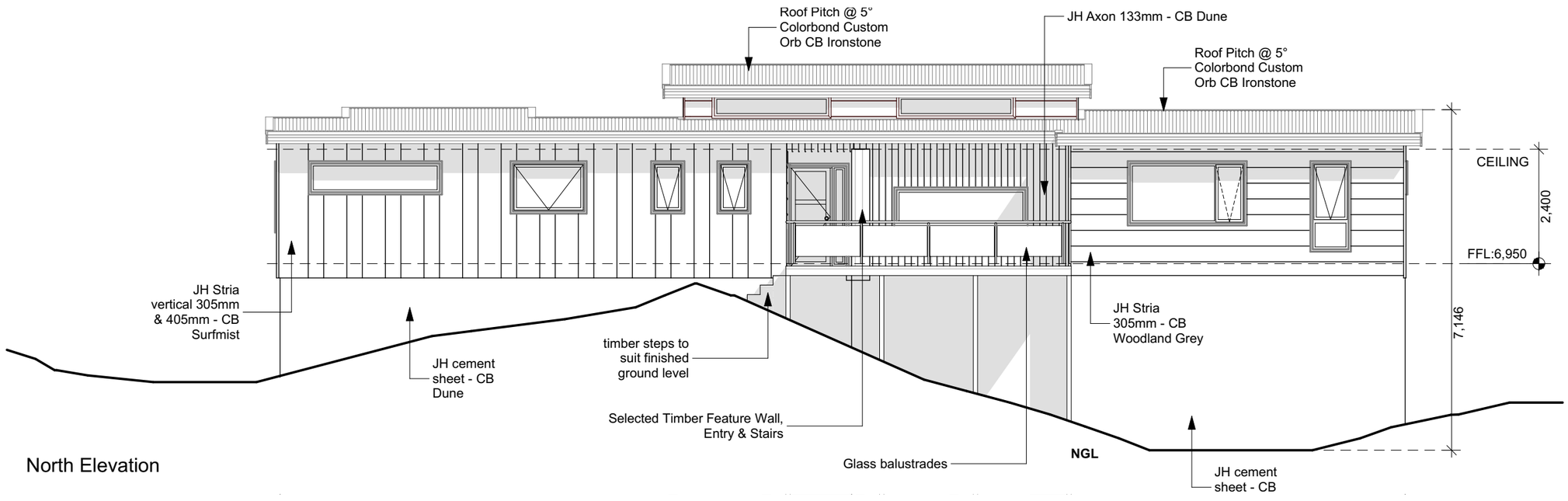
pinnacle DRAFTING&DESIGN



South Elevation



North Elevation

Amendments	
Date	Description
17.04.19	Client Revisions
15.11.19	DA Drawings
24.01.2020	RFI Amendments

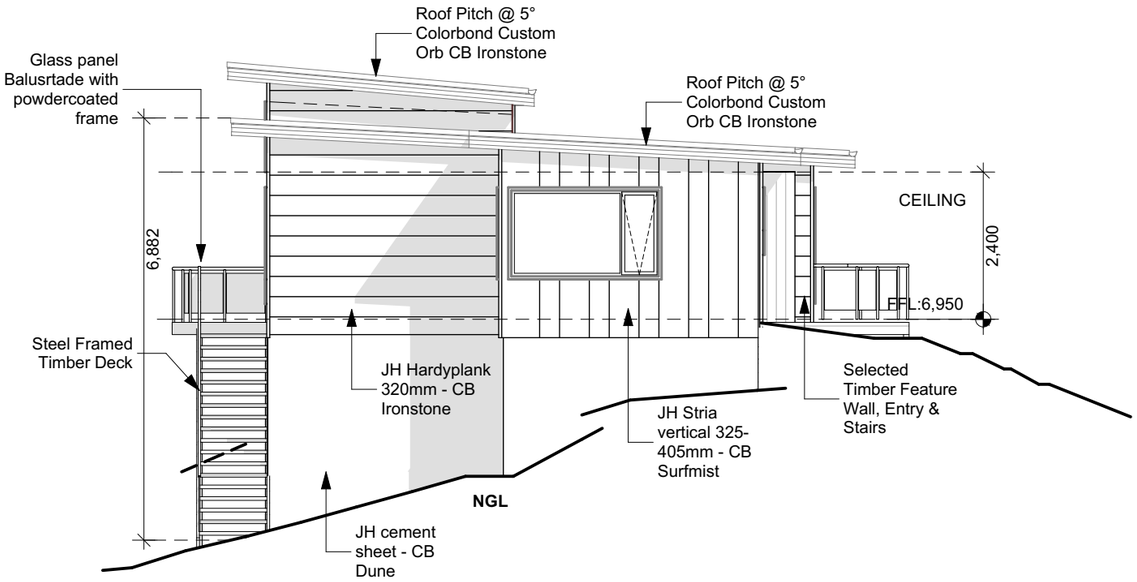
Elevations

0 1 2 3 4 5 6 7 8 9

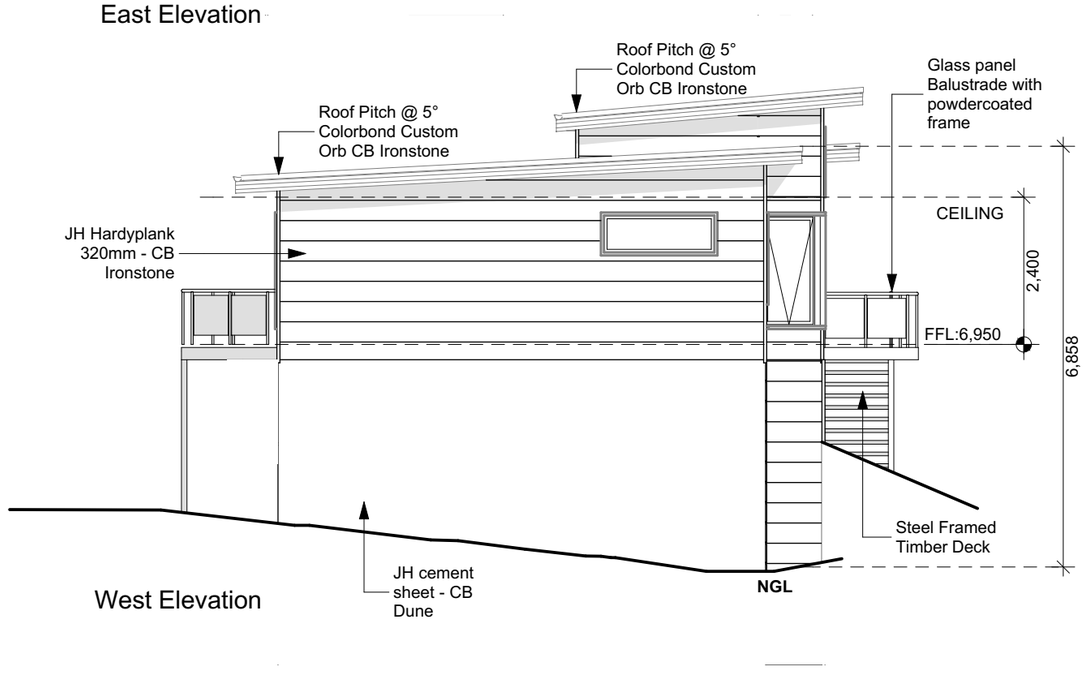
Proposal:	New Dwelling	Scale: 1:100 @ A3	Job No: 186 - 2018	Pg No: DA.04
Client:	Tim & Sarah O'Connor	Date: 10/12/2018	Engineer:	
Address:	1533 Dolphin Sands Rd, Dolphin Sands 7190	Drawn: JRN	Building Surveyor:	

PINNACLE DRAFTING & DESIGN. CC6073Y 2 Kennedy Drv, Cambridge 7170 P: 03 6248 4743 F: 03 6248 4745 E: jnickerson@pinnacledrafting.com.au

pinnacle DRAFTING&DESIGN



East Elevation



West Elevation

Amendments	
Date	Description
17.04.19	Client Revisions
15.11.19	DA Drawings
24.01.2020	RFI Amendments

Elevations

0 1 2 3 4 5 6 7 8 9

Proposal:	New Dwelling	Scale: 1:100 @ A3	Job No: 186 - 2018	Pg No: DA.05
Client:	Tim & Sarah O'Connor	Date: 10/12/2018	Engineer:	
Address:	1533 Dolphin Sands Rd, Dolphin Sands 7190	Drawn: JRN	Building Surveyor:	

PINNACLE DRAFTING & DESIGN. CC6073Y 2 Kennedy Drv, Cambridge 7170 P: 03 6248 4743 F: 03 6248 4745 E: jnickerson@pinnacledrafting.com.au

pinnacle DRAFTING&DESIGN

Office: 9 Melbourne Street,
Postal: PO Box 6 Triabunna 7190
Phone: 6256 4777 Fax: 6256 4774
Email: planning@freycinet.tas.gov.au
Web: www.gsbc.tas.gov.au
ABN: 95 641 533 778

GLAMORGAN SPRING BAY COUNCIL

Application for Planning Approval

OFFICE USE ONLY	
DATE RECEIVED:	PID:
FEE	RECEIPT No:
DA:	PROPERTY FILE:

Advice:

Use this form for all no permit required, permitted and discretionary planning applications including subdivision as well as for planning scheme amendment & minor amendments to permits.

If you are applying for a change of use to visitor accommodation in the General Residential, Low Density Residential, Rural Living, Environmental Living or Village Zone, the *Visitor Accommodation Use in Existing Habitable Buildings Standard Application Package* must be used. This is available on the Council website.

Completing this form in full will help ensure that all necessary information is provided and avoid any delay. The planning scheme provides details of what other information may be required at clause 8.1 and in each applicable Code.

Please provide the relevant details in each applicable section by providing the information or circling Yes or No as appropriate. If relevant details are provided on plans or documents please refer to the drawing number or other documents in this form.

Often, it is beneficial to provide a separate written submission explaining in general terms what is proposed and why and to justify the proposal against any applicable performance criteria.

If you have any queries with the form or what information is required please contact the office.

Details of Applicant & Owner

Applicant:	Pinnacle Drafting and Design				
Contact person: (if different from applicant)					
Address:	2/2 Kennady Drive			Phone	6248 4218
	Cambridge	Tas	7170	Fax:	
Email:	jnickerson@pinnacledrafting.com.au			Mobile:	
Do you wish for all correspondence to be sent solely by email?				Yes ☐	No ☐

Owner: (if different from applicant)	Sarah O'Connor		
Address:	[redacted]	Phone:	
		Fax:	
Email:		Mobile:	[redacted]

Application for Planning Approval

Details of Site and Application

Please note, if your application is discretionary the following will be placed on public exhibition.

Site Details

Address / Location of Proposal: 1533 Dolphin Sands Rd			
		Suburb Dolphin Sands Post Code 7190	
Size of site	22100 m^2	or	Ha
Certificate of Title(s):	199/54666		

Current use of site:	OUT BUILDING

General Application Details

Complete for All Applications

☒	New Dwelling	☐	Change of use
☐	Additions / Alterations to Dwelling	☐	Intensification or modification of use
☐	New Outbuilding or Addition	☐	Subdivision or boundary adjustment
☐	New Agricultural Building	☐	Minor amendment to existing permit DA ..... / .....
☐	Commercial / Industrial Building	☐	Planning Scheme Amendment

Estimated value of works (design & construction)	$ 350,000

Describe the order and timing of any staged works:	or N/A

General Background Information

Please state the name of any Council officers that you have discussed this proposal with:	Officer's name : Robyn or N/A	
Is the site listed on the Tasmanian Heritage Register?	Yes ☐	No ☒
Have any potentially contaminating activities ever occurred on the site? *If yes, please provide a separate written description of those activities.*	Yes ☐	No ☒
Is the proposal consistent with any restrictive covenants or Part 5 agreements that apply to the site?	Yes ☐	No ☒

Application for Planning Approval

Does the proposal involve any of the following?		
Type of development		**Brief written description if not clearly shown on the plans:**
Partial or full demolition	☐ **Yes** ☒ **No**	
Fencing	☐ **Yes** ☒ **No**	
New or upgraded vehicle / pedestrian access	☒ **Yes** ☐ **No**	
New or modified water, sewer, electrical or telecommunications connection	☒ **Yes** ☐ **No**	
Retaining walls	☐ **Yes** ☒ **No**	
Cut or fill	☐ **Yes** ☒ **No**	
Signage	☐ **Yes** ☒ **No**	
New car parking	☒ **Yes** ☐ **No**	
Vegetation removal	☒ **Yes** ☐ **No**	

Existing floor area 0. m^2	Proposed floor area 162.m^2

Number of existing car parking on site 0	Number of proposed car parking on site 2

Describe the width & surfacing of vehicular access (existing or proposed) and how drainage/runoff is collected and discharged:	GRAVEL ACCESS TO BUILDING
If vehicular access is from a road sign-posted at more than 60 km/hr, please state the sight distance in both directions:	n/a or N/A

Please note, if a gravel driveway is proposed from a sealed public road please address the following clause (E6.7.6 P1):

Parking spaces and vehicle circulation roadways must not unreasonably detract from the amenity of users, adjoining occupiers or the quality of the environment through dust or mud generation or sediment transport, having regard to all of the following:

(i) the suitability of the surface treatment;
(ii) the characteristics of the use or development;
(iii) measures to mitigate mud or dust generation or sediment transport.

Will stormwater from buildings and hardstand areas be managed by: (details should be clearly shown / noted on plans)	Discharge to a main:	Yes ☐
	Discharge to kerb & gutter:	Yes ☐
	Discharge to roadside table drain:...	Yes ☐
	Discharge to natural watercourse: ..	Yes ☐

		Retained on site:		Yes ☒
Materials				
External building material	Walls:	CEMENT SHEET,TIMBER	Roof:	COLORBOND
External building colours	Walls:	NOTED ON PLANS	Roof:	NOTED ON PLANS
Fencing materials:	N/A		Retailing wall materials:	N/A

For all outbuildings

Describe for what purpose the building is to be used:	N/A
Describe any intended toilet, shower, cooking or heating to be installed:	N/A
If the building is to be used wholly or partly as a domestic workshop, what type of tools and machines will be used?	N/A

For all non-residential applications

Hours of Operation						
Current hours of operation	Monday to Friday:		Saturday:		Sunday & Public holidays:	
Proposed hours of operation	Monday to Friday:		Saturday:		Sunday & Public holidays:	

Number of Employees			
Current Employees Total:		Maximum at any one time:	
Proposed Employees Total:		Maximum at any one time:	

Describe any delivery of goods to and from the site, including the types of vehicles used and the estimated average weekly frequency:	or N/A
Describe current traffic movements into the site, including the type & timing of heavy vehicle movements & any proposed change:	or N/A
Describe any hazardous materials to be used or stored on site:	or N/A
Describe the type & location of any large plant or machinery used (refrigeration, generators)	or N/A
Describe any retail and/or storage of goods or equipment in outdoor areas:	or N/A

Application for Planning Approval

Describe any external lighting proposed:	or N/A

Personal Information Protection Statement:

The personal information requested is personal information for the purposes of the *Personal Information Protection Act 2004* and will be managed in accordance with that Act. The personal information is being collected by Glamorgan Spring Bay Council for the purposes of managing, assessing, advising on and determining the relevant application in accordance with the *Land Use Planning and Approvals Act 1993* (LUPPA) and other related purposes, including for the purpose of data collection.

The intended recipients of personal information collected by Council may include its officers, agents or contractors or data service providers and contractors engaged by the Council from time to time.

The information may also be made publically available on the Council's website and available for any person to inspect in accordance with LUPAA. The supply of this information is voluntary. However, if you cannot or do not provide the information sought, the Council will be unable to accept and/or process your application.

Declaration:

I/we hereby apply for planning approval to carry out the use or development described in this application and the accompanying documents and declare that: -

- The information in this application is true and correct.
- I/we authorise Council employees or consultants to enter the site in order to assess the application.
- I/we have obtained all copy licences and permission from the copyright owner for the publication, communication and reproduction of the application and reports, plans and materials provided as part of the application and for the purposes of managing, assessing, advising on and determining the application.
- I/we authorise the Council to:
  - Make available the application and any and all information, reports, plans and materials provided with or as part of the application in electronic form on the Council's website and in hard copy at the Council's office and other locations for public exhibition if and as required;
  - Make such copies of the application and any and all information, reports, plans and materials provided with or as part of the application which are, in the Council's opinion, necessary to facilitate a consideration of the application; and
  - Publish and or reproduce the application and any and all information, reports, plans and materials provided with or as part of the application in Council agendas, for representors, referral agencies and other persons interested in the application.
- You indemnify the Council for any claim or action taken against the Council for breach of copyright in respect of the application and any and all information, report, plan and material provided with or as part of the application.
- I/we authorise Council to provide a copy of any documents relating to this application to any person for the purpose of assessment or public consultation and agree to arrange for the permission of the copyright owner of any part of this application to be obtained.
- I/We declare that the Owner has been notified of the intention to make this application in accordance with section 52(1) of the *Land Use Planning and Approvals Act 1993.*

Signature:		Date:	15.11.19

If applicant is not the owner

If the applicant is not the owner, please list all persons who were notified of this application pursuant to section 52 of the *Land Use Planning and Approvals Act 1993.*

Name:	Method of notification:	Date of notification:
JASON NICKERSON	EMAIL & PHONE	15.11.19

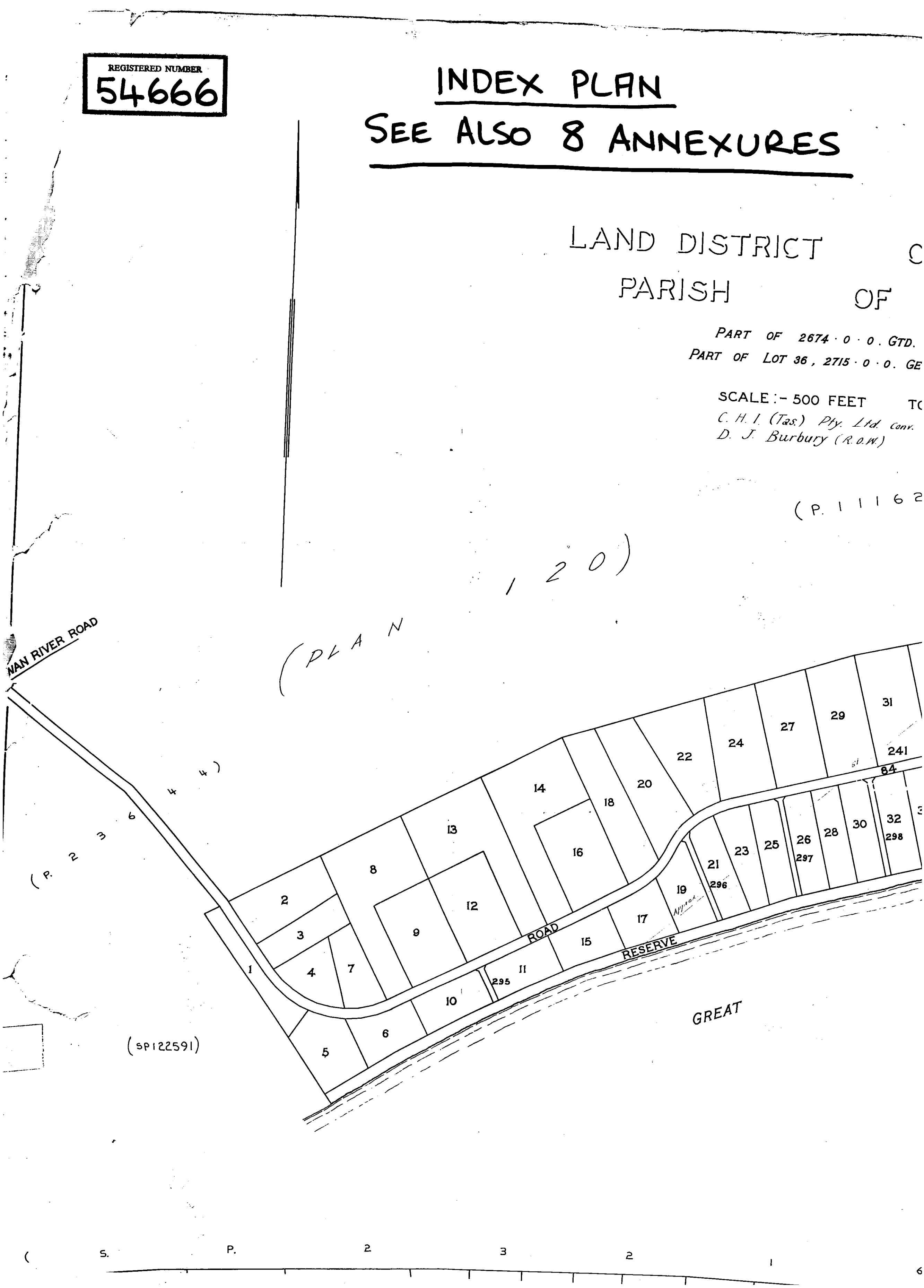
If application is on or affect Council or Crown owned or administered land

If land affected by this application is owned or administered by the Crown or Council then the written permission of the relevant Minister (or their delegate) and/or the General Manager must provided and that person must also sign this application form below:

I being responsible for the administration of land at
declare that I have given permission for the making of this application by for use and/or development involving

Signature: Date:

REGISTERED NUMBER 54666



S.P. 2798

CT OF GLAMORGAN

OF CAMBRIA PH

2674 · 0 · 0. GTD. TO GEORGE MEREDITH.

T 36, 2715 · 0 · 0. GEORGE MEREDITH PURCHASER.

EFFECTIVE FROM 15 MAY 1970

J Muthrinor

RECORDER OF TITLES

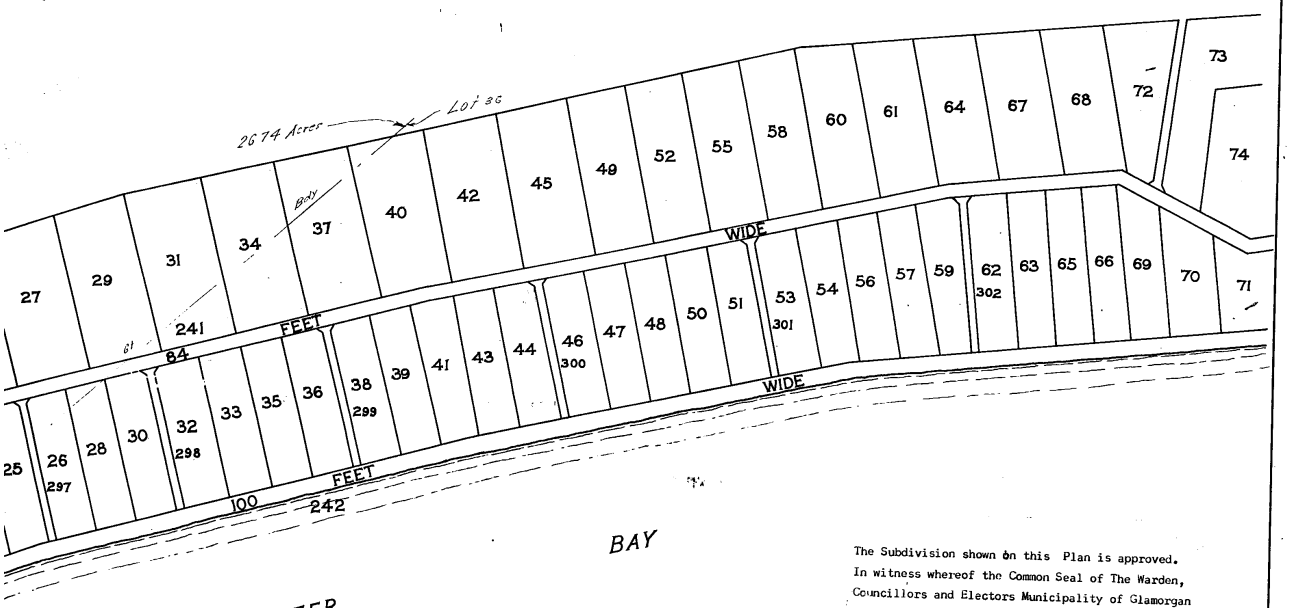
– 500 FEET TO AN INCH

Tas.) Pty. Ltd. Conv. 41/8074

Burbury (R.O.W.)

(P. 111628)

(S. P. 23216)



The Subdivision shown on this Plan is approved.
In witness whereof the Common Seal of The Warden, Councillors and Electors Municipality of Glamorgan has been hereunto affixed, pursuant to a resolution of the Council of the said Municipality passed the Second day of December, 1969, in the presence of us.

..... } Members.

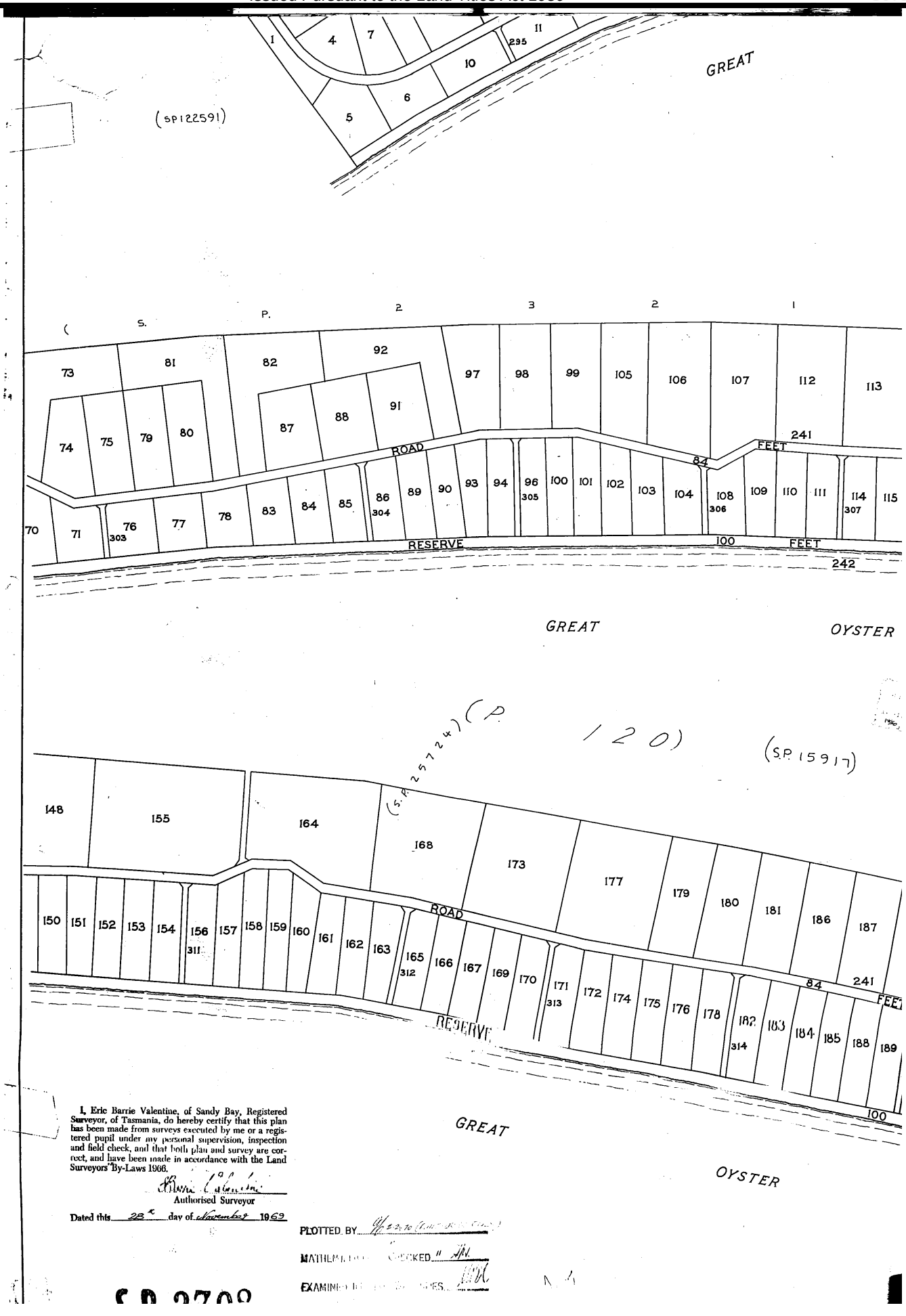
..... Council Clerk.

For the purposes of Section 464(7)(b) of the Local Government Act, 1962, the owner has nominated

As his solicitor Simmons Wolfhagen Simmons & Walch, Hobart.

As his surveyor E. Barrie Valentine, Hobart.

..... COUNCIL CLERK



I, Eric Barrie Valentine, of Sandy Bay, Registered Surveyor, of Tasmania, do hereby certify that this plan has been made from surveys executed by me or a registered pupil under my personal supervision, inspection and field check, and that both plan and survey are correct, and have been made in accordance with the Land Surveyors' By-Laws 1966.

Authorised Surveyor

Dated this 28th day of November 1969

PLOTTED BY

CHECKED

EXAMINED

C.P. 9709

of the Council of the said Municipality passed the Second day of December, 1969, in the presence of us.

..... } Members.

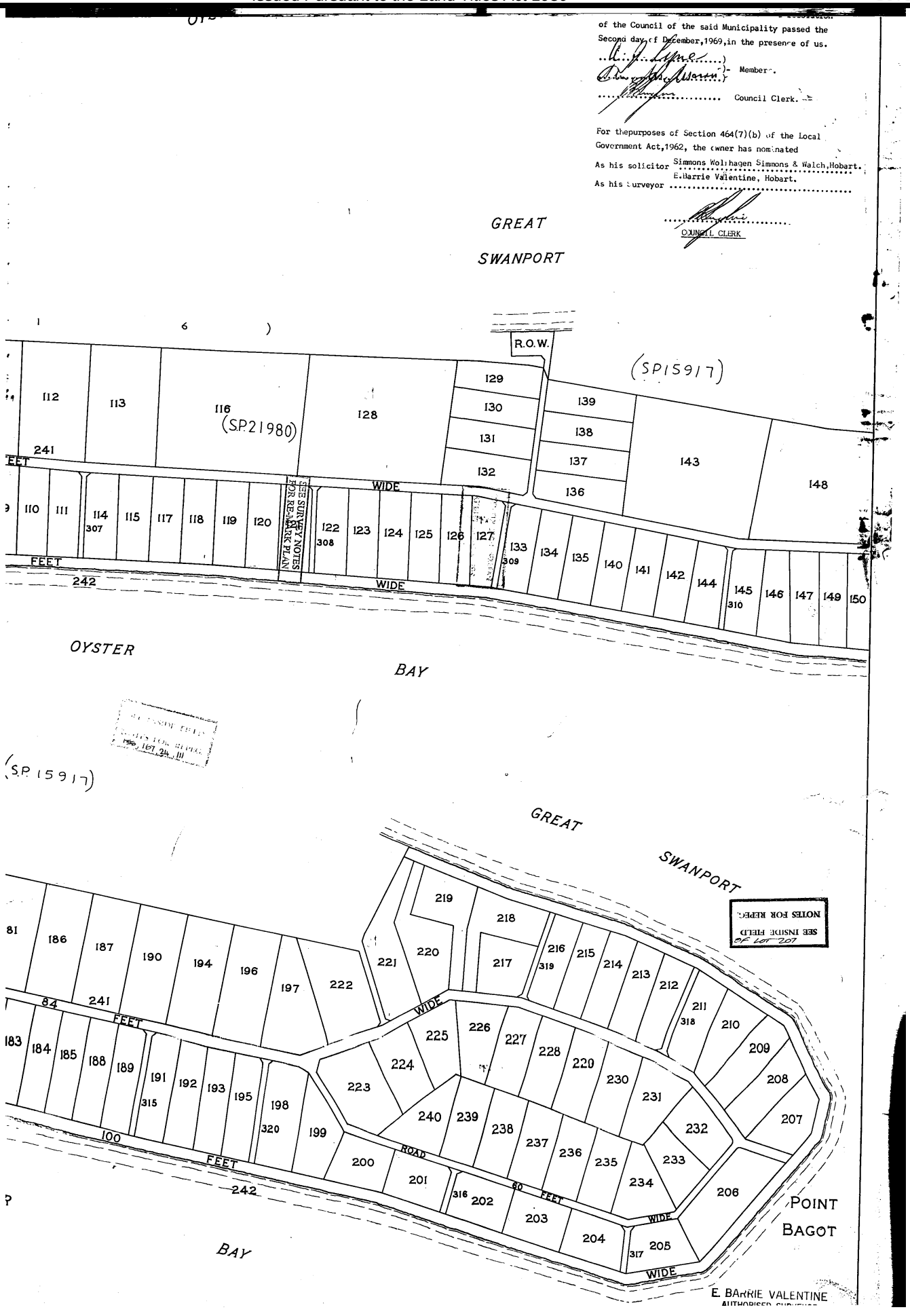
..... Council Clerk.

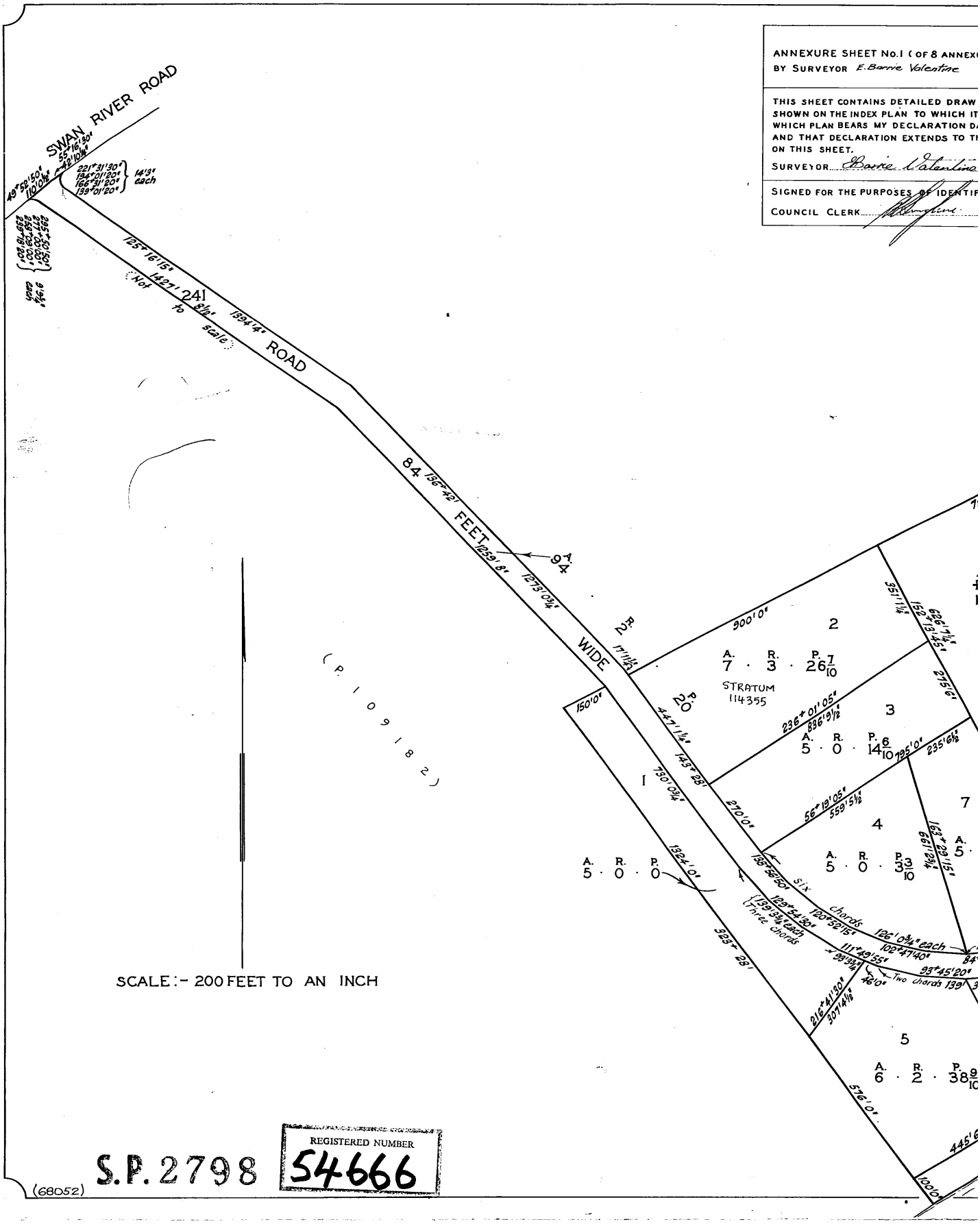
For the purposes of Section 464(7)(b) of the Local Government Act, 1962, the owner has nominated

As his solicitor Simmons Wolfhagen Simmons & Walch, Hobart.

As his surveyor E. Barrie Valentine, Hobart.

.....
COUNCIL CLERK




ANNEXURE SHEET No.1 (OF 8 ANNEX
BY SURVEYOR E.Barrie Valentine
THIS SHEET CONTAINS DETAILED DRAW
SHOWN ON THE INDEX PLAN TO WHICH IT
WHICH PLAN BEARS MY DECLARATION D
AND THAT DECLARATION EXTENDS TO T
ON THIS SHEET.
SURVEYOR Barrie Valentine
SIGNED FOR THE PURPOSES OF IDENTIF
COUNCIL CLERK
SWAN RIVER ROAD
ROAD
84 FEET WIDE
Not to scale
SCALE :- 200 FEET TO AN INCH
(P 109182)
STRATUM 114355
A. R. P. 7 · 3 · 26 7/10
A. R. P. 5 · 0 · 14 6/10
A. R. P. 5 · 0 · 3 3/10
A. R. P. 5 · 0 · 0
A. R. P. 6 · 2 · 38 9/10
S.P. 2798
REGISTERED NUMBER
54666
(68052)

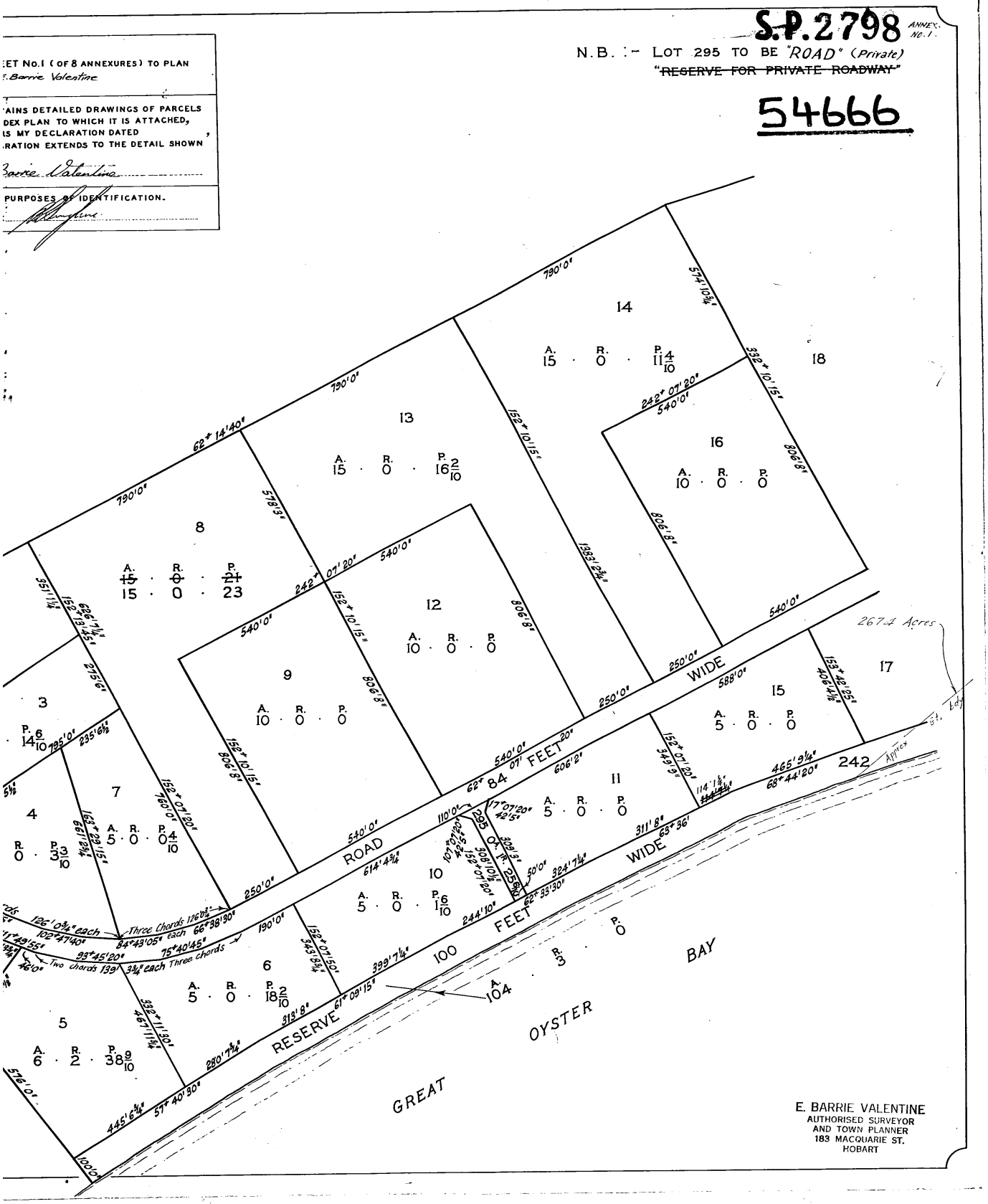
S.P.2798 ANNEX. NO.1.

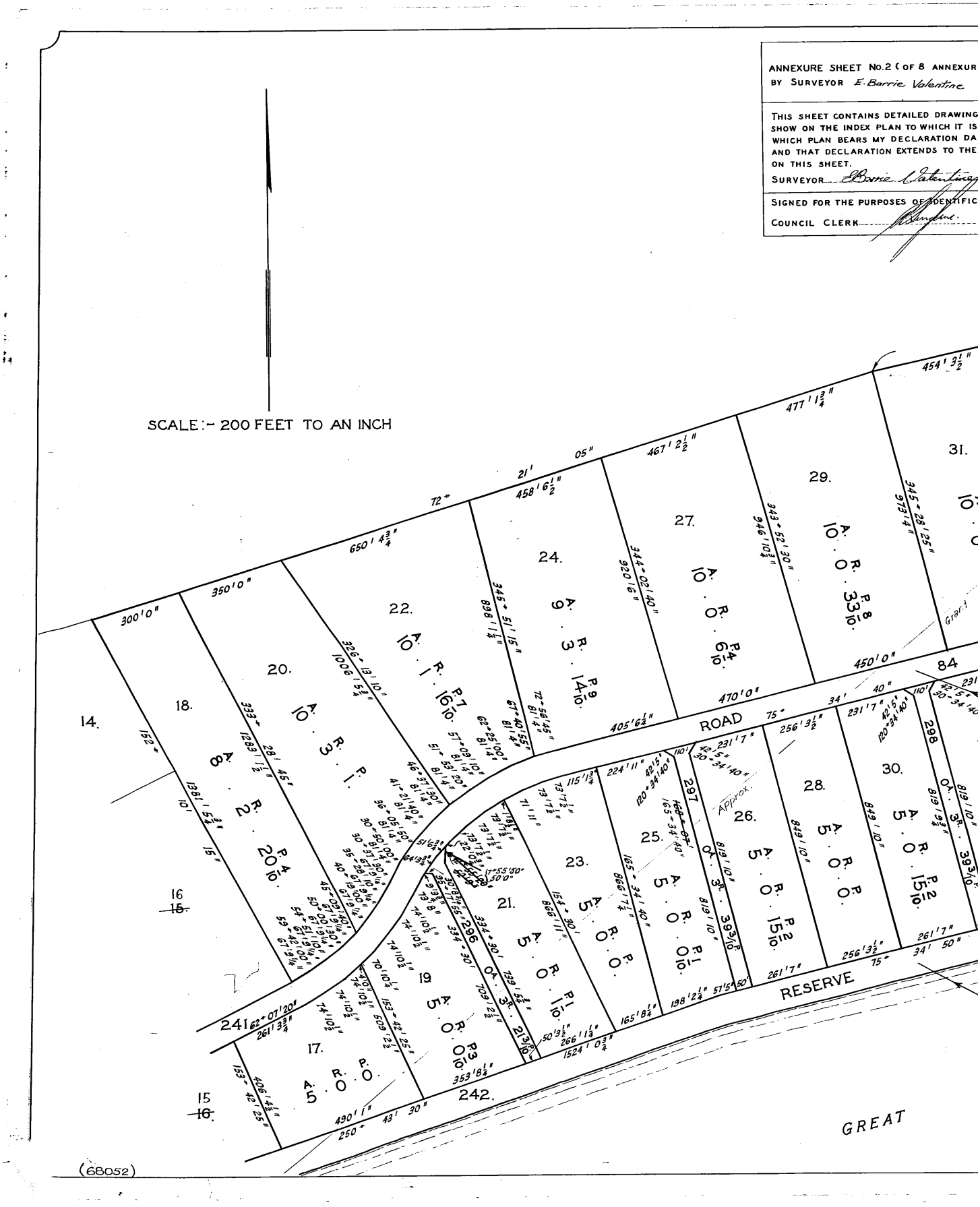
N.B. :- LOT 295 TO BE "ROAD" (Private)
~~"RESERVE FOR PRIVATE ROADWAY"~~

54666

:ET No.1 (OF 8 ANNEXURES) TO PLAN
E. Barrie Valentine

'AINS DETAILED DRAWINGS OF PARCELS
DEX PLAN TO WHICH IT IS ATTACHED,
IS MY DECLARATION DATED
RATION EXTENDS TO THE DETAIL SHOWN
Barrie Valentine
PURPOSES OF IDENTIFICATION.




ANNEXURE SHEET No.2 (OF 8 ANNEXUR
BY SURVEYOR E. Barrie Valentine
THIS SHEET CONTAINS DETAILED DRAWING
SHOW ON THE INDEX PLAN TO WHICH IT IS
WHICH PLAN BEARS MY DECLARATION DA
AND THAT DECLARATION EXTENDS TO THE
ON THIS SHEET.
SURVEYOR E Barrie Valentine
SIGNED FOR THE PURPOSES OF IDENTIFIC
COUNCIL CLERK
SCALE :- 200 FEET TO AN INCH
ROAD
RESERVE
GREAT
(68052)

T No.2 (OF 8 ANNEXURES) TO PLAN
E. Barrie Valentine

AINS DETAILED DRAWINGS OF PARCELS
EX PLAN TO WHICH IT IS ATTACHED,
RS MY DECLARATION DATED
RATION EXTENDS TO THE DETAIL SHOWN

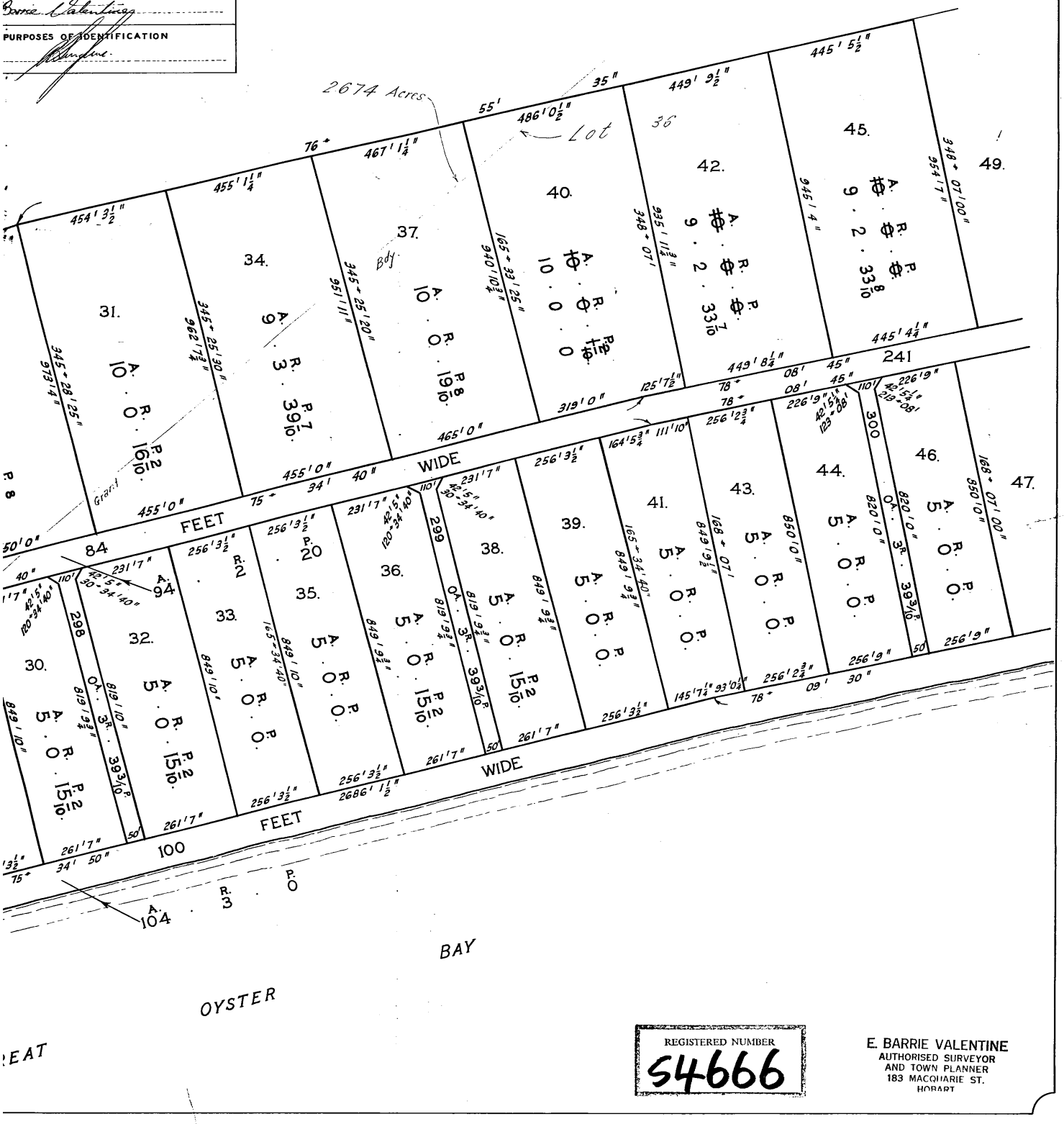
Barrie Valentine

PURPOSES OF IDENTIFICATION

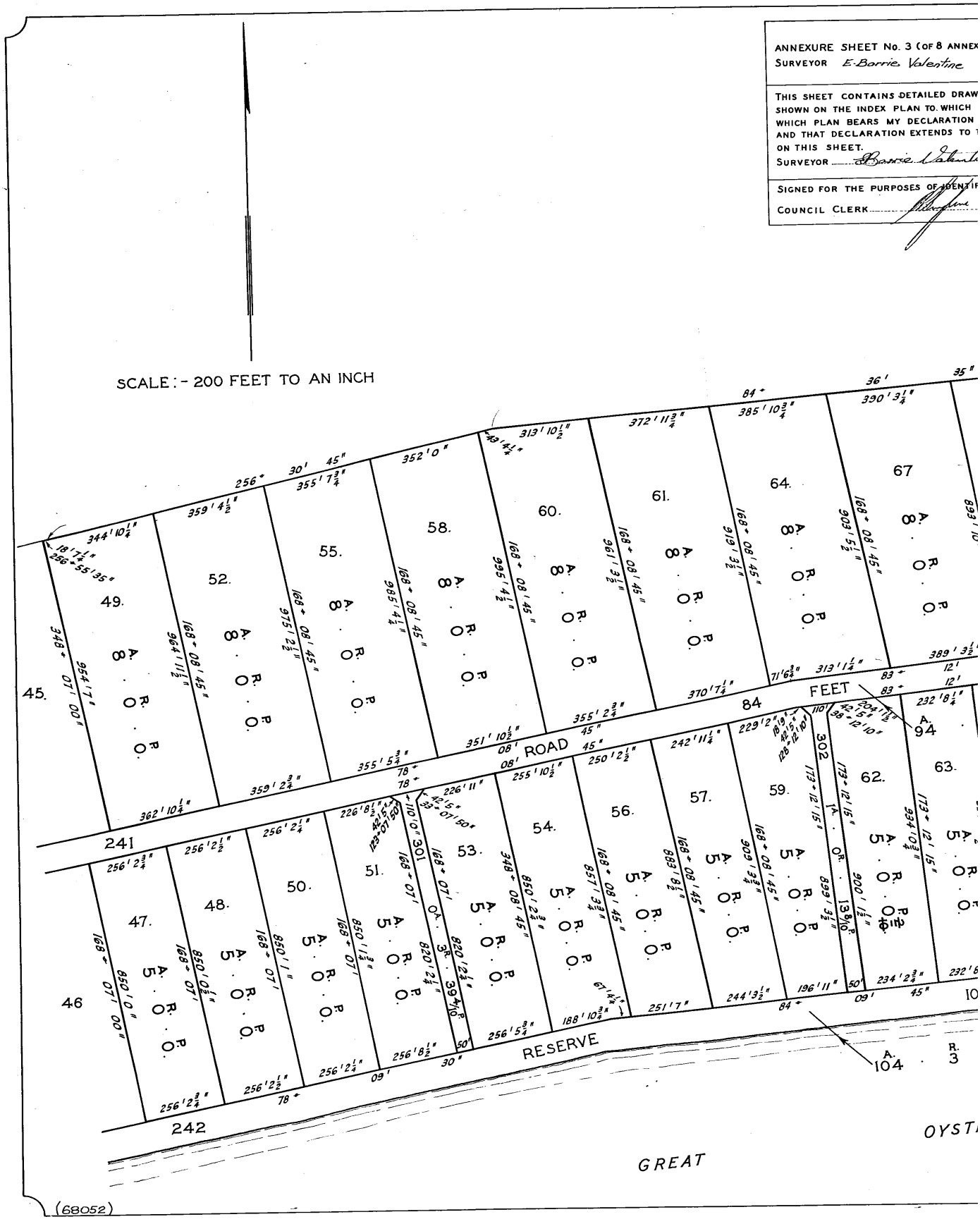
S.P. 2798 ANNEX. NO. 2

N.B. :- LOTS 296 - 300 TO BE "ROAD" (Private)
"~~RESERVE FOR PRIVATE ROADWAY~~"

54666



E. BARRIE VALENTINE
AUTHORISED SURVEYOR
AND TOWN PLANNER
183 MACQUARIE ST.
HOBART


ANNEXURE SHEET No. 3 (OF 8 ANNEX
SURVEYOR E. Barrie Valentine
THIS SHEET CONTAINS DETAILED DRAW
SHOWN ON THE INDEX PLAN TO WHICH
WHICH PLAN BEARS MY DECLARATION
AND THAT DECLARATION EXTENDS TO
ON THIS SHEET.
SURVEYOR Barrie Valentine
SIGNED FOR THE PURPOSES OF IDENTIF
COUNCIL CLERK
SCALE:- 200 FEET TO AN INCH
ROAD
RESERVE
GREAT
(68052)

S.P. 2798 ANNEX. No. 3

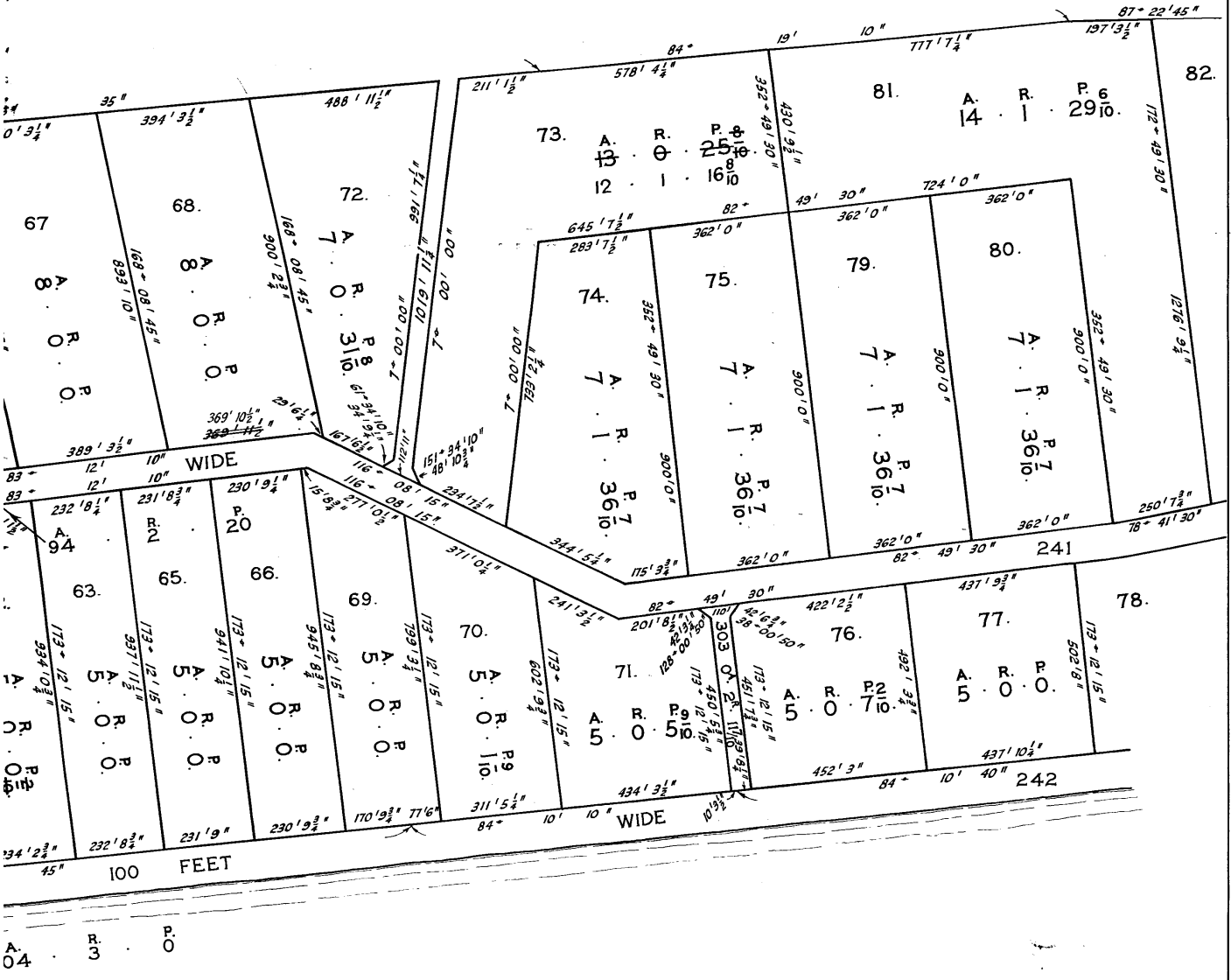
N.B. :- LOTS 301 - 303 TO BE 'ROAD' (Private)
"~~RESERVE FOR PRIVATE ROADWAY~~"

54666

T No. 3 (OF 8 ANNEXURES) TO PLAN BY
rrie Valentine

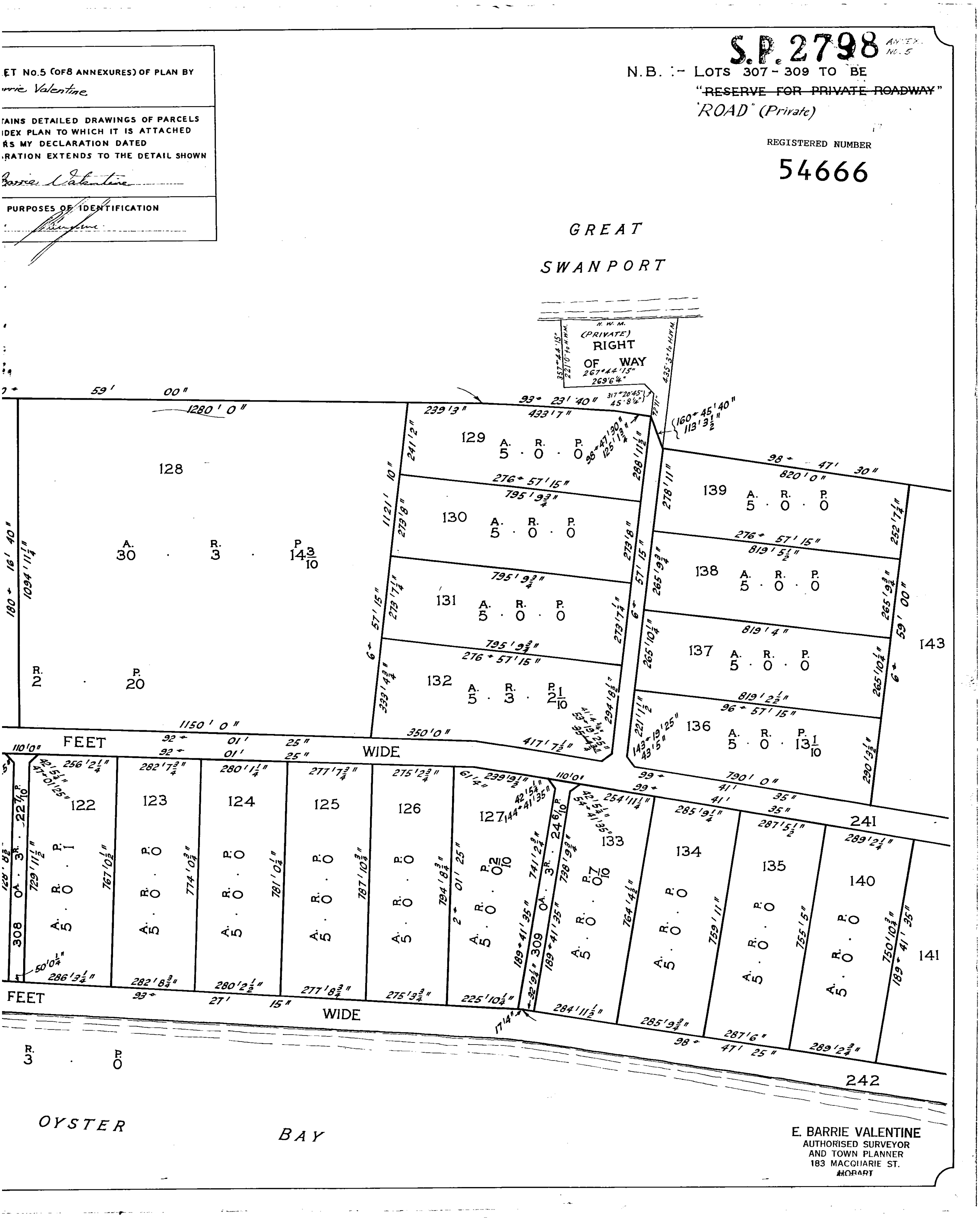
INS DETAILED DRAWINGS OF PARCELS
EX PLAN TO WHICH IT IS ATTACHED,
S MY DECLARATION DATED
ATION EXTENDS TO THE DETAIL SHOWN
Barrie Valentine

URPOSES OF IDENTIFICATION.



REGISTERED NUMBER
54666

E. BARRIE VALENTINE
AUTHORISED SURVEYOR
AND TOWN PLANNER
183 MACQUARIE ST.
HOBART



S.P. 2798
N.B. :- LOTS 307 - 309 TO BE "RESERVE FOR PRIVATE ROADWAY" 'ROAD' (Private)
REGISTERED NUMBER
54666
ET No.5 (OF 8 ANNEXURES) OF PLAN BY
AINS DETAILED DRAWINGS OF PARCELS
IDEX PLAN TO WHICH IT IS ATTACHED
RS MY DECLARATION DATED
RATION EXTENDS TO THE DETAIL SHOWN
PURPOSES OF IDENTIFICATION
GREAT SWANPORT
(PRIVATE) RIGHT OF WAY
128
129
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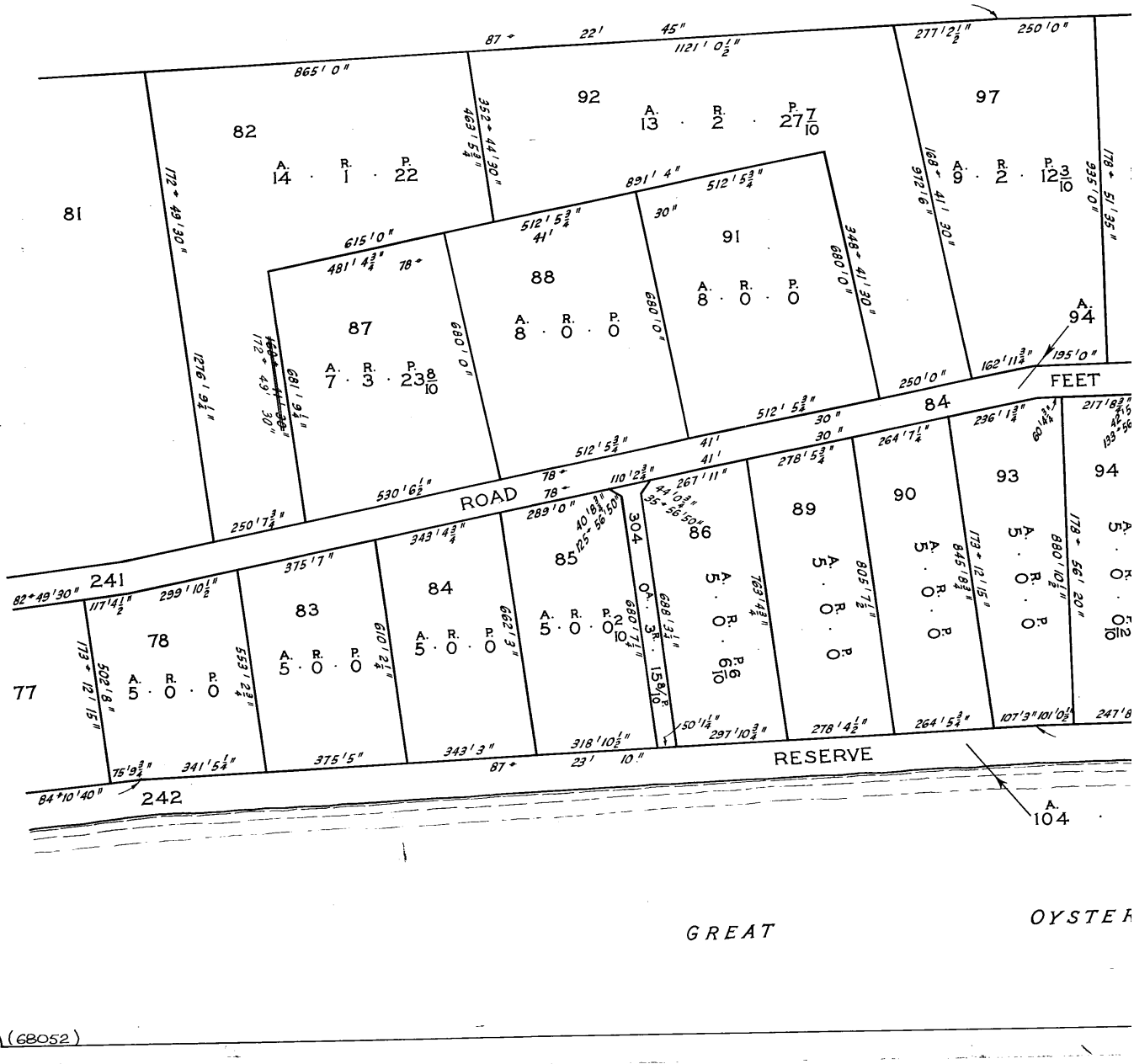

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N.B. :- LOTS 304 - 306 TO BE 'ROAD' (Private)
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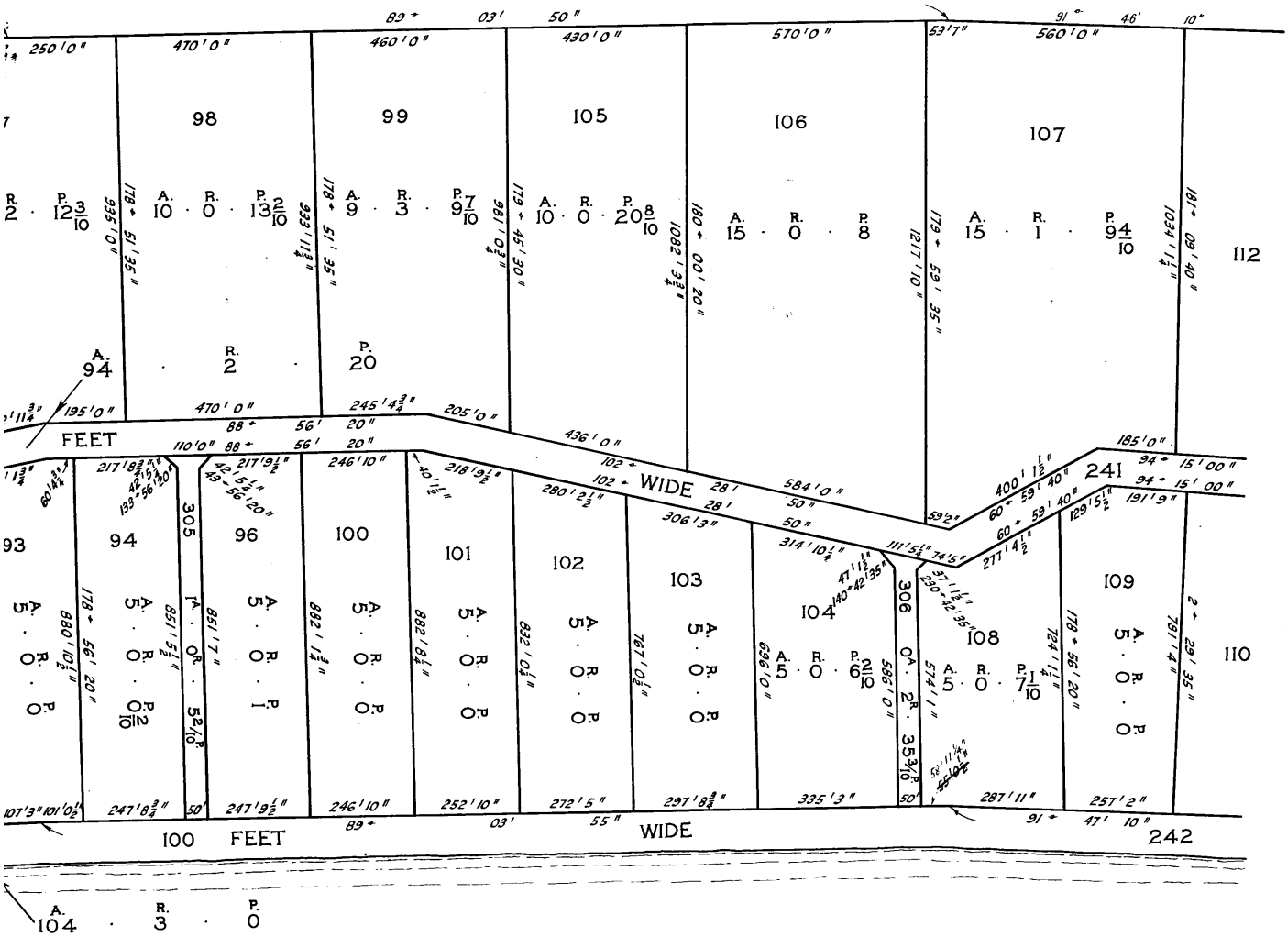

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E. BARRIE VALENTINE
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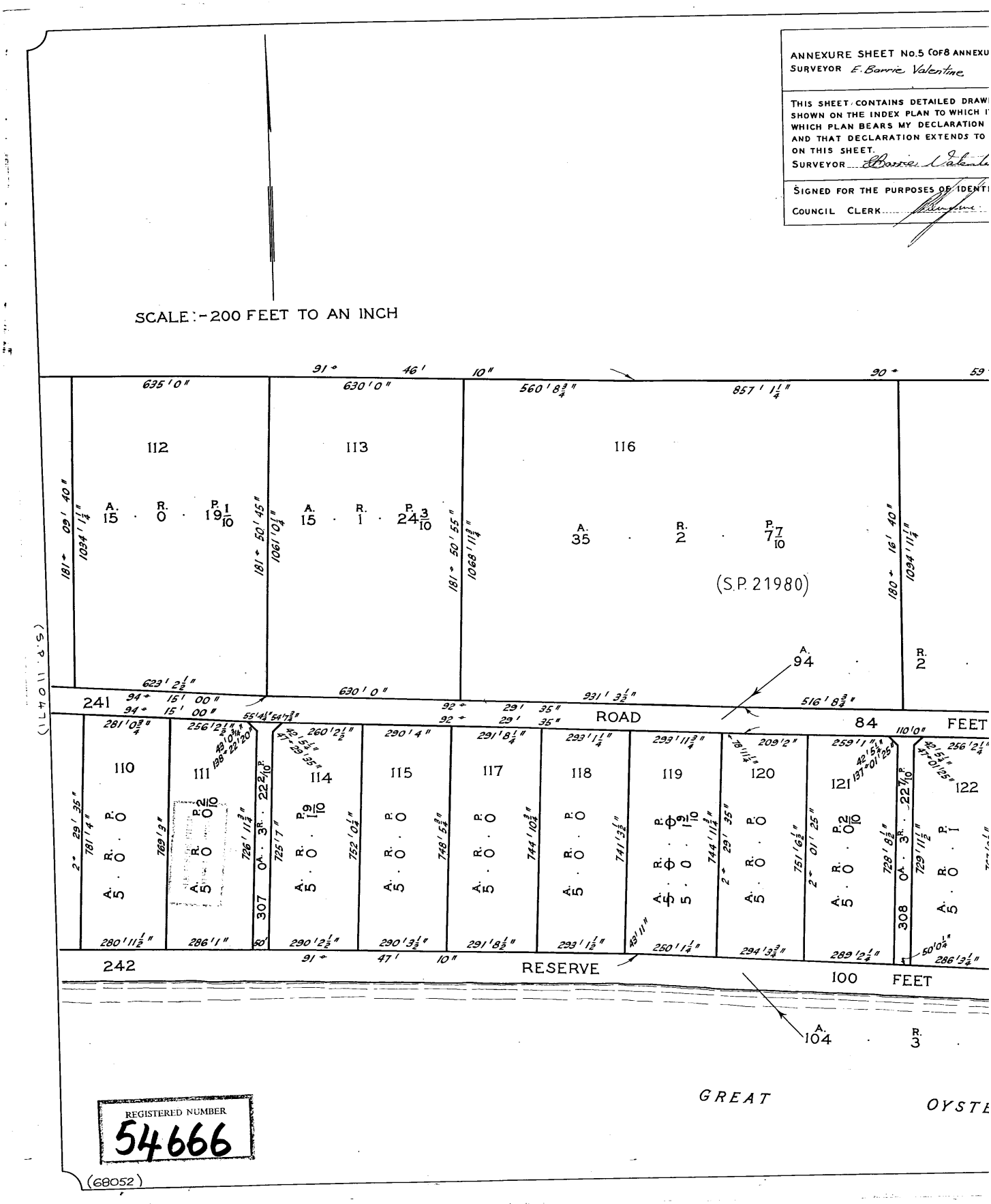
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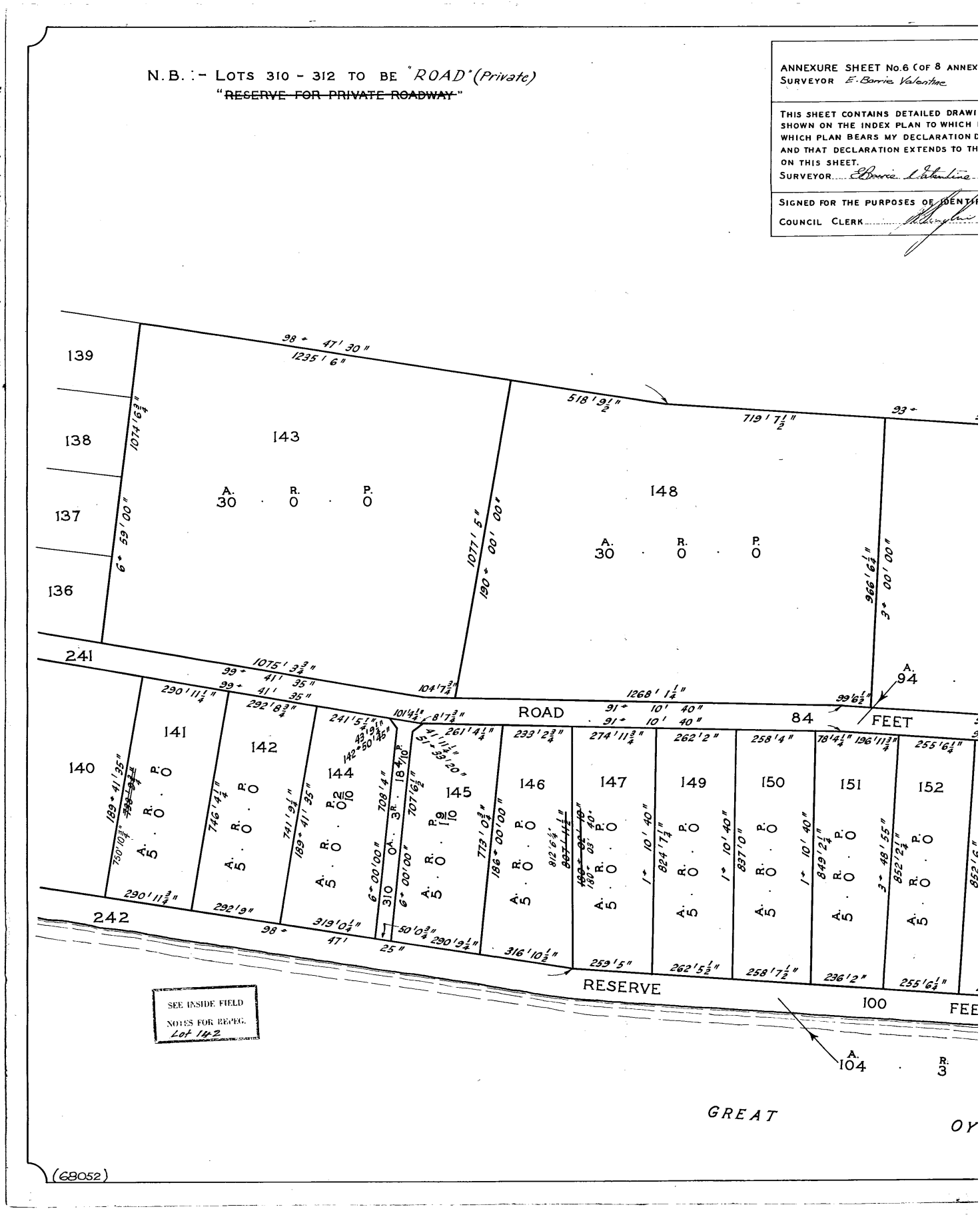
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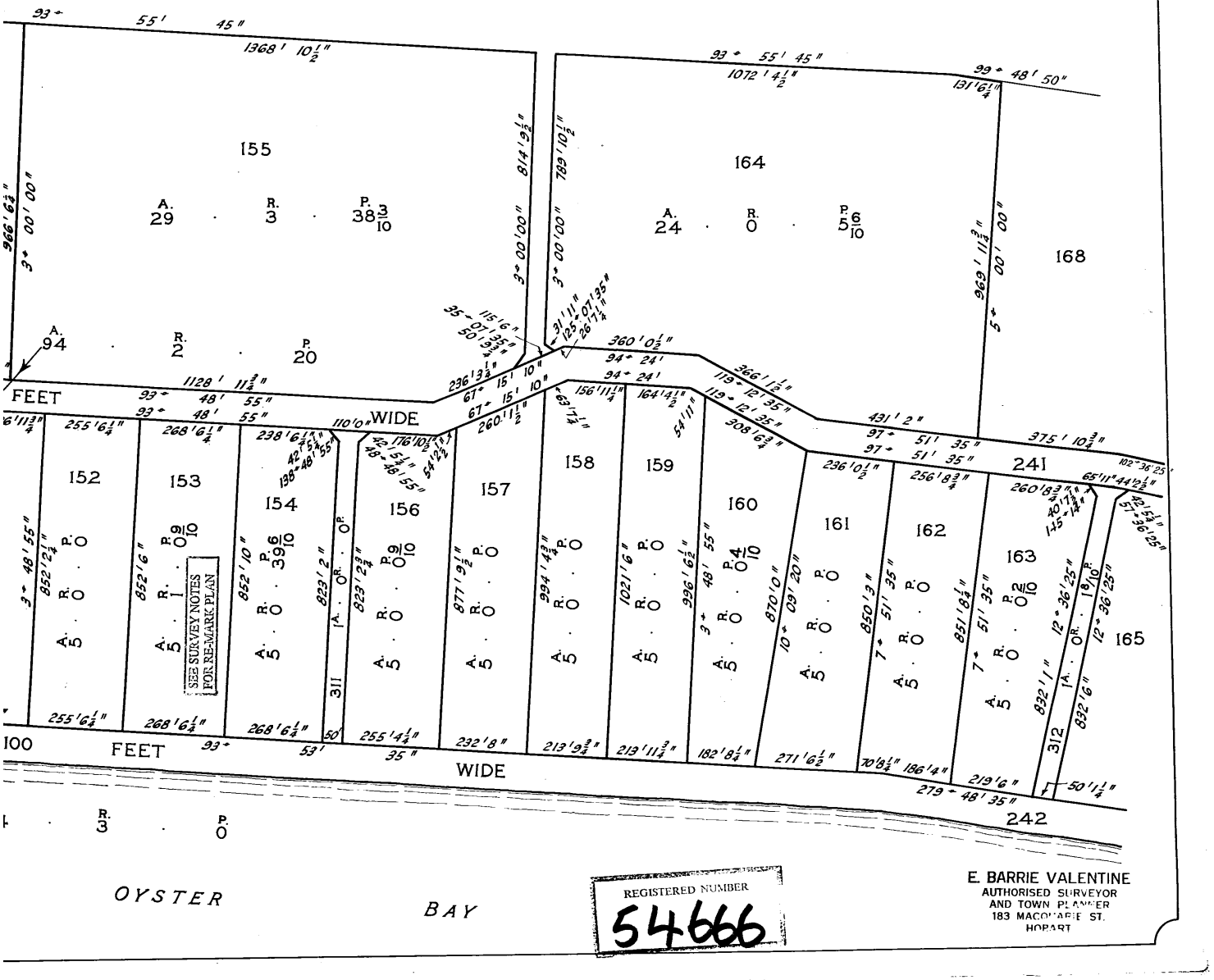

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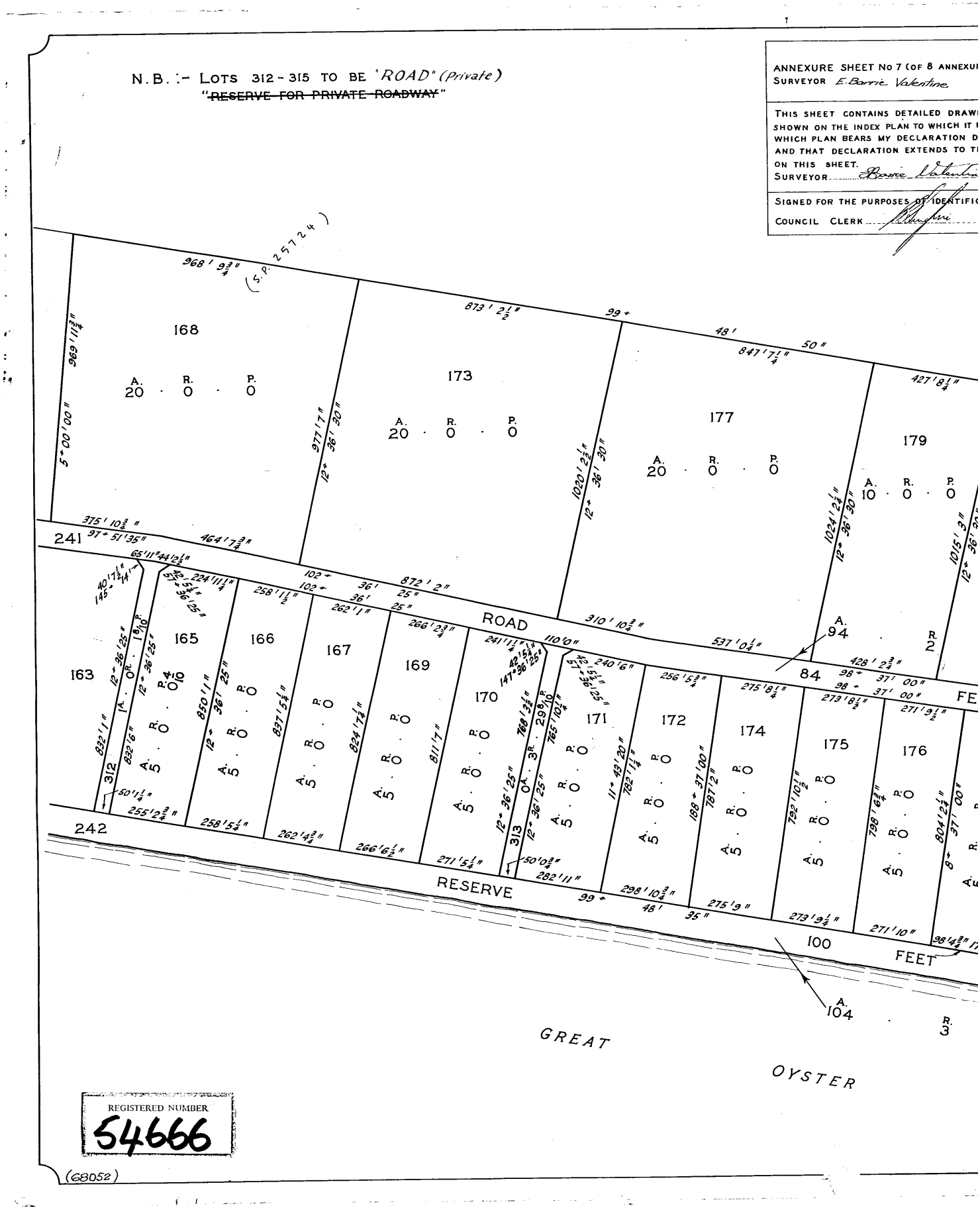
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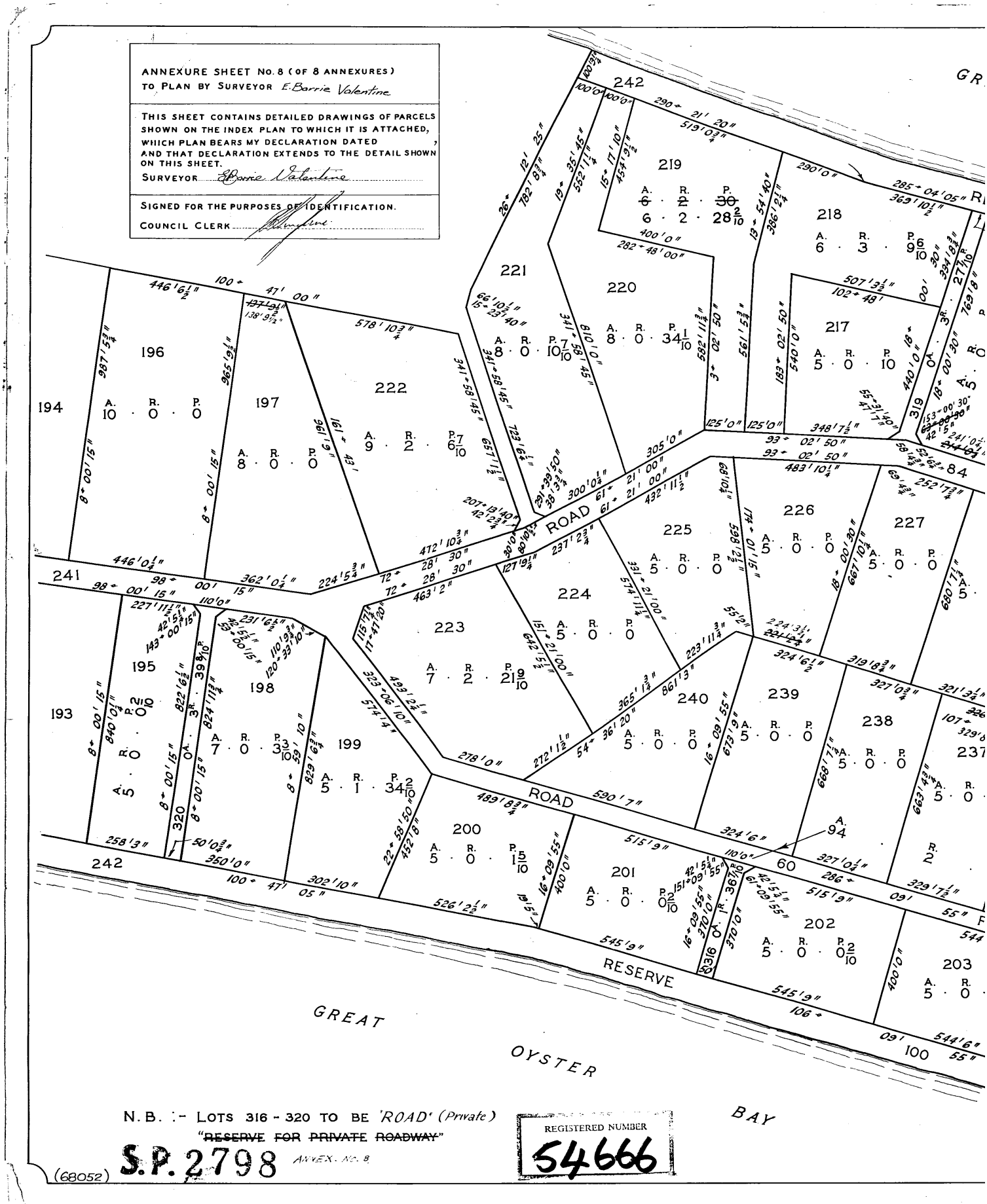
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SURVEYOR E.Barrie Valentine
SIGNED FOR THE PURPOSES OF IDENTIFICATION.
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N.B. :- LOTS 316 - 320 TO BE 'ROAD' (Private)
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(68052)
REGISTERED NUMBER
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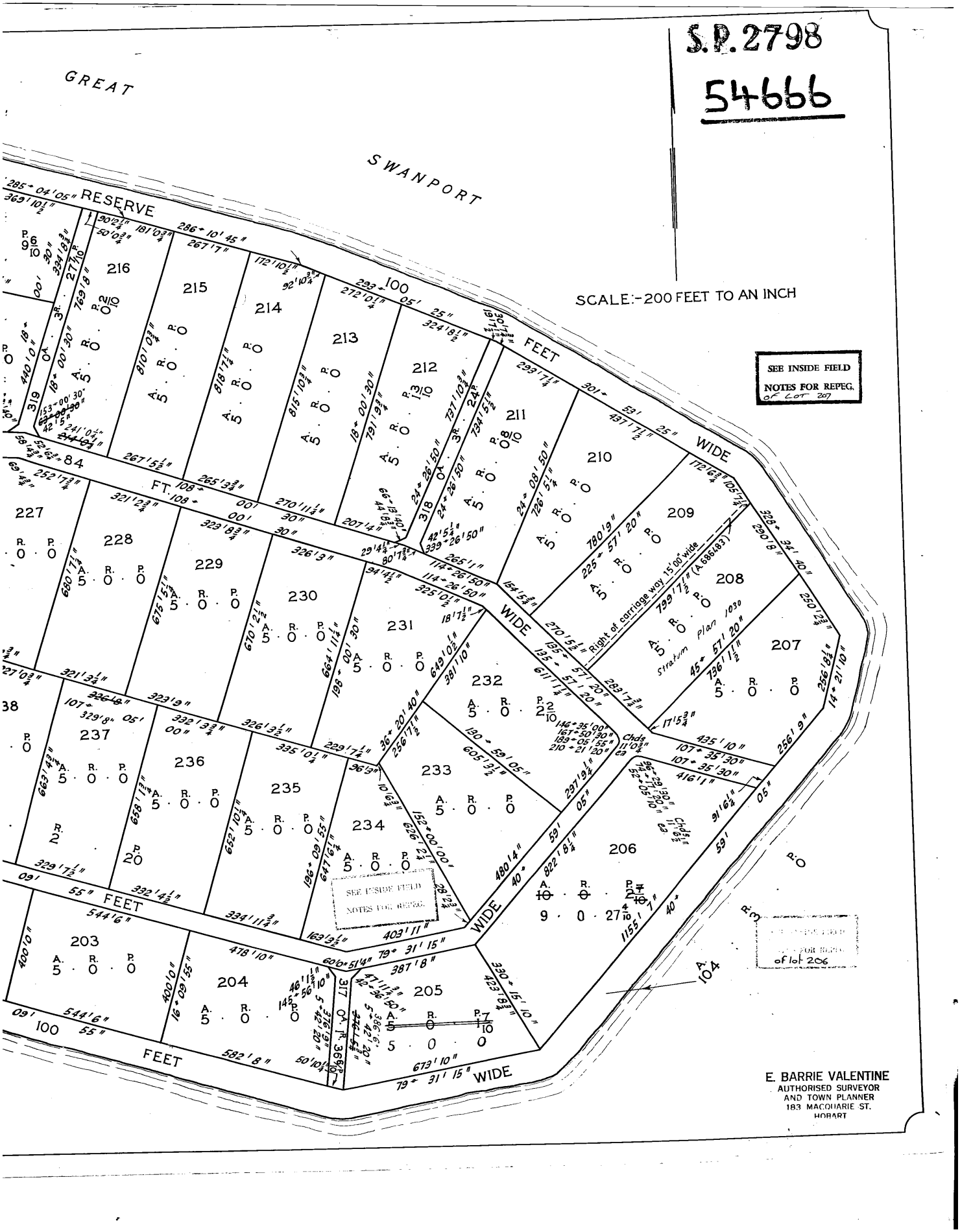
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Right of carriage way 15.00 wide (A.586483)
Stratum Plan 1030
SEE INSIDE FIELD NOTES FOR REPEG.
SEE INSIDE FIELD NOTES FOR REPEG. of lot 206
E. BARRIE VALENTINE
AUTHORISED SURVEYOR
AND TOWN PLANNER
183 MACQUARIE ST.
HOBART

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
54666	199
EDITION	DATE OF ISSUE
4	11-Oct-2018

SEARCH DATE : 15-Nov-2019
SEARCH TIME : 10.56 AM

DESCRIPTION OF LAND

Parish of CAMBRIA, Land District of GLAMORGAN
Lot 199 on Sealed Plan 54666 (formerly being SP2798)
Derivation : Part of Lot 36 Gtd to G Meredith
Prior CT 2699/36

SCHEDULE 1

M718452 TRANSFER to SARAH JANE O'CONNOR Registered 11-Oct-2018 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP 54666 BENEFITING EASEMENTS: Rights of Carriageway in Schedule of Easements
SP 54666 FENCING PROVISION in Schedule of Easements
E152399 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 11-Oct-2018 at 12.01 PM

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

SCHEDULE OF EASEMENTS

PLAN NO. S.P.2798

RECORDER OF TITLES TASMANIA

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

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

No covenants or profits a prender are created to benefit or burden any of the lots shown on the plan.

FENCING PROVISIONS : In respect of each of the lots shown on the said plan, except lot 242 C.H.I. (Tas.) Pty. Ltd. the Vendor shall not be required to fence.

EASEMENTS :

Each Lot in Column A is together with a right of carriage way over the Lots specified in Column B and together with a right ~~of way~~ of carriage way over the Right of Way (Private) shown on the plan.

COLUMN A	COLUMN B
~~Lots 1 - 240 inclusive~~ Lots 1 to 94 and 96 to 240.	Lots 295 - 320 inclusive

Lots 295 to 320 are each subject to a right of carriageway (appurtenant to lots 1 to 94 & 96 to 240.)

THE COMMON SEAL of C.H.I. (TAS.) PTY. LTD. the beneficial owner of the land in C.T. No. 41/8074 was hereunto affixed in the presence of RICHARD WARREN PORTER and MICHAEL JOHN DINON. The Committee appointed by the Directors for such purposes :

THE COMMON SEAL of MUTUAL ACCEPTANCE LIMITED AS Mortgagee under Indenture of Mortgage No. 42/55 was hereunto affixed by authority of a resolution of the Board of Directors in the presence of -

Directors

~~Directors.~~ Secretary.

CORRECT for the Purposes of the Real Property Act 1862 as amended

SIMMONS WOLFHAGEN SIMMONS & WALCH

Per:

CERTIFIED CORRECT for the purposes of the Real Property Act 1862 as amended. *Simmons, Wolfhagen, Simmons and Walsh*

This is the schedule of easements attached to the plan of C.H.I. (Tas). Pty. Ltd.

.....comprising part of the land in

.....

(Insert Title Reference)

Sealed by Municipality of Glamorgan on 2nd December 19 69

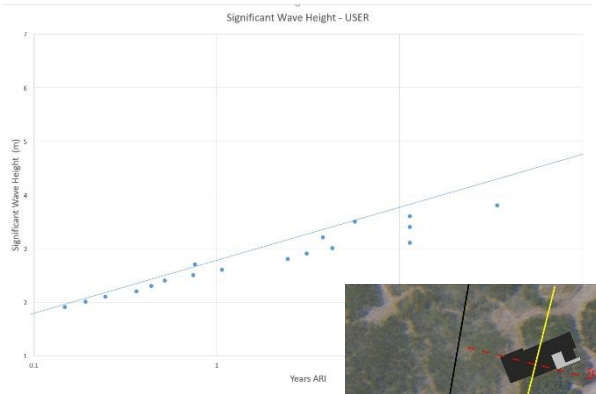
21020

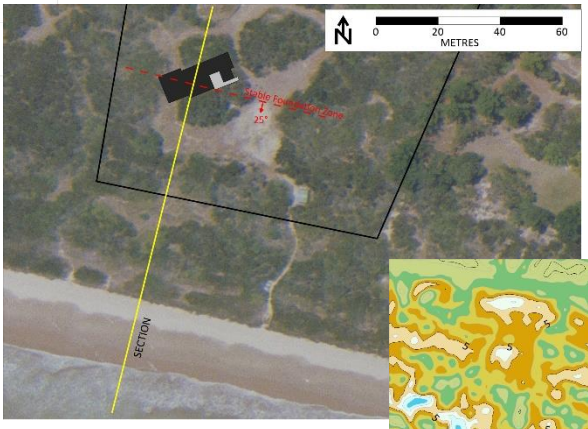
Council Clerk/Town Clerk

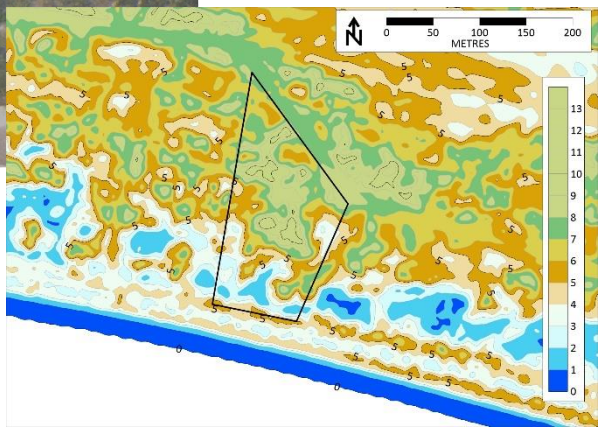
GEO-ENVIRONMENTAL SOLUTIONS

COASTAL VULNERABILITY ASSESSMENT

1533 Dolphin Sands Road, Dolphin Sands







CLIENT

Pinnacle Drafting

January 2020

Geo-Environmental Solutions P/L 29 Kirksway Place, Battery Point. Ph 6223 1839 Fax 6223 4539

Tables

Figures

Executive Summary

Geo-Environmental Solutions Pty Ltd (GES) were contracted by Pinnacle Drafting to prepare a coastal erosion hazard assessment for a property at Dolphin Sands. The project area consists of a single cadastral title (CT54666/199) located at 1533 Dolphin Sands Road (The Site).

An application to conduct construction works has triggered the assessment in accordance with the Council Interim Planning Scheme (IPS) 2015. A coastal vulnerability assessment is required given that part of the site is in the coastal erosion hazard overlay.

A detailed site specific hydrodynamic and sediment erosion assessment has been conducted to further assess the future geotechnical stability of the site and the proposed development.

This report presents a summary of the overall site risk to coastal erosion and inundation processes. This assessment has been conducted for the year 2070 which is representative of a 'normal' building design life category (ABCB 2015).

GES have concluded the following from the site assessment:

- Two separate recession modelled have been run at the site:
    - One which is based on the 1% AEP wave model and geometry of the beach profile, resulting in a recession estimate of 26 m horizontal by 2070 relative to the 2013 LIDAR profile; and
    - One which is based on historical observations from aerial images dating back to 1980 and correlations with sea level rise estimates with a recession estimate of 31 m horizontal based on the 2013 LIDAR profile. A design recession of 30 m horizontal has been adopted for the site.
- The storm erosion demand for the site has been estimated based on storm erosion observation history relative to the ongoing recession trendline. Erosion estimates are based on studies from similar beaches with a *Low Tide Terrace* type geomorphology. The projected storm erosion at the site is estimated at 50 m^3/m;
- Design storm erosion demand and 2070 coastline recession estimates are applied to the 2013 beach profile in a stable foundation zone analysis to determine the likely position of the stable ground by 2070. From the analysis it is determined that the proposed building foundations are set within the 2070 stable foundation zone;
- The main frontal dune is projected to be eroded by 2070, and wave runup has the potential to overtop the frontal dune and migrate inland.
- GES have identified that largest 1% AEP wave condition at the site is generated from a southerly swell wave with an offshore significant height of 4.5 m at 40 m water depth 30 km offshore to the south (CAWCR 2013) and a design wave height of 4.0 m AHD;
- Based on calculated 1% AEP swell waves and modelled erosion, wave run up inundation for 2070 is calculated to extend inland with estimated localised runup levels at 4.3 m AHD; and
- It is recommended that the proposed dwelling is established within the stable foundation zone.

List of Abbreviations

AHD(83)	Australian Height Datum
AEP	Annual Exceedance Probability
ARI	Average Reoccurrence Interval
CEM	Coastal Engineering Model
CEHC	Coastal Erosion Hazards Code
DCP	Dynamic Cone Penetrometer
DEM	Digital Elevation Model
DPAC	Department of Premier and Cabinet
ERMP	Erosion Risk Management plan
GES	Geo-Environmental Solutions Pty Ltd
GIS	Geographical Information System
IPAC	Inundation Prone Areas Code
IPCC	Intergovernmental Panel on Climate Change
IPS	Interim Planning Scheme
LiDAR	Light Detection And Ranging
LIST	Land and Information System, Tasmania
MRT	Mineral Resources Tasmania
NCCOE	National Committee on Coastal and Ocean Engineering
SB	Soil Bore
SPM	Shoreline Protection Manual
SSP	Surf Similarity Parameter
SWAN	Simulating Waves Nearshore
TAFI	Tasmanian Aquiculture and Fisheries Institute
WRL	Water Research Laboratory (University of New South Wales)

1 Introduction

Geo-Environmental Solutions Pty Ltd (GES) were contracted by Pinnacle Drafting to prepare a coastal erosion hazard assessment for a property at Dolphin Sands. The project area consists of a single cadastral title (CT54666/199) located at 1533 Dolphin Sands Road (The Site).

An application to conduct construction works has triggered the assessment in accordance with the Council Interim Planning Scheme (IPS) 2015. A coastal vulnerability assessment is required given that part of the site is in the coastal erosion hazard overlay.

A detailed site specific hydrodynamic and erosion assessment has been conducted to further assess the future geotechnical stability of the site and any proposed development.

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

2 Objectives

The objective of the site investigation is to:

- Identify which codes need to be addressed in terms of coastal vulnerability and identify the relevant performance criteria relevant to the project which need addressing;
- Identify generalised local area inundation potential;
- Conduct a site-specific inundation assessment by determining projected sea level rise, storm tides and site-specific hydrodynamic conditions;
- Conduct a comprehensive site erosion assessment to determine the geotechnical stability of the site considering coastal recession and storm erosion processes;
- Conduct a site risk assessment for the site ensuring relevant performance criteria are addressed; and
- Where applicable, provide recommendations on methods and design approach to reduce inundation impact.

3 Site Details

2.1 Project Area Land Title

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

- CT 54666/199

This parcel of land is referred to as the ‘Site’ and/or the ‘Project Area’ in this report.

2.2 Project Area Regional Coastal Setting

The Project Area is located at Dolphin Sands and fronts on Nine Mile Beach (Figure 1).

The site may be exposed to swell wave activity from the Southern Ocean and is exposed to coastal from within the Great Oyster Bay. The site is located on the western end of Nine Mile Beach and may be exposed to the following coastal processes:

- Wind fetch and wind setup from the south and southwest;
- Swell waves from the south;
- Storm tide inundation and longer-term sea level rise inundation;
- Coastline recession from sea level rise; and
- Short term coastal erosion from storm wave activity.

2.3 Project Area Local Setting

The site has an area of approximately 2.18 Ha and is set back approximately 25 m behind the frontal dune ridge (Figure 2) and 55 m from 0 m AHD. There is a relatively sharp vegetation boundary along the section of Nine Mile Beach indicating recent erosion.

Figure 1 Regional Location of Project Area - The Land and Information System, Tasmania (LIST)

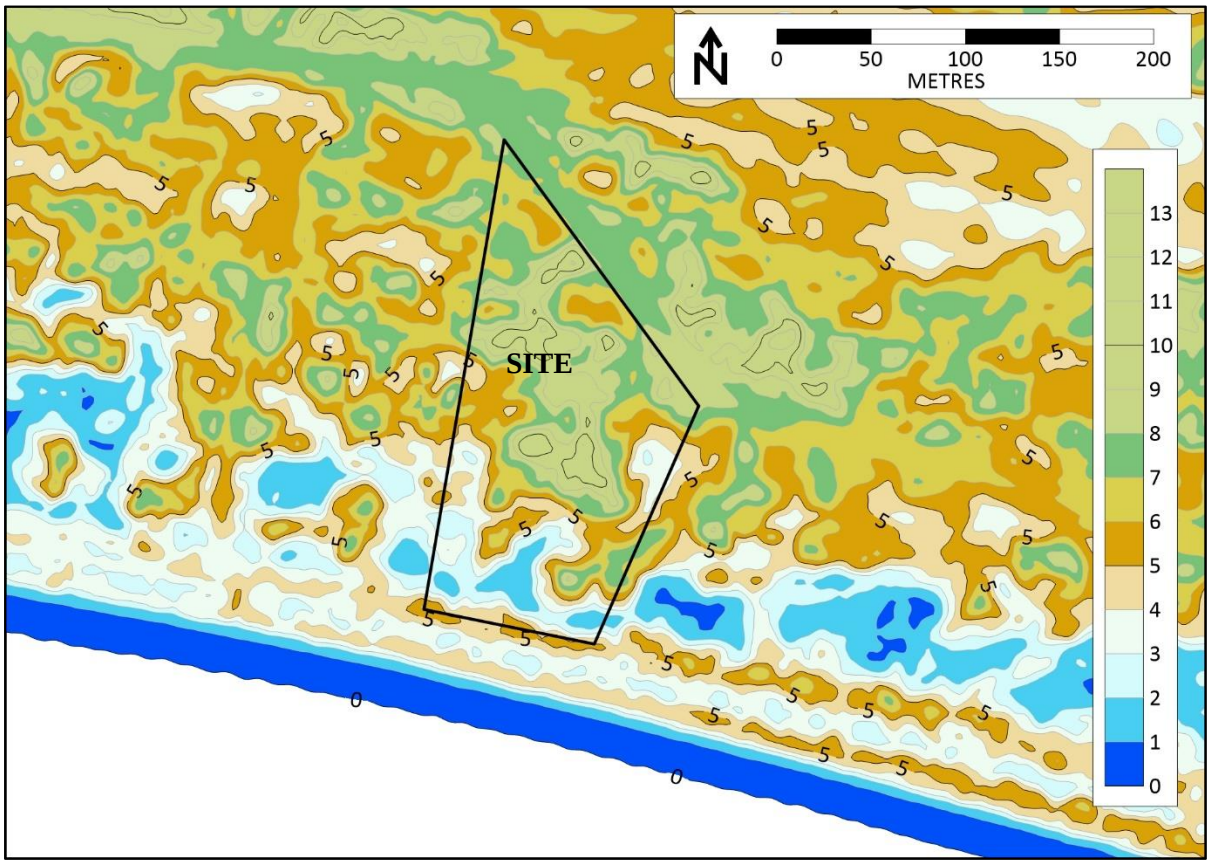


Figure 2 Site Local Setting

3 Planning

3.1 *Australian Building Code Board*

Per the Australian Building Code Board (ABCB 2015), when addressing building minimum design life:

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

As per Table 3-1, the building design life is 50 years for a normal building.

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

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

Note: Design Life (dl) in years

This assessment has been conducted for the year 2070 which is representative of a 'normal' 50-year building design life category based on a 2020 baseline (ABCB 2015).

3.2 Tasmanian Building Regulations

The Tasmanian Building Regulations are regulated by the Consumer, Building and Occupation Services (CBOS) department and are formed from the Tasmanian Building Act 2016. New state-wide planning

and building requirements are being implemented for hazardous areas. These include areas potentially subject to landslip, bushfire, flooding, coastal erosion, & costal inundation.

The changes are set out in Part 5 of the Building Regulations 2016, and in new hazardous area determinations are yet to be issued. Part 5 of the Building Regulations 2016 has not commenced so does not currently apply to work in hazardous areas.

The changes to planning and building controls for hazardous areas will take effect in each municipal area at the same time as the new Tasmanian Planning Scheme. Until then, the specific building requirements for areas subject to bushfire, landslip and flooding which are set out in the Building Act 2000 and Building Regulations 2014 will continue to apply. The changes are set out in Part 5 of the Building Regulations 2016, and in new hazardous area Determinations issued by the Director of Building Control.

At the time of writing this report, the Building Act 2000 and Building Regulations 2014 apply and not the Tasmanian Building Regulations. Following introduction of the Building Regulations 2016, an addendum to this report will be required to ensure building regulations presented in Appendix 1 & Appendix 2 are met.

3.3 The Tasmanian Building Act 2000

3.3.1 Inundation

The Tasmanian Building Act 2000, section 159 states that "the floor level of each habitable room in the building is 300 millimetres or more above the prescribed designated floor level for that land".

This indicates that the habitable floor area must be 0.3 m above the design inundation level.

3.3.2 Erosion

There is no reference to erosion within the Tasmanian Building Act 2000. Erosion areas may also be classified as landslip, but designations are limited to proclaimed areas only.

3.4 Interim Planning Scheme Overlays

3.4.1 Waterways & Coastal Protection Areas (WCPA) Overlay

None of the site falls within of the Waterways & Coastal Protection Areas (WCPA) overlay (Figure 3).

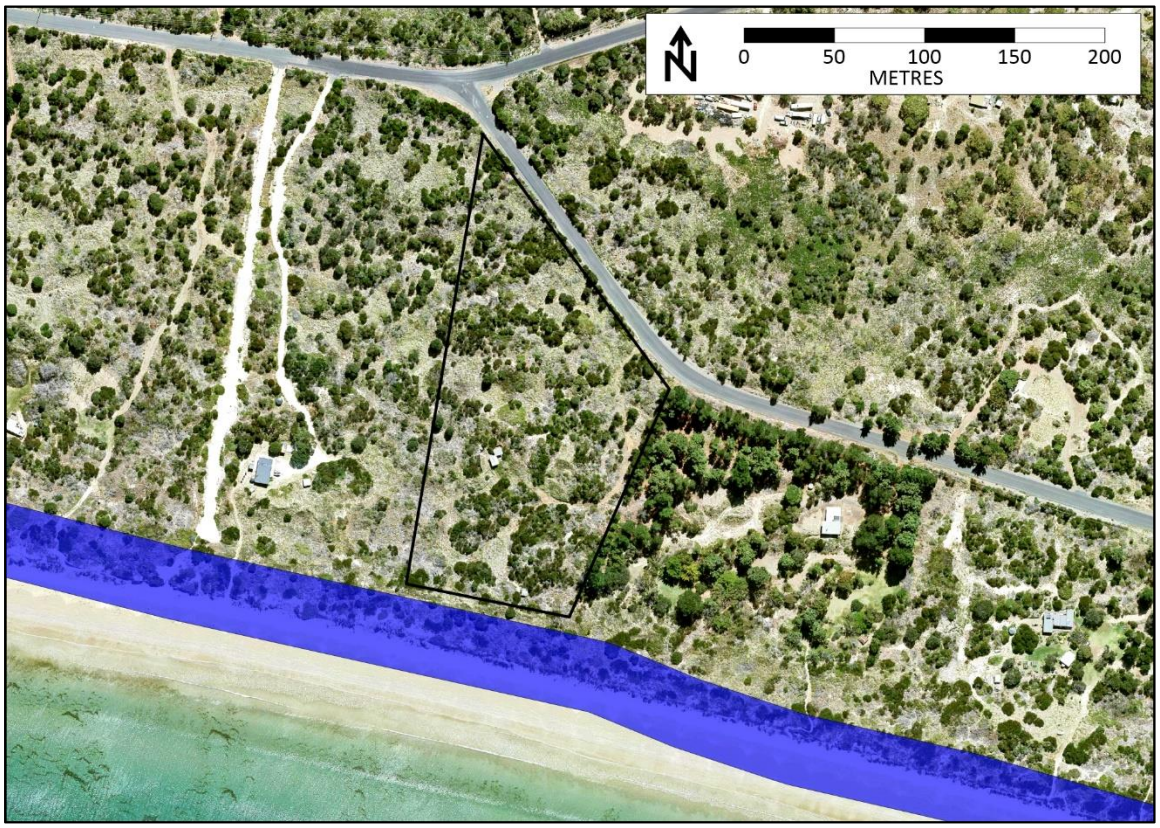


Figure 3 WCPA Overlay (Blue Shading) near the Site

3.4.2 Inundation Prone Areas Code (IPAC) Overlay

Part of the site resides within the Coastal IPAC Low Hazard overlay.

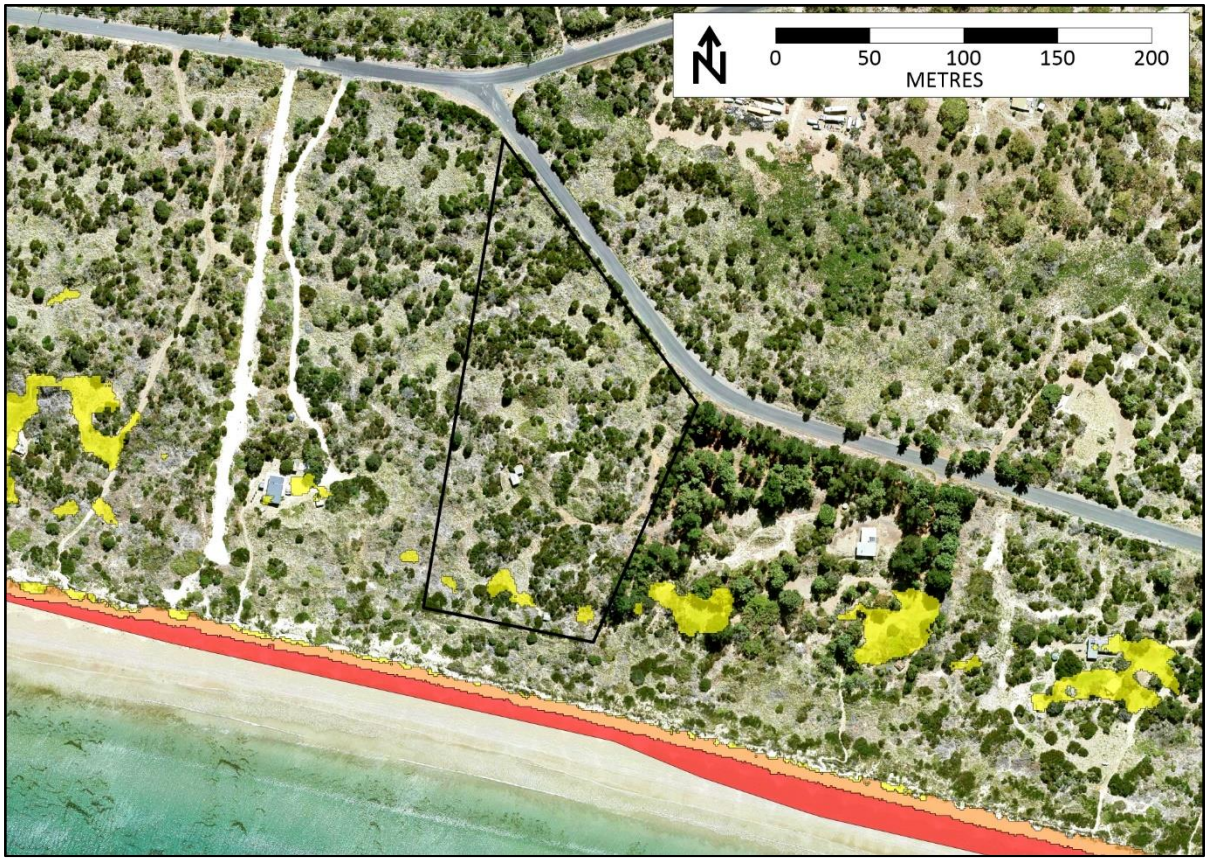


Figure 4 IPAC Overlay near the Site

3.4.3 Coastal Erosion Hazards Code (CEHC) Overlay

Part of the site falls within the coastal erosion hazard overlay (Figure 5).

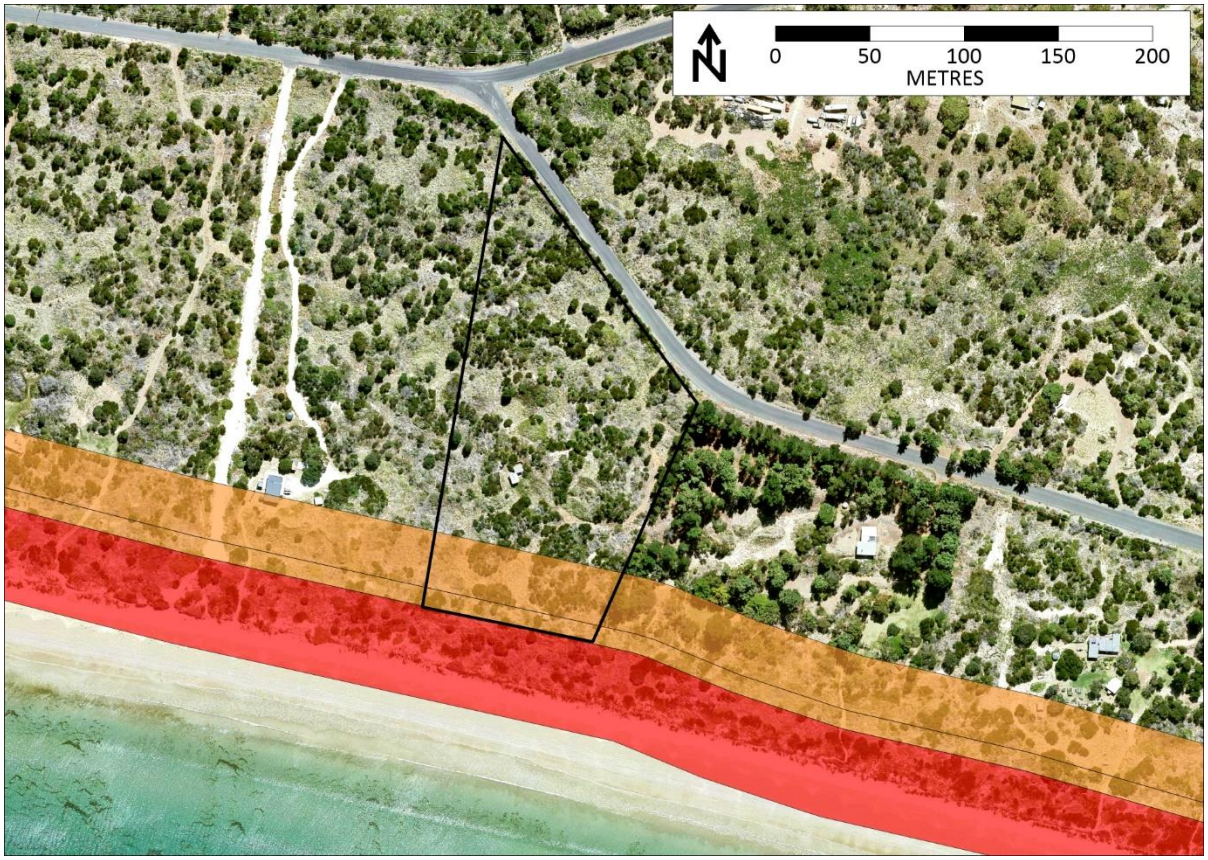


Figure 5 CEHC Overlay near the Site

3.5 Proposed Development

It is proposed that a single-storey dwelling is constructed at the site. The proposed dwelling is to comprise a suspended timber floor to an elevation of 6.95 m AHD. This assessment has been conducted for the year 2070 which is representative of a 'normal' building design life category for year 2020 (ABCB 2015).

Overlay codes which need to be addressed are presented in Table 1. A portion of the site resides is within the coastal erosion hazard code area where building and works are likely to be present.

The Swansea LIDAR elevations have been used to assess site elevations. Based on the LIDAR, it is estimated the average elevation is approximately 0.4 m higher than the site survey elevation. The LIDAR has therefore been locally adjusted to better represent the actual ground levels digitally for the purpose of erosion volume estimations. The digital survey provided by Rogerson and Birch have been adopted in this assessment. There are no apparent inundation hazard overlay impediments to building at the site.

Table 1 Summary of Site Areas Falling Within Potential Coastal Vulnerability Zones

Site Location	Elevation Range (m AHD)	WCPA (E11) Overlay	IPAC (E15.7.3) Overlay Low Risk*	IPAC (E15.7.2) Overlay Medium Risk	IPAC (E15.7.1) Overlay High Risk	CEHC (E16) Overlay
Proposed Building	6.95	-	-	-	-	25%

- Outside of Overlay

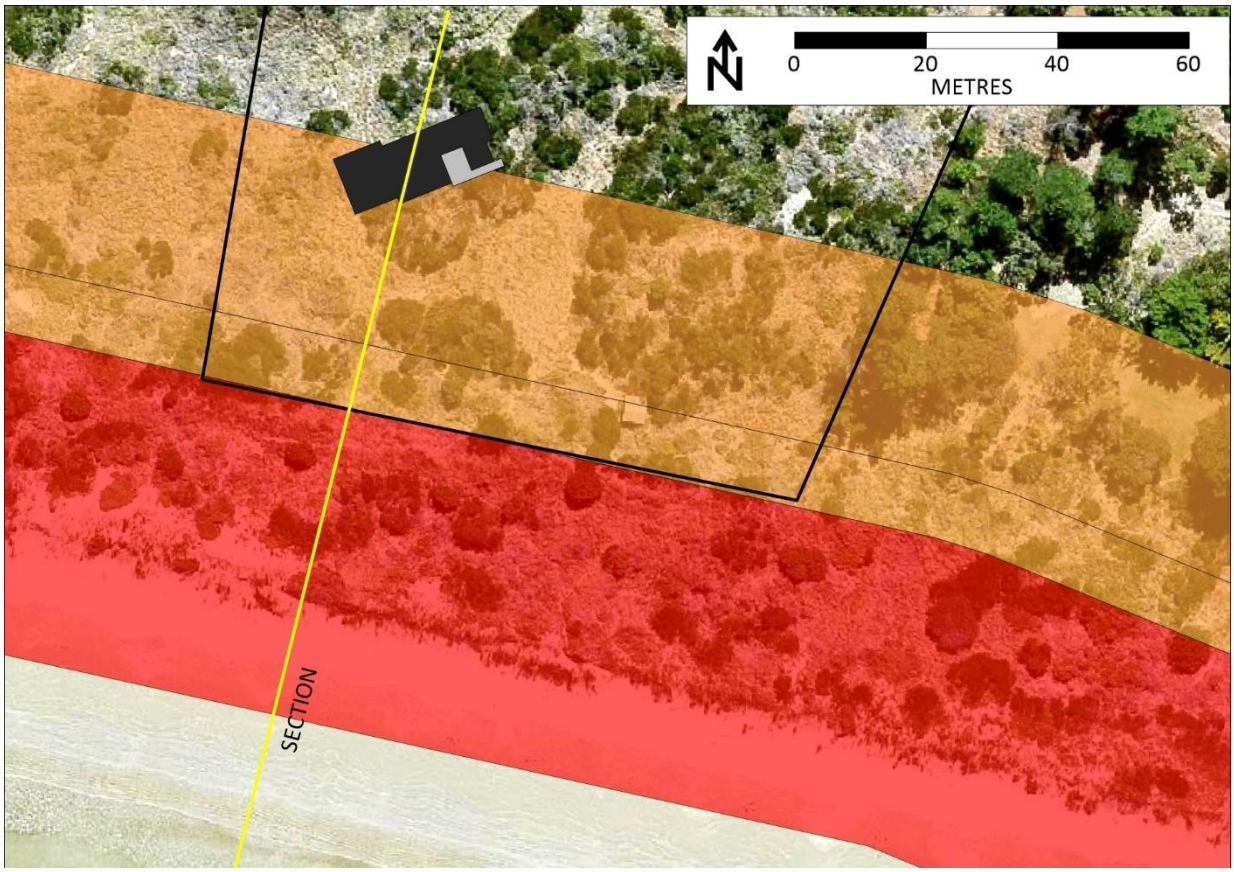


Figure 6 Proposed Development & Cross Section for Erosion Assessment

3.6 Acceptable Solutions

Where applicable, the need for further performance criteria compliance is outlined in Appendix 3.

3.6.1 Coastal Erosion Hazard Code (CEHC) Areas

Given that part of the development resides in the CEHC Area, and there are no acceptable solutions for buildings and works in a CEHC Area, the E16.7.1 P1 performance criteria will need to be addressed.

3.7 Performance Criteria

The following performance criteria need to be addressed:

- *E16.7.1 P1*

4 Physical Site Assessment

4.1 Coastal Erosion Overview

Based on the first pass mapping, supported by ground assessment of surface soils, the project area is considered vulnerable to the combined effects of both storm surge erosion and shoreline recession in response to sea level rise (long term impacts).

4.2 Geology

Geological mapping of surface geology is available from Mineral Resources Tasmania. The MRT geological mapping indicates that the predominant lithology interpreted to underlie the site comprises undifferentiated Quaternary sediments (Sand gravel and mud of alluvial) of lacustrine and littoral origin (Qh).

4.3 Geomorphology

The proposed development site is located on vegetation stabilised coastal dune system. The proposed development is located on a substantial sand dune ridge deposits which extend up to 1 km inland of Nine Mile Beach (Figure 2). The dunes between the proposed development and the coastline range in height from 1.4 to 11.0 m AHD.

5 Hydrodynamic Assessment

5.1 Previous Studies

GES conducted previous hydrodynamic studies in the area using wave height approximations only.

GES have conducted this hydrodynamic assessment using a broad dataset based on historical wind observations which are applied to a wave model (Wavewatch III). These observations are combined with a SWAN wave attenuation model to project future wave climate conditions at the site.

Other information collected in the assessment is available in The LIST website.

5.2 Site Baseline Seawater Levels

5.2.1 Storm Tide

Storm tide events may be defined in terms of the culmination of astronomical tide and storm surge events. Maximum storm tide inundation levels have been adopted for the site based on a 1% AEP that an inundation event will occur. Storm tide levels are obtained from the IPS (2015) inundation hazard tables.

The storm tide level adopted for the site 1.12 m

5.2.2 Sea Level Rise

The IPS (2015) has adopted the following sea level rise estimates based DPAC projections with reference to a 2010 baseline:

- 0.2 m rise by 2050; and
- 0.8 m rise by 2100.

Based on these figures, sea level elevations presented in Table 2

Table 2 Inundation Level Based on Historical Data (Church and White 2011) & DPAC (2012) Projections

Year	Sea Level Projections*	
	2010 Baseline (m) m	(1972 Baseline) m AHD[83]
Historical Sea Level Charts (Church and White 2011)		
1980.3		0.017
1990.1		0.038
1996.0		0.051
2003.1		0.066
2008.2		0.077
2009.8		0.080
2011.0	0.003	0.083
2013.7	0.011	0.091
2014.9	0.015	0.096
2015.0	0.015	0.096
2016.0	0.019	0.099
2018.8	0.030	0.110
2019.1	0.031	0.112
Sea Levels Based on IPS sea level rise scenario modelled for the Southern Districts IPS (2015)		
2010	0.000	0.081
2020	0.027	0.107
2050	0.200	0.281
2070	0.393	0.474
2070	0.393	0.474
2080	0.513	0.594
2100	0.800	0.881

Table 3 Present Day & Projected Inundation Levels for 2070 & 2100 based on DPAC (2012) estimates.

Scenario	Present Day	Normal subsystems with 15 Year Design Life[1]	Normal subsystems with 50 Year Design Life[2]
Projected IPS Scenario for Glanmorgan Spring Bay	**2020 IPS**	**2035 IPS**	**2070 IPS**
Sea Levels (m AHD)	0.11	0.18	0.47

5.2.3 Stillwater Levels

The effects of storm tide may be combined with sea levels projections to provide baseline water levels (reported in m AHD) which are referred to as still water level.

The still-water levels adopted for the site is based on 1% AEP storm tides and 2070 inundation levels derived from DPAC (2012) estimates (Table 4).

Table 4 Summary of Site Stillwater Levels for Present Day, projected 2070 & 2100 Inundation Levels based on DPAC (2012) estimates.

Stillwater Elevations	2020 IPS	2070 IPS
Sea Levels (m AHD) Sea Levels (m AHD)	0.11	0.47
Local 1% AEP Storm Tide Influence (above 0 m AHD)	1.04	1.04
Local Wind Setup (m)*	0.14	0.14
Wind Setup Direction	south	south
Summary (m AHD)	1.29	1.65

*Based on an astronomical tide event

5.3 Site Hydrodynamics

Coastal process hydrodynamics were assessed at the site. Information collected is used to assist in interpreting site specific:

- Maximum site inundation levels;
- Effects of storm inundation levels on site erosion;
- Longer term recession trends.

Without consideration of site hydrodynamic wave models, these potential hazards cannot be addressed. Depending on the planning requirements and the level of site risk, this information may or may not have not have been utilised in the site inundation and/or erosion model. It is recognised however, that a site specific coastal processes study is imperative in any coastal vulnerability assessment which seeks to identify the potential hazards and potential risks to assets and life.

5.3.1 Methods

Some of the information obtained for the models is extracted directly from the IPS (2015) inundation level tables. Other information has been collected from historical models such as Simulating Waves Nearshore (SWAN) significant offshore swell wave height models. The site nearshore swell wave height used in the model is derived from:

- Extraction of hourly significant wave height and wave period data from hind-cast WAVEWATCH III model (CAWCR 2013) based on a 31-year data period from 1979 to 2010;
- The wave grid point selected is based on the largest swell wave in 60 m water depth (proven to be most accurate by CAWCR);
- Data is extracted for a specific wave direction towards the site using either a set wave direction or site specific wave direction using a +/- 15° threshold data capture radius;
- Use the dataset to project a 1% AEP significant wave height;
- Apply the wave height and calculated wave period to a SWAN model to determine wave attenuation using the bathymetry (Navionics) between the wave grid point and the site; and
- All other nearshore wave and erosion processes are based on this final nearshore wave height.

Nearshore wave heights are also calculated from localised wind conditions.

Where applicable, the wind fetch wave model has been developed based on the CEM (2008) and SPM (1984) formulations which interpret site bathymetry, topography and wind speeds.

Hydrodynamic risks are measured in terms of 1% AEP events. Site specific processes considered in this section include but are not limited to the following (some of which are detailed in Figure 8):

- Wave runup;
- Wave setup; and
- Wind setup.

A 300 mm freeboard value has been adopted by the IPS (2015) to account to for the Tasmanian Building Act 2000 regulations. Site hydrodynamic factors are included within this 300 mm freeboard zone which essentially defines any hydrodynamic inundation processes which are above the adopted still water levels. The 300 mm value will tend to overestimate inundation levels at some sites and underestimate inundation levels at other sites.

As wind setup, wave setup and wave runup normally occur simultaneously during storm surge events, these components are combined with extreme tide and storm surge predictions to provide maximum inundation levels for the site. Wave models have been generated for the site to define the site specific hazards.

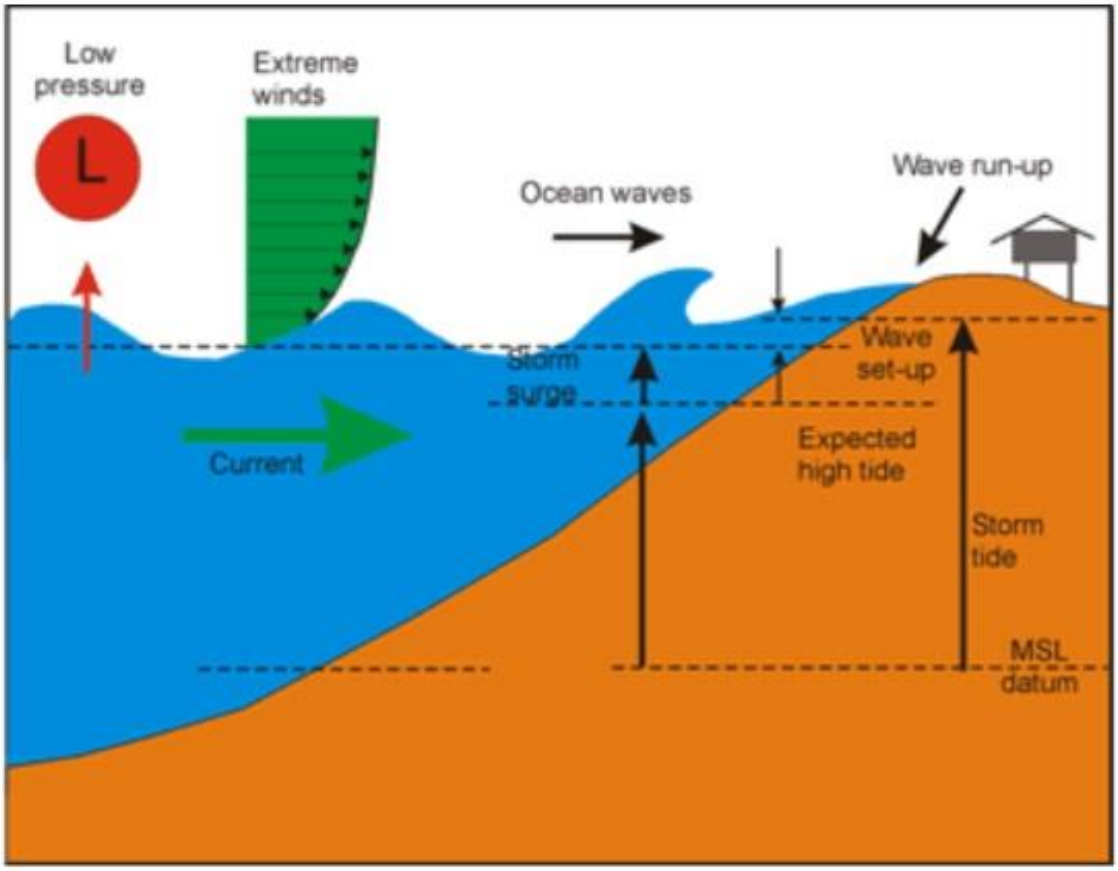


Figure 7 Hydrodynamic Parameters Associated with Storm Surge Events

5.3.2 Site Wave Conditions

Radials and significant swell wave heights used to derive local wave conditions at the site are presented in Appendix 4. Table 5 provides a summary of the dominant waves intercepting the site.

Table 5 Summary of Dominant Waves Intercepting the Site

Wave Details	Swell Wave
Direction	South
Wave Height (m)	4.0
Period (s)	15.0
Approach Angle	30

5.3.3 Dominant Wave Characteristics

*The main 1% AEP dominant wave to intercept the site originates from an attenuated southerly swell wave with a design wave height of 4.0 m and a wave period of 15 seconds (*Table 6*). This data is derived from an offshore wave height of 4.5 m directed at an angle of 180° towards the site from BOM hindcast wave modelling point 148.20 ° longitude and 42.33° latitude. -*

Table 6 Details of the Dominant Wave Intercepting the Site

Wave Position	Parameter	Value
Nearshore (Design Significant Wave)	Origin	Swell Wave
	Direction	South
	Approach Angle	30
	Wave Height (m)	4.0
	Design Period (s)	15.0
Breaking	Breaker Height (m)	3.8
	Breaking Depth (m)	6.4
	Breaking Angle	15
	Nearshore Gradient (%)	1.0

5.3.4 Nearshore Hydrodynamics

Hydrodynamic variables calculated for the site are presented in Table 7. Inundation levels at the site are calculated from these individual components combined with the Stillwater levels.

Table 7 Site 1% AEP Wave Hydrodynamics Based on Present Day & 2070 Scenarios

Coastal Process	2020 IPS	2070 IPS
Modelled Worst Case Scenario Combined Wave & Wind Setup	Southerly Swell	Southerly Swell
Wave Setup (m)	0.48	0.48
Wind Setup (m)	0.14	0.14
Wave Runup Scenario	Southerly Swell	Southerly Swell
R2% Wave Runup Based on Mase (1989)*	2.89	2.63

5.4 Site Inundation Levels

Table 8 presents a summary of the site inundation levels based on 1% AEP still water, wind setup where applicable, wave runup and wave setup inundation levels for present day, 2070 building design life and 2100 DPAC scenarios.

Table 8 Site Coastal Inundation Levels Based on Present Day, 2070 & 2100 1% AEP Scenarios

1% AEP Inundation Levels (m AHD)	2020 IPS	2070 IPS
Coastal Still Water Elevations Including Wind Setup	1.29	1.65
Wave Setup Inundation	1.77	2.14
R2% Wave Runup Elevations Based on (Mase 1989)*	4.18	4.29

Wave runup at the site is projected to reach elevations of approximately 4.3 m AHD by 2070 based on a 1% AEP present day storm event and projected sea levels (DPAC 2012). Wave runup (based on a 2070 erosion profile) is not projected to migrate beyond the limits of the proposed development based on a smooth beach profile (Mase 1987).

5.5 Summary

The following can be concluded from the detailed hydrodynamic assessment:

- GES have identified that the largest 1% AEP wave condition at the site is generated from a southerly swell wave with an offshore significant height of 4.5 m at 40 m water depth approximately 30 km offshore to the south (CAWCR 2013) and a design wave height of 4.0 m AHD located approximately 5 km offshore;
- Based on calculated 1% AEP swell waves and modelled erosion, wave run up inundation for 2070 is calculated to extend inland with estimated localised runup levels at 4.3 m AHD;
- Site specific wave modelling has been conducted to determine wave conditions which are influencing site recession and storm erosion;
- A storm erosion assessment has been conducted to determine the extent to which the frontal dunes are expected to be impacted by storm waves and sea level rise induced recession;
- The potential for site inundation is calculated based on the sites future erosion extent.

6 Coastal Erosion Assessment

6.1 Previous Studies

GES have conducted recession and storm erosion assessments in the area which are based on conservative approximations. Calculations presented herein are based on more advanced modelling.

6.2 Scope of Works

Table 9.presents a summary of the various methods adopted by GES to identify erosion hazards in vulnerable coastal zones.

Table 9 Summary of Assessment Approaches for Identify Site Erosion Hazards

Investigative Approach	Investigation Details	Typical Application
Long Term Historical Aerial Imaging	Assess historical long term shoreline position relative to sea levels at the time and how this may translate to future recession trends	Where the proposed development is in a medium to high risk erosion zone and recession models need confirmation or may not apply given the coastal setting
Short Term Site Historical Aerial Imaging	Assess historical short term shoreline positions relative to known storm events to forward project sediment storm erosion demand.	Used where Tasmarc surveys are not available or there is no previous storm erosion modelling done for the site.
Storm Erosion Demand	Conduct a detailed assessment of site storm erosion vulnerability due to coastal processes as well as available geological and geomorphological information	Where site is in an inferred to be in an erosion hazard zone and where the proposed development building cannot be founded on a stable foundation.
Shoreline Recession Model	Development of a long term shoreline recession model based on projected DPAC (2012) sea level rise scenarios and using calculated closure depths and various Bruun Rule formulations (1988)	Where site is in an inferred to be in an erosion hazard zone and where the proposed development building cannot be founded on a stable foundation.
Stable Foundation Zones	Development of a cross section through the site detailing zone of reduced foundation capacity and the stable foundation zone through Nielsen et. al. (1992) methods	Where site is in an inferred to be in an erosion hazard zone and where the proposed development building cannot be founded on a stable foundation.

6.3 Bruun Recession Analysis

The Bruun Rule has been applied to the site to estimate the response of the shoreline profile to sea-level rise. The Bruun Rule is widely used by government and non-government bodies to determine recession rates on sandy shores which are at risk of inundation. The Bruun Rule states that a typical concave-upward beach profile erodes sand from the beach face and deposits it offshore to maintain constant water depth. There are a few cases where the Bruun rule cannot be applied, which include where longshore drift is predominant, where there is dominant influence of surrounding headlands and in environments where wave activity is minimal.

6.3.1 Closure Depths

The most contentious variable for the Bruun rule is the closure depth for which various formulations and methods exist. The closure depth may be defined as the depth offshore of a beach where depths do not change with time. The closure depth has been calculated based on the Hallermeier (1978) method using parameters outlined in Table 10.

Table 10 Variables Selected for Determining Closure Depths at the Site

Variable	Value
Breaker Height	3.90
Wave Period (s)	15
Average Sand Grain Size (mm)	0.4
Slope At Closure	1/117
Closure depth (m)	6.00

6.3.2 Bruun Rule Beach Recession Model

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

The Standard Bruun Rule is typically expressed as R = s(L/(D + h)) and is illustrated in Figure 8.

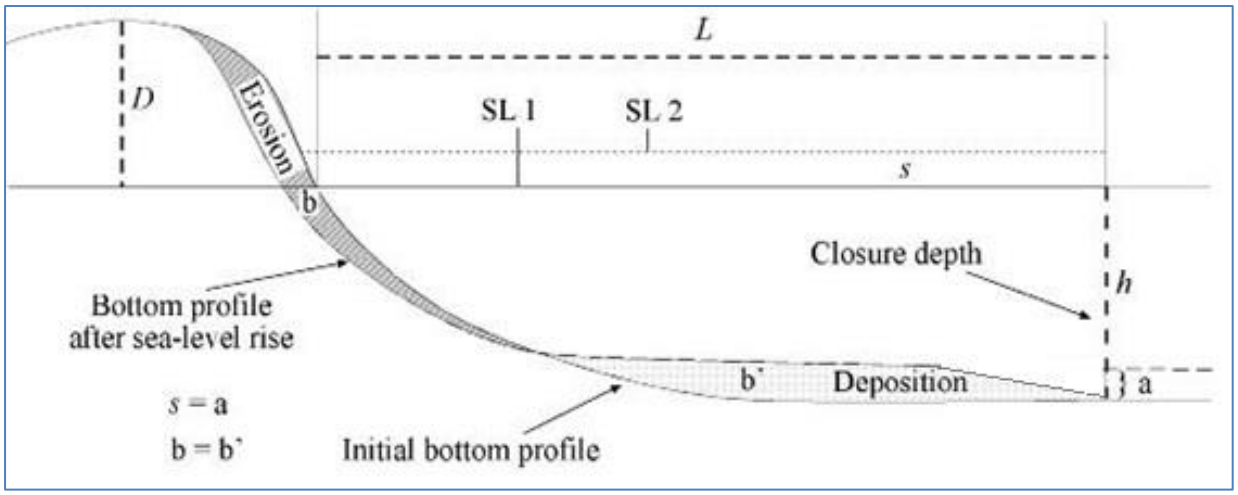


Figure 8 Summary of standard Bruun Rule for Calculating Beach Recession

Table 11 presents a summary of the Bruun Rule variables utilised in the site recession model which have been obtained from the digital elevation models for the site.

Table 11 Summary Bruun Rule Variables Utilised in the Site Recession Model

Variable	Symbol	Value
Length of Active Erosion Zone (m)	L	600
Profile Closure Depth (m)	h	6.00
Active Dune/Berm Height (m)	D	3.00

The recession rate given the various sea level rise scenarios are presented in **Table 12**.

Table 12 Calculated Bruun Rule Recession Rate at the Site

Variable	Symbol	2070 IPS
Sea Level Rise above 2013 DPAC LiDAR baseline (m)	s	0.39
Horizontal Recession (m)	R	26

6.4 Aerial Photography Recession Assessment

The coastline positions from 13 separate historical aerial images dating back to 1969 were compared with historical sea level measurements (Church & White 2011) and projected 2050 and 2100 sea levels as outlined in the IPS (2015) workings. Workings from the assessment are presented in Appendix 5.

Findings from the assessment are presented in Table 13.

Table 13 Summary of Coastline Recession Analysis

Variable	Value
Recession Profile ID	1533 Dolphin Sands Road
2050 & 2100 sea level rise planning allowance adopted given 2010 baseline (DPAC 2016)	0.24 & 0.92 m
Confidence In Relationship (R^2)	0.53
Computer Generated Bruun Rule Relationship (horizontal recession per metre sea level rise)	80
Manually Inferred Recession Trend (Bruun Rule Relationship)	No Adjustment
Adopted Bruun Rule Relationship	**80**
Projected 2070 Horizontal Recession Relative to Geoscience Australia LIDAR	**31**

A coastline recession of 30 m horizontal is recommended for the site by 2070 based on the 2013 LIDAR Survey

6.5 Storm Erosion Demand Assessment

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

Findings from the storm erosion assessment are presented in Table 14. The generalised Martini et. al. (2012) recommendations do fit for the site.

Table 14 Projected Storm Erosion for the Site Based on Observational History & Beach Geomorphology

	1533 Dolphin Sands Road beach morphology
Ozcoasts Beach Form Type	Low Tide Terrace Transverse Bar & Rip
Selected Merani et. al. (2012) Beach Form Type	Wave Dominated Low Tide Terrace
Variable	**Storm Erosion (m^3/m)**
1 Year ARI:	43
10 Year ARI:	59
100 Year ARI:	65
2 x 100 Year ARI:	75
Years of Data	38.8
Expected Storm Erosion Demand Based on Data Period	50
Observed Storm Erosion Over Period	41
Projected 2 x 100 Year ARI Storm Event	**50**

A storm erosion demand of 50 m3/m is recommended for the investigation

6.6 Stable Foundation Zone

A stable foundation zone assessment has been conducted for the site. The basis behind this particular assessment involves the use of Nielsen et. al. (1992) methods for assessing stable foundation zones in sand. A cross section has been constructed through the site to indicate the worst case scenario 2070 sea level rise scenario based on recession modelling (Figure 9 & Figure 10). The storm erosion demand has been constructed based on Nielsen et. al. (1992) equations which use a 1:10 post storm gradient.

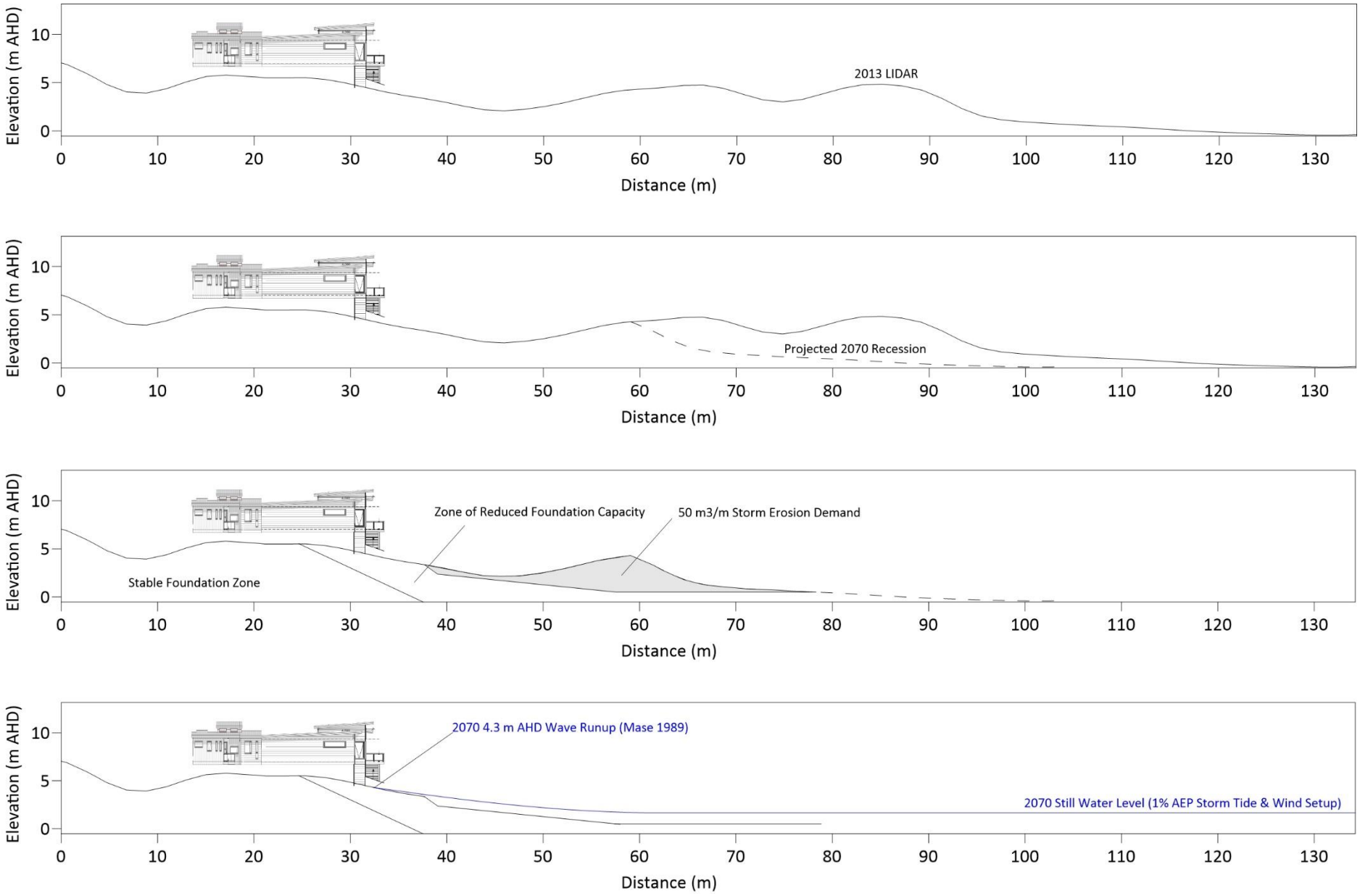


Figure 9 Site Cross Sections Demonstrating 2070 Recession, 50 m^3/m Storm Erosion Demand, and Inferred Inundation Levels & Wave Runup Extent

6.7 Summary

The following can be concluded from the coastal erosion assessment:

- Two separate recession modelled have been run at the site:
  - One which is based on the 1% AEP wave model and geometry of the beach profile, resulting in a recession estimate of 26 m horizontal by 2070 relative to the 2013 LIDAR profile; and
  - One which is based on historical observations from aerial images dating back to 1980 and correlations with sea level rise estimates with a recession estimate of 31 m horizontal based on the 2013 LIDAR profile. A design recession of 30 m horizontal has been adopted for the site.
- The storm erosion demand for the site has been estimated based on storm erosion observation history relative to the ongoing recession trendline. Erosion estimates are based on studies from similar beaches with a *Low Tide Terrace* type geomorphology. The projected storm erosion at the site is estimated at 50 m^3/m;
- Design storm erosion demand and 2070 coastline recession estimates are applied to the 2013 beach profile in a stable foundation zone analysis to determine the likely position of the stable ground by 2070. From the analysis it is determined that the proposed building foundations are set within the 2070 stable foundation zone;
- The main frontal dune is projected to be eroded by 2070, and wave runup has the potential to overtop the frontal dune and migrate inland.

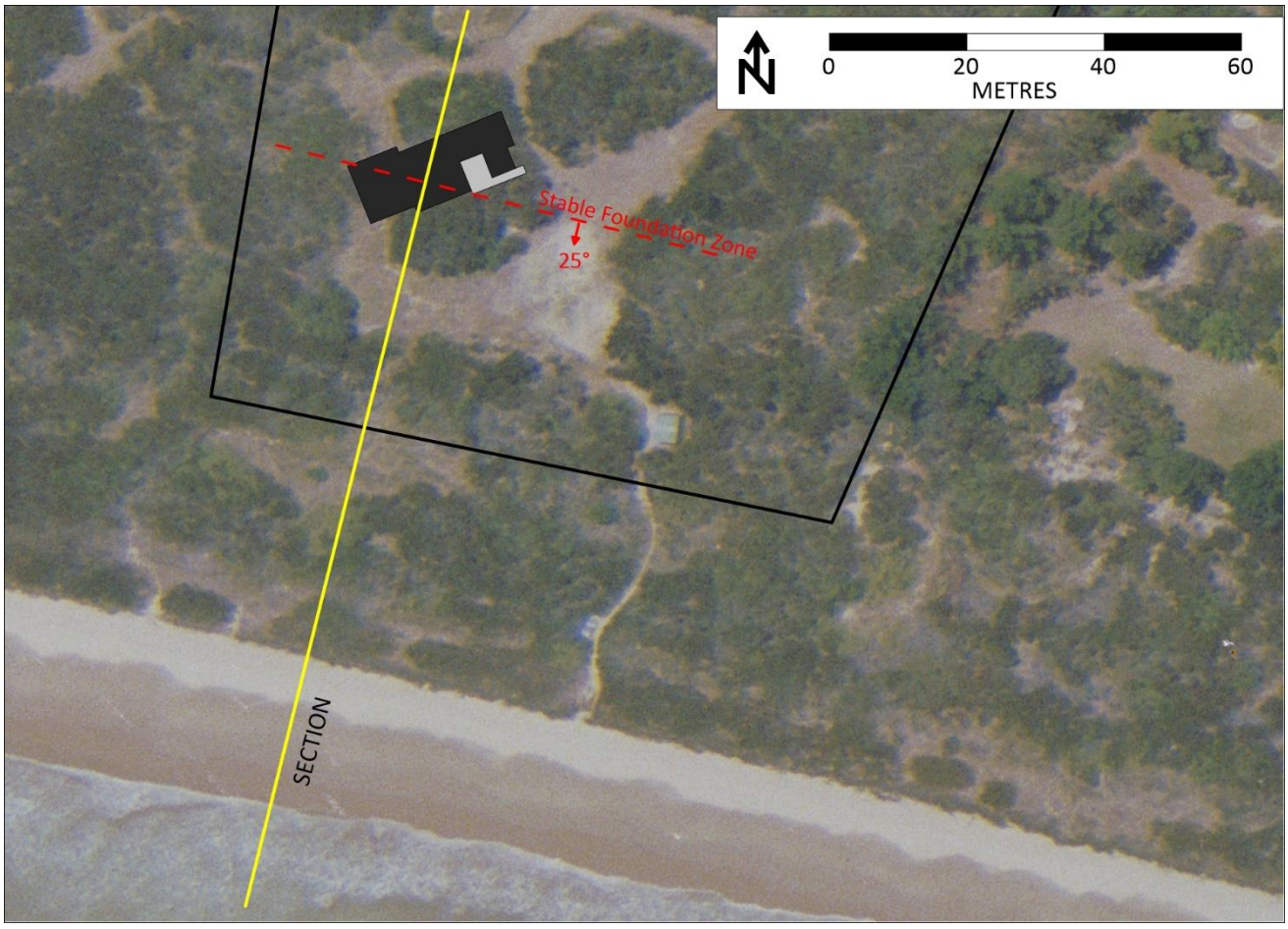


Figure 10 Stable Foundation Zone Extending at a 25° Angle Towards the Coastline

7 Risk Assessment

The qualitative risk assessment criteria have been developed to identify key risks that may arise from building works in areas that are vulnerable to erosion or inundation hazards. The risk assessment is based on year 2070 scenario.

The criteria are based on a risk assessment matrix consistent with Australian Standard AS4360 on Risk Management (AS4360). The qualitative assessment of risk severity and likelihood (Appendix 6) were used to help provide a qualitative risk assessment based upon the coastal vulnerability assessment completed for the site.

A detailed risk assessment addressing the performance criteria is presented in Appendix 7.

8 Recommendations

GES recommends the following:

- The proposed development will need to be founded within the stable foundation zone. Most of the building envelope already resides within the stable foundation zone. Foundations will need to extend deeper on the coastal side of the stable foundation zone delineation; and
- The finished floor level is well above the identified 2070 wave runup level.

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9 Limitations

The following limitations apply to this report:

- Wave modelling in accordance with the CEM (2008), the SPM (1984) and wind parameters from AS/NZS 1170.2:2011;
- Wavewatch III hind-cast modelling;
- Published SWAN swell modelling information where available;
- Published water current information;
- Navionics, TAFI, Geoscience Australia and Australia Hydrographic Service bathymetry;
- Light Detection And Ranging (LIDAR) digital elevation model is calibrated or assessed to the closest ground control point for determining relative accuracy;
- Storm surge observations where applicable
- The LIST cadastral information
- Photogrammetric modelling of historic coastal recession and/or progradation for the site was not undertaken. However, historic aerial photographs for the project area were reviewed and incorporated into a geographic information system enabling preliminary measurements of dune variations.
- The values estimated in this report provide an order of magnitude for assessing climate change impacts and in particular climate change induced sea level rise impacts. The information is based on a collation of existing information and data, with some site-specific modelling for planning purposes.

10 References

ABCB 2015. Durability in Buildings Including Plumbing Installations. Second Edition. Handbook. Non-Mandatory Document. Australian Building Code Board 2015.

ABCB 2014. Resilience of Buildings to Extreme Weather Events. Final Paper. Australian Building Code Board 2015.

AMS 2007. American Meteorological Society Glossary of Meteorology. Retrieved 2007-06-30. Antarctic Climate & Ecosystems Cooperative Research Centre (ACE CRC), 2010.

AS 1170.2:2011. Australian and New Zealand Standard. Structural Design Actions. Part 2: Wind Actions.

Australian Bureau of Meteorology (2007). (BOM) Meteorological Averages. Weather Station Data; http://www.bom.gov.au/climate/data/weather-data.shtml, accessed September 2010

Bruun, P., 1988, "The Bruun Rule of Erosion by Sea Level Rise: A Discussion on Large Scale Two- and Three-Dimensional Usages", Journal of Coastal Research, 4(4), 627-648.

CARLEY, J.T., BLACKA, M.J., TIMMS, W.A., ANDERSEN, M.S., MARIANI, A., RAYNER, D.S., McARTHUR, J. & COX, R.J., 2008: Coastal Processes, Coastal Hazards, Climate Change and Adaptive Responses for Preparation of a Coastal Management Strategy for Clarence City, Tasmania; Technical Report 2008/04, Water Research Laboratory, University of New South Wales, November 2008.

CAWCR 2013 (Durrant, Thomas; Hemer, Mark; Trenham, Claire; Greenslade, Diana). The Centre for Australian Weather and Climate Research (CAWCR) Wave Hindcast 1979-2010. (2013).

CEM. United States (Coastal Engineering Model) 2008, EM 1110-2-1100, 2008.

Church, J. A. and White, N. J., 2011, 'Sea-level rise from the late 19th to the early 21st century',Surveys in Geophysics 32(4–5), 585–602

Cowell, P.J., Thom, B.G., Jones, R.A., Everts C.H., Simanovic, D., 2006. Management of Uncertainty in Predicting Climate Change Impact on Beaches. Journal of Coastal Research, 22(1), 232-245. West Palm Beach (Florida), ISSN 0749-0208

CSIRO (Commonwealth Scientific and Industrial Organisation) 2012, Sea level rise: understanding the past, improving projections for the future.

Davies, J.L., 1959: Sea Level Change and Shoreline Development in South-Eastern Tasmania; Papers and Proceedings of the Royal Society of Tasmania, Vol. 93, p. 89 – 95.

Davies, J.L., 1961: Tasmanian Beach Ridge Systems in Relation to Sea Level Change; Papers and Proceedings of the Royal Society of Tasmania, Vol. 95, p. 35 – 40.

Davies, J.L., 1978: Beach Sand and Wave Energy in Tasmania; in: J.L. Davies & M.A.J. Williams (Eds), *Landform Evolution in Australasia*, ANU Press, Canberra, p. 158-167.

DCC (Department of Climate Change) 2009, Climate Change Risks to Australia's Coasts, A First Pass National Assessment.

Dean, R.G. & Darymple, R.A. 1991. WATER WAVE MECHANICS FOR ENGINEERS AND SCIENTISTS. Advanced Series on Ocean Engineering — Volume 2. Published by World Scientific Publishing Co. Pte. Ltd. 5 Toh Tuck Link, Singapore 596224

Dean, R.G. & Darymple, R.A. 2002: *Coastal Processes with Engineering Applications*; Cambridge University Press, UK.

Dickson, M.E., Walkden, M.J.A. and Hall, J.W., 2007. Systematic impacts of climate change on an eroding coastal region over the twenty-first century. Climatic Change, in press.

DPIPWE, 2008. Sea-Level Extremes in Tasmania, Summary and Practical Guide for Planners and Managers.

DPIWE, 2008, Coastal Hazards. In Tasmania General Information Paper, DPIWE Tasmania Page

Estimating Sea Level Rise in an Uncertain Future. Sea Level rise extremes assessment Web Tool. web tool www.slr.sealevelrise.info accessed on September 2010.

http://www.climatechange.gov.au/publications/coastline/climate-change-risks-to-australias-coasts.aspx. Accessed September 2010.

Hunter, J. 2008, Historical and Projected Sea-Levels Extremes for Hobart and Burnie, Tasmania, Technical Report prepared by the Antarctic and Climate and Ecosystems Cooperative Research Centre – December 2007. Published by the Department of Primary Industries and Water, Tasmania.

Hunter, J., 2010. Estimating Sea-Level Extremes Under Conditions of Uncertain Sea-Level Rise, Climatic Change, 99:331-350, DOI:10.1007/s10584-009-9671-6.

IPCC (Intergovernmental Panel on Climate Change) 2007, Climate Change – The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, (ISBN 978 0521 88009-1 Hardback; 978 0521 70596-7 Paperback), [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 996 pp. 2007

IPCC (Intergovernmental Panel on Climate Change) 2013, Climate Change 2013: The physical Science Basis. Contribution of Working Group I to the Fifth Assesssment Report of the Intergovernmental Panel on Climate Change (Stocker, T.F., D. Qin, G.K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds). Cambridge University Press, Cambridge, United Kingdom and New York, USA.

Komar, P.D., 1998. Beach Processes and Sedimentation. Second Edition. Colege of Oceanic and Atmospheric Sciences Oregon State University. Prentice Hall. Upper Saddle River, New Jersey 07458.

Kulmar, M., D.Lord & B.Sanderson, 2005. "Future Directions For Wave Data Collection In New South Wales", Proceedings of Australasian Coasts and Ports conference, Adelaide, The Institute of Engineers Australia.

Lord, D.B. and M. Kulmar, 2000. "The 1974 storms revisited: 25 years' experience in Ocean Wave Measurement along the South East Australian Coast", Proceedings International Conference of Coastal Engineering, pp 559-572, American Society of Civil Engineers, USA.

Mase, H. (1989), 'Random Wave Runup Height on Gentle Slopes', Journal of the Waterway, Port, Coastal and Ocean Engineering Division, American Society of Civil Engineers, pp 593-609

NCCOE, (National Committee on Coastal and Ocean Engineering, Engineers Australia) 2004, Guidelines for responding to the effects of Climate Change in coastal and Ocean Engineering, The Institution of Engineers Australia.

Nielsen, A.F., D.B.Lord & H.G.Poulos, 1992. Dune Stability Considerations for Building Foundations. Engineers Australia, Vol CE34, No 2, June.

Pilkey,O.H and J.A.G. Cooper, 204. "Society and Sea Level Rise", Science, 303, pp1781-1782.

Pugh, D.T. (1987), Tides, Surges and MeanSea-Level, John Wiley and Sons, Chichester,UK.

Ranasinghe, Roshanka, Phil Watson, Doug Lord, David Hanslow and Peter Cowell, 2007. "Sea Level Rise, Coastal Recession and the Bruun Rule", Proceedings of Australasian Coasts and Ports Conference, Melbourne, The Institute of Engineers Australia.

Sharples, C. 2006. Indicative Mapping of Tasmanian Coastal Vulnerability to Climate Change and Sea Level Rise: Explanatory Report; 2nd Edition. Consultant Report to Department of Primary Industries & Water, Tasmania. http:/www.dpiw.tas.gov.au/climatechange.

Sharples, C., Mount, R., Pedersen, T., 2009. THE AUSTRALIAN COASTAL SMARTLINE GEOMORPHIC AND STABILITY MAP VERSION 1: MANUAL AND DATA DICTIONARY. School of Geography & Environmental Studies, University of Tasmania . Manual version 1.1

Sharples & Woodward 2013. Geomorphology background to Coastal Erosion Hazard Zoning for Tasmania. Tasmanian Government, Smartline, Bluewren Group, University of Tasmania.

Shore Protection Manual. 1984. 4th ed., 2 Vol., U.S. Army Engineer Waterways Experiment Station, U.S. Government Printing Office, Washington, D.C., 1,088 p.

SPM (Shore Protection Manual) 1984, 4th ed., 2 Vol., U.S. Army Engineer Waterways Experiment Station, U.S. Government Printing Office, Washington, D.C., 1,088 p.

TCCO (Tasmanian Climate Change Office) 2012, Derivation of the Tasmanian Sea Level Rise Planning Allowances. Technical Paper

USGS (United States Geological Survey) 2003. Glossary of Coastal Terminology, US Coastal and Marine Geology. Washington Department of Ecology.

Appendix 1 Tasmanian Building Regulations 2016

Division 2 - Riverine inundation

Building in flood hazard areas - Construction standards

The legal requirements for building in an area that is subject to flooding is that the floor level of any ***habitable room*** must be 300mm or more above the designated flood level for that land. The 'designated flood level' is:

1) the flood level that has a 1% probability of being exceeded in any one year (for a watercourse flood plain mapped or reported on); or
2) 600mm above ground level or the highest known flood level (for those areas not mapped); or
3) 600mm above the ordinary high-water mark for a spring tide (for land subject to tides).

53. Riverine inundation

For the purposes of the Act, land that has previously been flooded, or land that has been assessed by the council of the relevant municipal area as having a reasonable probability of flooding, is land that is –

a. subject to riverine inundation; and
b. a hazardous area for the purposes of the definition of hazardous area in section 4(1) of the Act.

54. Works on land subject to riverine inundation

1) A person must not perform work on land that is subject to riverine inundation unless he or she is authorised to do so under the Act.
2) A person must not perform building work on a building on land that is subject to riverine inundation unless the floor level of each habitable room of the building being erected, re-erected or added as part of the work, is at least 300 millimetres above the defined flood level for the land.
3) A responsible person for work being performed on land that is subject to riverine inundation must ensure that the work is being performed in accordance with the Act and the riverine inundation determination.
4) A person performing work on land that is subject to riverine inundation must ensure that the work complies with the Act and the riverine inundation determination.

Division 3 - Coastal inundation

Building in flood hazard areas - Construction standards

The legal requirements for building in an area that is subject to flooding is that the floor level of any ***habitable room*** must be 300mm or more above the designated flood level for that land. The 'designated flood level' is:

1) the flood level that has a 1% probability of being exceeded in any one year (for a watercourse flood plain mapped or reported on); or
2) 600mm above ground level or the highest known flood level (for those areas not mapped); or
3) 600mm above the ordinary high-water mark for a spring tide (for land subject to tides).

55. Coastal inundation hazard areas

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

56. Works in coastal inundation hazard areas

1) A person must not perform work in a coastal inundation hazard area unless he or she is authorised to do so under the Act.
2) If a person intends to perform work in an investigation area of a coastal inundation hazard area, the person must, before performing the work, ensure the land is classified, in accordance with the coastal inundation determination –
    a. as being an acceptable risk; or
    b. into a hazard band for the coastal inundation hazard area.
3) A person must not perform work on a building on land in a coastal inundation hazard area unless the floor level of each habitable room of the building, being erected, re-erected or added as part of the work, is at least 300 millimetres above the defined flood level for the land.
4) A responsible person for work being performed in a coastal inundation hazard area must ensure that the work is being performed in accordance with the Act and the coastal inundation determination.
5) A person performing work in a coastal inundation hazard area must ensure that the work complies with the Act and the coastal inundation determination.

Division 4 - Coastal erosion

57. Coastal erosion hazard areas

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

58. Works in coastal erosion hazard areas

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

Appendix 2 Consumer, Building and Occupational Services Regulations

Coastal Erosion Hazard Area Requirements

	Hazard band class - Low	Hazard band class - Medium	Hazard band class - High
Type of site assessment required	Coastal erosion hazard report	Coastal erosion hazard report	Coastal erosion hazard report
Prescribed person for assessment	Geotechnical practitioner	Geotechnical practitioner	Geotechnical practitioner
Foundation design	Licensed Civil Engineer To take into account hazard report and design guide	Licensed Civil Engineer To take into account hazard report and design guide	Licensed Civil Engineer To take into account hazard report and design guide
Building design	Any licensed Building Designer/ Architect To take into account hazard report	Any licensed Building Designer/ Architect To take into account hazard report	Any licensed Building Designer/ Architect To take into account hazard report
Building surveyor	CLC to take into account the hazard report	CLC to take into account the hazard report	CLC to take into account the hazard report
Other provisions	Default AS 2870 site classification for residential buildings – Class P	Default AS 2870 site classification for residential buildings – Class P	Planning restrictions on new buildings

Coastal Inundation Hazard Area Requirements

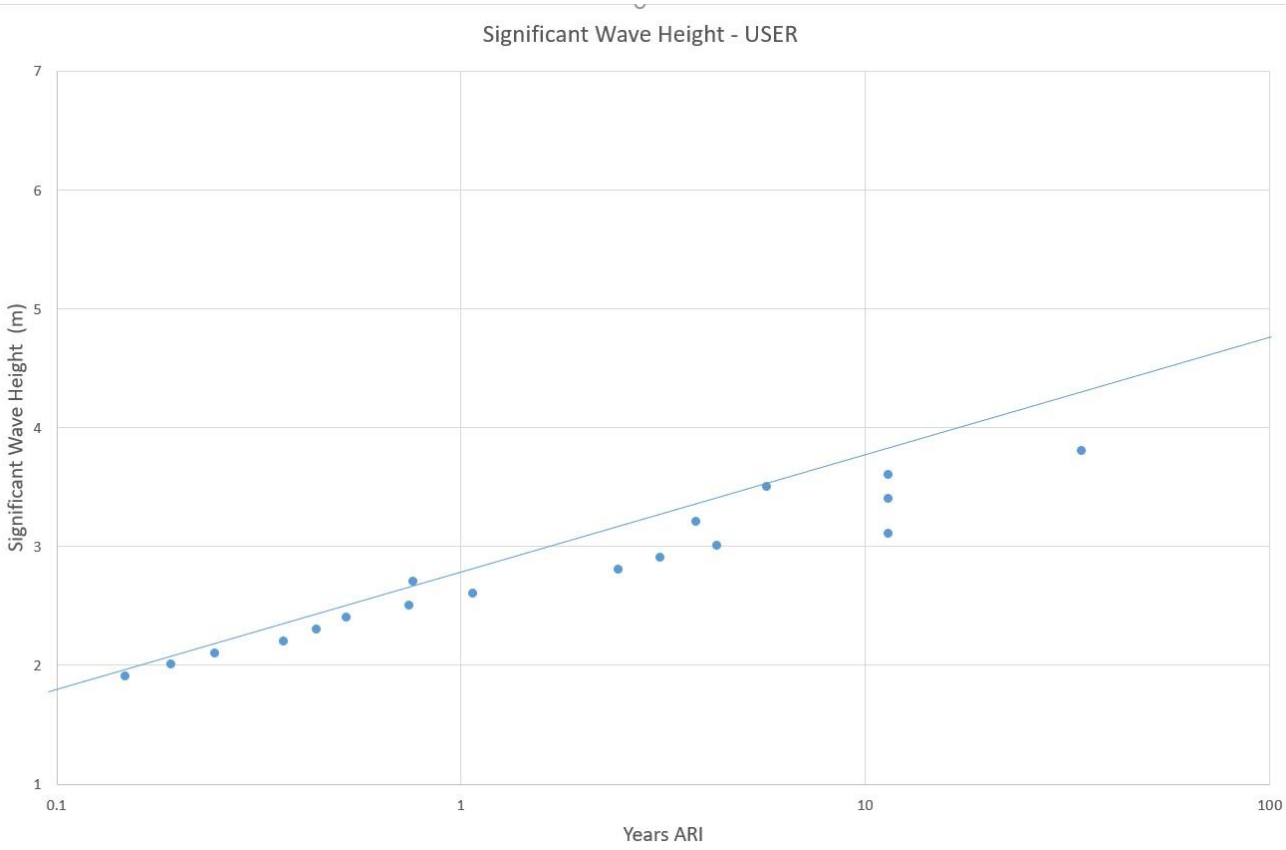
	Hazard band class - Low	Hazard band class - Medium	Hazard band class - High
Type of site assessment required	Coastal inundation hazard report	Coastal inundation hazard report	Coastal inundation hazard report
Prescribed person for assessment			
Foundation design	Licensed Civil Engineer To take into account hazard report and design guide	Licensed Civil Engineer To take into account hazard report and design guide	Licensed Civil Engineer To take into account hazard report and design guide
Building design	Any licensed Building Designer/ Architect To take into account hazard report	Any licensed Building Designer/ Architect To take into account hazard report	Any licensed Building Designer/ Architect To take into account hazard report
Building surveyor	CLC to take into account the hazard report	CLC to take into account the hazard report	CLC to take into account the hazard report
Other provisions	Minimum habitable room floor level specified NCC requirements for a flood hazard area apply	Minimum habitable room floor level specified National Construction Code requirements for a flood hazard area apply	Planning restrictions on new buildings Minimum habitable room floor level specified National Construction Code requirements for a flood hazard area apply

Appendix 3 Acceptable Solutions

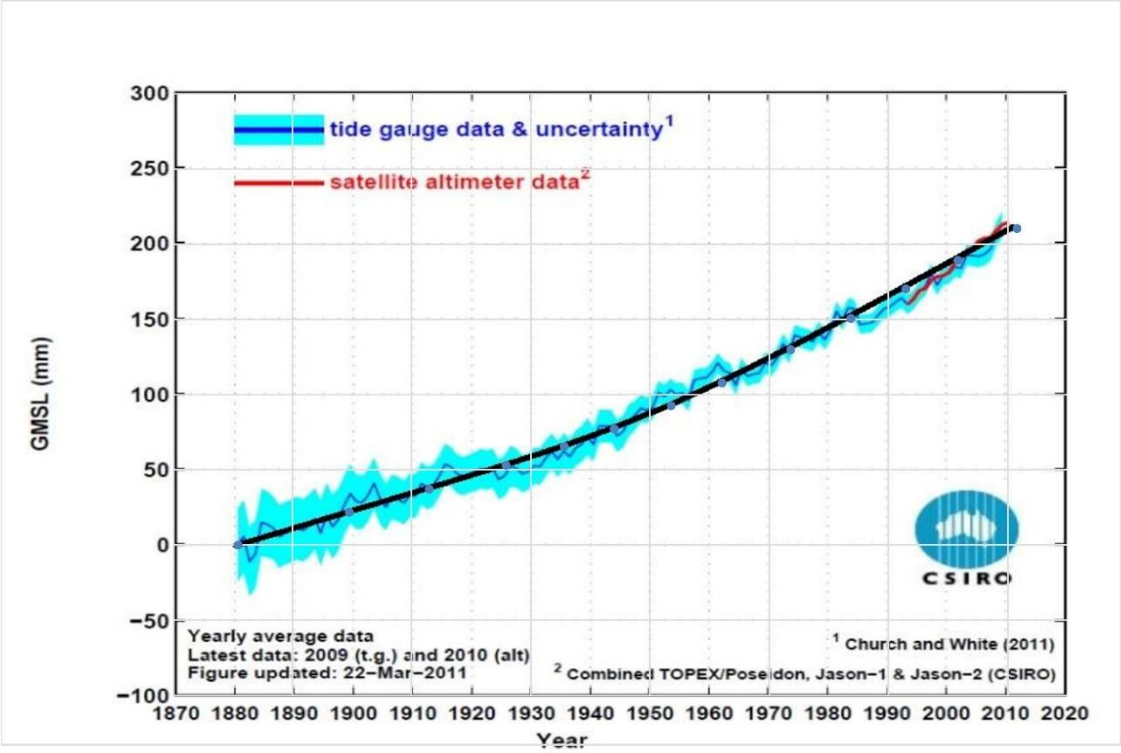
Coastal Erosion Hazard Code (CEHC) Areas

Standard	Code	Acceptable Solution		Performance Criteria
Use	E16.6 Change of Use	A1	A1 No Acceptable solution	P1
Development	E16.7.1 Buildings & Works	A1	A1 No Acceptable solution	P1
	E16.7.2 Dependent on a Coastal Location	A1	A1 An extension to an existing boat ramp, car park, jetty, marina, marine farming shore facility or slipway must be no more than 20% of the size of the facility existing at the effective date.	P1
		A2	A2 No Acceptable Solution for dredging and reclamation.	P2
		A3	A3 No Acceptable Solution for coastal protection works initiated by the private sector.	P3
Subdivision	E16.8.1 CEHC Area	A1	No Acceptable solution	P1
		A2	No Acceptable solution	P2
	Dependent on a Coastal Location	A1	No Acceptable solution	P1

Appendix 4 Wave Model Data



Appendix 5 Coastline Recession Analysis



Correlation Data

Year	Years Since 1880	SLR (m)
1880.89	0.00	0.00
1899.53	18.64	21.77
1912.94	32.05	37.11
1925.84	44.95	52.96
1935.59	54.70	65.50
1943.95	63.06	77.18
1953.54	72.65	92.51
1962.07	81.18	107.67
1973.57	92.68	129.79
1983.68	102.79	150.52
1992.91	112.02	170.21
2001.62	120.73	189.20
2011.55	130.66	210.28

Polynomical Trend Analysis - Historical Sea Level Rise (1880 baseline)

X5	X4	X3	X^2	X
-2.79511E-09	2.9134E-07	7.04316E-05	-0.005162952	1.246008027

Polynomial Trend Analysis - RCP8.5 for Glanmorgan Spring Bay (DPAC 2016)

X^2	X
8.44444E-05	0.002622222

Year	Relative to 1880 Years Since	Sea Level 1880 Baseline (mm)	Relative to 2010 Years Since	Sea Level 2010 Baseline (m)	Sea Level (m AHD) (m)	
1972	91.11	126.46		-0.08	0.00	m AHD Baseline
2010	129	207		0.000	0.081	DPAC Baseline

Aerial Photograph Analysis

1980	99	143			0.017
1990	109	164			0.038
1996	115	177			0.051
2003	122	193			0.066
2008	127	203			0.077
2010	129	207			0.080
2011			1	0.003	0.083
2014			4	0.011	0.091
2015			5	0.015	0.096
2015			5	0.015	0.096
2016			6	0.019	0.099
2019			9	0.030	0.110
2019			9	0.031	0.112

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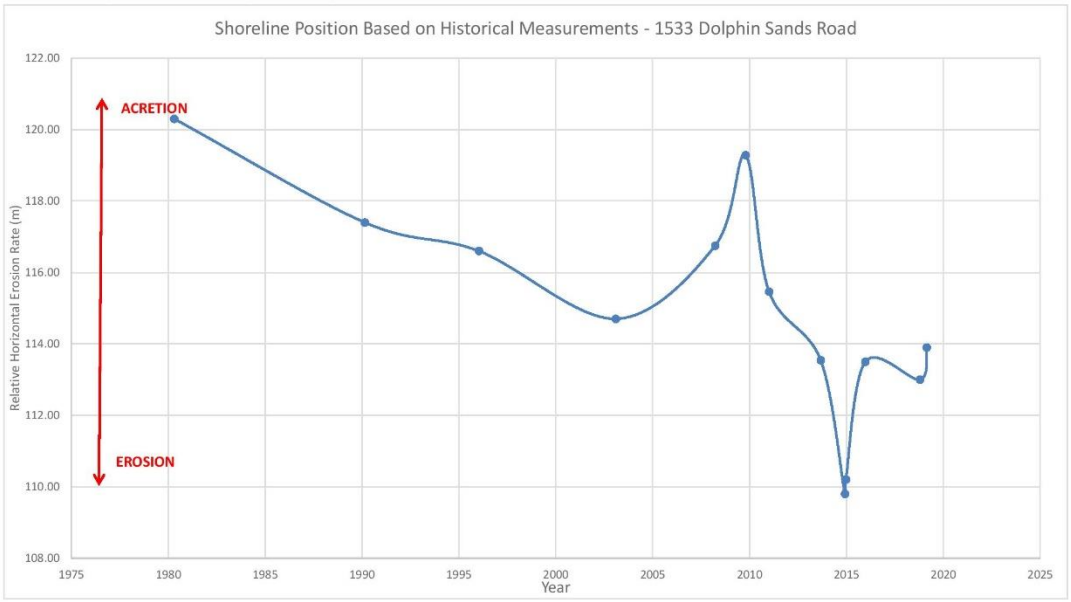
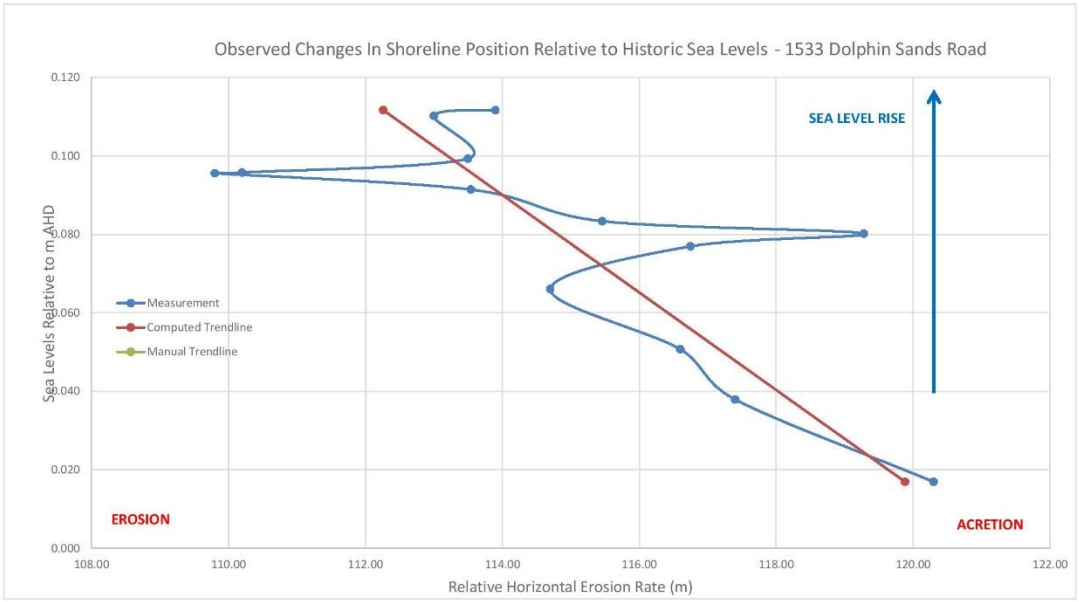
Historical Temporal Erosion Proxy: 1533 Dolphin Sands Road





Shoreline Features Which May Influences Erosion Trends:	-
Method	Linear

Charting Trend Lines

Y	X Value	
	Computed Trendline	Manual Trendline
0.017	119.88	
0.112	112.26	

Sea Level Rise (See Page 1) Vs Coastline Recession Correlations:

Formulation	X	Y	R^2	Bruun Factor:
Computed	-80	121	**0.53**	80.5
Inferred	No Adjustment	No Adjustment		

Metres horizontal recession per metre sea level rise

Projected Shoreline Position Relative to 2020 Based On Historical Recession Trends and RCP8.5 Projections for Glanmorgan Spring Bay (DPAC 2016)

Year	Sea Levels[A]	Recession (m)[B]
2020	0.000	0
2050	0.173	14
2070	0.367	30
2100	0.773	62

Overall Erosion Range[C]	10.5
Erosion Deviation From Trendline[C]	8.2
Present Day % Deviation	+40%
Dune Height Within Erosion Zone (m)	5.0
Storm Erosion Deviation (m)[C,E]	8.2
Storm Erosion Deviation (m^3/m)[F]	41.2
Period Range (years)	38.8

A 2020 Baseline
B Note: To be Used As a Guideline Only. Shoreline Positions May Not Always Show Trends Consistent With Historical Observations
C Based on Horizontal Aerial Interpretation (m)
D Based on erosion deviation from trend line where R^2 >0.7 otherwise the horizontal erosion range is applied
F - Obtained By Multiplying Distance By Dune Height

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Appendix 6 Qualitative Risk Assessment Tables

Consequence Index

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

Likelihood Index

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

Source: AS/NZS 4360:2004 Risk Management

Qualitative Risk Matrix

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

Source: AS/NZS 4360:2004 Risk Management

Appendix 7 Qualitative Risk Assessment

Buildings and Works in a CEHC Area

Performance Criteria E16.7.1 P1 **Buildings and works must satisfy all of the following:**	**Relevance**	**Management Options**	**Preliminary Risk Assessment (where relevant)**			**Further Assessment Required**
			Consequence	**Likelihood**	**Risk**	
(a) not increase the level of risk to the life of the users of the site or hazard for adjoining or nearby properties or public infrastructure;	Level of risk will not be increased by 2070.	Provided the building is founded within the stable foundation zone.	Minor (2)	Unlikely (D)	Low (5)	No
(b) erosion risk arising from wave run-up, including impact and material suitability, may be mitigated to an acceptable level through structural or design methods used to avoid damage to, or loss of, buildings or works;	Erosion from storm wave runup has been assessed based on a storm erosion demand analysis for 2070 recession conditions.	See E16.7.1 P1 (a)	Minor (2)	Unlikely (D)	Low (5)	No
(c) erosion risk is mitigated to an acceptable level through measures to modify the hazard where these measures are designed and certified by an engineer with suitable experience in coastal, civil and/or hydraulic engineering;	No hazard modification required		Minor (2)	Unlikely (D)	Low (5)	No
(d) need for future remediation works	Based on a 2070 building life, there is not projected to be need for future remediation works.		Minor (2)	Unlikely (D)	Low (5)	No
(e) health and safety of people is not placed at risk	Low risk based on construction within 2070 stable foundation zone		Minor (2)	Unlikely (D)	Low (5)	No
(f) important natural features are adequately protected	Proposed design is sympathetic to the setting.		Minor (2)	Rare (E)	Low (3)	No
(g) public foreshore access is not obstructed where the managing public authority requires it to continue to exist	Not Applicable					No
(h) access to the site will not be lost or substantially compromised by expected future erosion whether on the proposed site or off-site	Access not within the identified erosion zone		Insignificant (1)	Rare (E)	Low (1)	No
(i) provision of a developer contribution for required mitigation works consistent with any adopted Council Policy, prior to commencement of works.	No need for structural mitigation.		Insignificant (1)	Rare (E)	Low (1)	No
(j) not be located on an actively mobile landform	The landform is stabilised by vegetation		Insignificant (1)	Rare (E)	Low (1)	No

Australian Government
Department of the Environment and Energy

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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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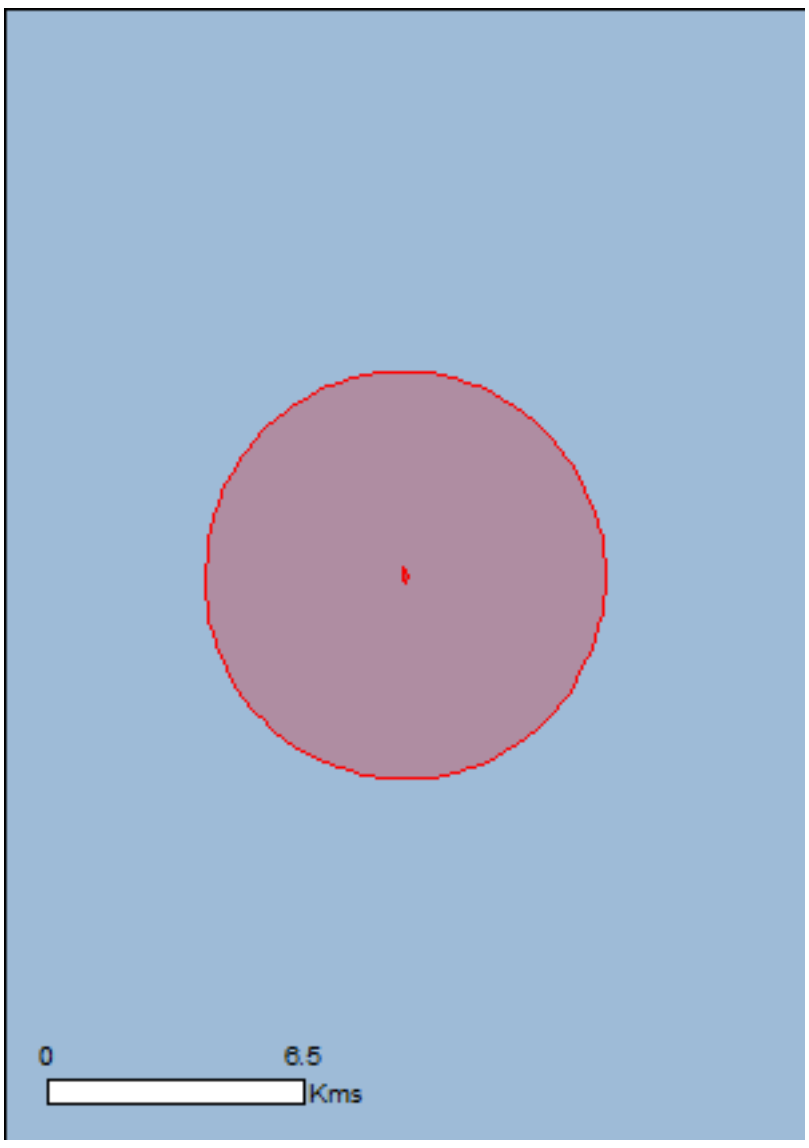

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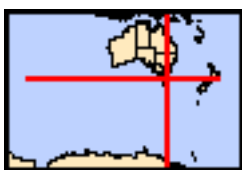

Summary

Matters of National Environmental 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:	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	60
Listed Migratory Species:	39

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 http://www.environment.gov.au/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 Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	67
Whales and Other Cetaceans:	9
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	5
Regional Forest Agreements:	1
Invasive Species:	24
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Apsley marshes	Within 10km of Ramsar
Moulting lagoon	Within Ramsar site

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.

Listed Threatened Ecological Communities		[Resource Information]
Name	Status	Type of Presence
Giant Kelp Marine Forests of South East Australia	Endangered	Community may occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area
Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana)	Critically Endangered	Community likely to occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Aquila audax fleayi Tasmanian Wedge-tailed Eagle, Wedge-tailed Eagle (Tasmanian) [64435]	Endangered	Breeding likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Ceyx azureus diemenensis Tasmanian Azure Kingfisher [25977]	Endangered	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely

Name	Status	Type of Presence
		to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within 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
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Breeding likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Thalassarche eremita		
Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis rubricollis		
Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat known to occur within area
Tyto novaehollandiae castanops (Tasmanian population)		
Masked Owl (Tasmanian) [67051]	Vulnerable	Species or species habitat known to occur within area
Fish		
Brachiopsilus ziebelli		
Ziebell's Handfish, Waterfall Bay Handfish [83757]	Vulnerable	Species or species habitat may occur within area
Prototroctes maraena		
Australian Grayling [26179]	Vulnerable	Species or species habitat known to occur within area
Thymichthys politus		
Red Handfish [83756]	Critically Endangered	Species or species habitat may occur within area
Frogs		
Litoria raniformis		
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog [1828]	Vulnerable	Species or species habitat known to occur within area
Insects		
Antipodia chaostola leucophaea		
Tasmanian Chaostola Skipper, Heath-sand Skipper [77672]	Endangered	Species or species habitat likely to occur within area
Mammals		
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (Tasmanian population)		
Spotted-tail Quoll, Spot-tailed Quoll, Tiger Quoll (Tasmanian population) [75183]	Vulnerable	Species or species habitat known to occur within area
Dasyurus viverrinus		
Eastern Quoll, Luaner [333]	Endangered	Species or species habitat likely to occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Breeding likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Perameles gunnii gunnii		
Eastern Barred Bandicoot (Tasmania) [66651]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
[Pseudomys novaehollandiae](#) New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area
[Sarcophilus harrisii](#) Tasmanian Devil [299]	Endangered	Species or species habitat likely to occur within area
Plants		
[Bertya tasmanica subsp. tasmanica](#) Tasmanian Bertya [78359]	Endangered	Species or species habitat known to occur within area
[Caladenia caudata](#) Tailed Spider-orchid [17067]	Vulnerable	Species or species habitat known to occur within area
[Conospermum hookeri](#) Variable Smoke-bush [68161]	Vulnerable	Species or species habitat likely to occur within area
[Dianella amoena](#) Matted Flax-lily [64886]	Endangered	Species or species habitat may occur within area
[Epacris barbata](#) Bearded Heath, Freycinet Heath [17625]	Endangered	Species or species habitat likely to occur within area
[Glycine latrobeana](#) Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area
[Lepidium hyssopifolium](#) Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area
[Pterostylis ziegeleri](#) Grassland Greenhood, Cape Portland Greenhood [64971]	Vulnerable	Species or species habitat likely to occur within area
[Senecio psilocarpus](#) Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area
[Stenanthemum pimeleoides](#) Spreading Stenanthemum, Propellor Plant [15450]	Vulnerable	Species or species habitat may occur within area
[Thelymitra jonesii](#) Sky-blue Sun-orchid [76352]	Endangered	Species or species habitat may occur within area
[Xanthorrhoea arenaria](#) Sand Grasstree [21603]	Vulnerable	Species or species habitat may occur within area
[Xerochrysum palustre](#) Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area
Sharks		
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		

Name	Threatened	Type of Presence
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Ardenna carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
[Ardenna grisea](#) Sooty Shearwater [82651]		Species or species habitat likely to occur within area
[Diomedea antipodensis](#) Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Diomedea exulans](#) Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Diomedea sanfordi](#) Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
[Sternula albifrons](#) Little Tern [82849]		Species or species habitat may occur within area
[Thalassarche bulleri](#) Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche cauta](#) Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche chrysostoma](#) Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
[Thalassarche eremita](#) Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche impavida](#) Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		

Name	Threatened	Type of Presence
Balaena glacialis australis		
Southern Right Whale [75529]	Endangered*	Breeding likely to occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata		
Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Lagenorhynchus obscurus		
Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus		
Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis		
Red-necked Stint [860]		Species or species habitat known to occur within area
Charadrius bicinctus		
Double-banded Plover [895]		Species or species habitat known to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Limosa lapponica		
Bar-tailed Godwit [844]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pluvialis fulva		
Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [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.

Name
Commonwealth Land -

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis		
Red-necked Stint [860]		Species or species habitat known to occur

Name	Threatened	Type of Presence
		within area
Catharacta skua Great Skua [59472]		Species or species habitat may occur within area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Breeding likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species

Name	Threatened	Type of Presence
		habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Puffinus griseus Sooty Shearwater [1024]		Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche chrysostoma Grey-headed Albatross [66491]	Endangered	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche sp. nov. Pacific Albatross [66511]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Fish		
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse		Species or species

Name	Threatened	Type of Presence
[66235]		habitat may occur within area
Histiogamphelus briggsii		
Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area
Hypselognathus rostratus		
Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area
Kaupus costatus		
Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area
Kimblaeus bassensis		
Trawl Pipefish, Bass Strait Pipefish [66247]		Species or species habitat may occur within area
Lissocampus runa		
Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata		
Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys mollisoni		
Mollison's Pipefish [66260]		Species or species habitat may occur within area
Mitotichthys semistriatus		
Halfbanded Pipefish [66261]		Species or species habitat may occur within area
Mitotichthys tuckeri		
Tucker's Pipefish [66262]		Species or species habitat may occur within area
Notiocampus ruber		
Red Pipefish [66265]		Species or species habitat may occur within area
Phyllopteryx taeniolatus		
Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris		
Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus robustus		
Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area
Solegnathus spinosissimus		
Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area
Stigmatopora argus		
Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra		
Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Urocampus carinirostris		
Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus phillipi		
Port Phillip Pipefish [66284]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
[Vanacampus poecilolaemus](#) Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammals		
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area
[Arctocephalus pusillus](#) Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
[Balaenoptera acutorostrata](#) Minke Whale [33]		Species or species habitat may occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
[Caperea marginata](#) Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
[Delphinus delphis](#) Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Breeding likely to occur within area
[Grampus griseus](#) Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Tursiops truncatus s. str.](#) Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Coles Bay	TAS
Coles Bay Road	TAS
Flacks Road Coles Bay	TAS
Moulting Lagoon	TAS
Possums Place	TAS

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
[Tasmania RFA](#)	Tasmania

Invasive Species

[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-42.093889 148.21711,-42.095135 148.218376,-42.096281 148.217748,-42.096138 148.21667,-42.093889 148.21711

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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GEO-ENVIRONMENTAL ASSESSMENT

1533 Dolphin Sands Road

Dolphin Sands

October 2019

GES

GEO-ENVIRONMENTAL

SOLUTIONS

Geo-Environmental Solutions P/L 29 Kirksway Place, Battery Point 7004. Ph 6223 1839

Introduction

Client: Sarah & Tim O'Connor
Date of inspection: 3/10/19
Location: 1533 Dolphin Sands Road, Dolphin Sands
Land description: Approx. 2.18ha
Building type: Proposed new dwelling
Investigation: Hand auger
Inspected by: JP Cumming

Background Information

Map: Mineral Resources Tasmania – SE Sheet 1:250 000
Rock type: Quaternary sand deposits
Soil depth: 3.00m +
Planning overlays: Biodiversity Protection Area, Coastal Erosion Hazard and Coastal Inundation Hazard Area
Local meteorology: Annual rainfall approx 600 mm
Local services: Tank with on-site wastewater disposal required

Site Conditions

Slope and aspect: Undulating sand dunes, ~5% in wastewater area
Site drainage: Well drained
Vegetation: Mixed coastal species
Weather conditions: Cloudy, approx 3 mm rainfall received in preceding 7 days.
Ground surface: Dry sandy surface covered with coastal grass species

Investigation

A number of excavations were completed to identify the distribution of, and variation in soil materials on the site. Representative excavations were taken at the approximate locations indicated on the site plan and were chosen for testing and classification according to AS2870-2011 and AS1547-2012 (see profile summary).

Profile Summary

Hole 1 & 2 Depth (m)	Horizon	Description
0 – 0.10	A1	Grey **SAND (SP)**, single grain, visible quartz grains, few fine roots, dry loose consistency, gradual boundary to
0.10 - 3.0+	A3	Pale Yellow **SAND (SP)**, single grain, visible quartz grains, slightly medium dense consistency, lower boundary undefined

Soil Profile Notes

Soils on site are deep Quaternary sands which are unlikely to exhibit ground surface movement and have poor bearing potential in the top 500mm of their profiles. Soils have high intrinsic hydraulic conductivities for the disposal of wastewater but have low cation exchange capacities for the absorption of nutrients from effluent. No water table was identified.

Site Classification

According to AS2870-2011 for construction the natural soil is classified as **Class A**, and design and construction should be made in accordance with this classification. Estimated bearing capacity in the upper 500mm was low and therefore construction should ensure excavation into underlying consolidated sand deposits.

Wind Classification

The AS 4055-2012 Wind load for housing classification of the site is:

Region:	**A**
Terrain category:	**TC2**
Shielding Classification:	**NS**
Topographic Classification:	**T1**
Wind Classification:	**N3**
Design Wind Gust Speed ($V_{h,u}$)	**50 m/sec**

Wastewater Classification

According to AS1547-2012 for on-site wastewater management the soil on the property is classified as **Sand (Category 1)** with a Design Loading Rate (DLR) of 24L/m^2/day.

The proposed four bedroom dwelling has a calculated maximum wastewater loading of 720/day. This is based on a tank water supply and a maximum occupancy of 6 people (120L/day/person).

Using the DLR of 24L/m^2/day, an absorption area of 30m^2 will be required. This may be accommodated by one 15m x 2m x 0.6m absorption trench connected to a dual purpose septic tank (min 3000L).

A diversion drain will not be required due to the high permeability of the sandy soil onsite. The wastewater area is to be excluded from traffic or any future building works. A designated 100% reserve area has not been allocated due to the scale of room available on site (>2ha). For further detail please refer to the attached plan and Trench summary reports.

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

Upslope or level buildings:	3m
Downslope buildings:	7m
Upslope or level boundaries:	1.5m
Downslope boundaries:	6m
Downslope surface water:	100m

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

Construction Recommendations

The natural soil is classified as **Class A**, that is a non-reactive sand. Construction and earthworks should make allowances for erosion and sediment control, and the wastewater treatment system should be installed in compliance with engineering requirements regarding setback distances from foundations and bores. The top 500mm of the soil profile should not be used as the founding substrate owing to low bearing capacity, and all site works must ensure adequate site preparation of a suitable foundation base. Given the proposed construction type, and minimal disturbance of the dune, there is a low risk that the proposal will pose an undue risk of land instability.

GES is to revisit the site to confirm classifications once the area of the proposed dwelling is cleared and levelled.

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD
Environmental and Engineering Soil Scientist

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	Sarah & Tim O'Connor	Assess. Date	22-Oct-19
		Ref. No.	
Assessed site(s)	1533 Dolphin Sands Rd, Dolphin Sands	Site(s) inspected	3-Oct-19
Local authority	Glamorgan Spring Bay Council	Assessed by	JP Cumming

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem 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

'astewater volume (L/day) used for this assessment = 720 (using the 'No. of bedrooms in a dwelling' method)

Septic tank wastewater volume (L/day) = 240

Sullage volume (L/day) = 480

Total nitrogen (kg/year) generated by wastewater = 2.2

'otal phosphorus (kg/year) generated by wastewater = 1.8

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)	49	39	50	44	56	55	34	43	37	46	51	45
Adopted rainfall (R, mm)	49	39	50	44	56	55	34	43	37	46	51	45
Retained rain (Rr, mm)	44	35	45	40	50	50	31	39	33	41	46	41
Max. daily temp. (deg. C)												
Evapotrans (ET, mm)	130	110	91	63	42	29	32	42	63	84	105	126
Evapotr. less rain (mm)	**86**	**75**	**46**	**23**	**-8**	**-20**	**1**	**3**	**30**	**43**	**59**	**86**

Annual evapotranspiration less retained rain (mm) = 423

Soil characterisitics

Texture = Sand Category = 1 Thick. (m) = 3

\dopted permeability (m/day) = 3 Adopted LTAR (L/sq m/day) = 24 Min depth (m) to water = 5

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 dual purpose septic tank(s)
The preferred method of on-site secondary treatment:	In-ground
The preferred type of in-ground secondary treatment:	Trench(es)
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) =	15
Width (m) =	2
Depth (m) =	0.6
Total disposal area (sq m) required =	30
comprising a Primary Area (sq m) of:	30
and a Secondary (backup) Area (sq m) of:	

Sufficient area is available on site

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The calculated DLR for the Category 1 soil present is 24L/sq m/day with a required absorption area of 30sq m for the proposed four bedroom dwelling on tank water. Therefore the system will 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	Sarah & Tim O'Connor	Assess. Date	22-Oct-19
		Ref. No.	
Assessed site(s)	1533 Dolphin Sands Rd, Dolphin Sands	Site(s) inspected	3-Oct-19
Local authority	Glamorgan Spring Bay Council	Assessed by	JP 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 Trench	Limitation Amended	Remarks
	Expected design area	sq m	50,000	V. high	Very low	Moderate	
	Density of disposal systems	/sq km	5	Mod.	Very low		
	Slope angle	degrees	3	High	Very low		
	Slope form	Convex spreading		High	Very low		
	Surface drainage	Good		High	Very low		
	Flood potential	Site floods 1 in 75-100 yrs		High	Low		
	Heavy rain events	Rare		High	Low		
A	Aspect (Southern hemi.)	Faces SE or SW		V. high	High		
	Frequency of strong winds	Common		High	Low		
	Wastewater volume	L/day	720	High	Moderate	No change	
	SAR of septic tank effluent		1.7	High	Low		
	SAR of sullage		2.6	High	Moderate		
	Soil thickness	m	3.0	V. high	Very low		
	Depth to bedrock	m	5.0	V. high	Very 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	24	High	Moderate	No change	

To enter comments, click on the line below 'Comments' . (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The site has good capability to accept onsite wastewater.

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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	Sarah & Tim O'Connor	Assess. Date	22-Oct-19
		Ref. No.	
Assessed site(s)	1533 Dolphin Sands Rd, Dolphin Sands	Site(s) inspected	3-Oct-19
Local authority	Glamorgan Spring Bay Council	Assessed by	JP 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 Trench	Limitation Amended	Remarks
AA	Cation exchange capacity	mmol/100g	20	High	Very high		
A	Phos. adsorp. capacity	kg/cub m	0.2	High	High		
	Annual rainfall excess	mm	-423	High	Very low		
	Min. depth to water table	m	5	High	Very low		
	Annual nutrient load	kg	3.9	High	Very low		
A	G'water environ. value	Recreational		V. high	High		
	Min. separation dist. required	m	10	High	Low		
	Risk to adjacent bores	Very low		V. high	Very low		
A	Surf. water env. value	Recreational		V. high	High		
A	Dist. to nearest surface water	m	100	V. high	High		
	Dist. to nearest other feature	m	20	V. high	High	Moderate	Other factors lessen impact
	Risk of slope instability	Very low		V. high	Very low		
	Distance to landslip	m	20000	V. high	Very low		

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The soil on site has a sandy texture and a low CEC, therefore the soil system has a low capacity to cope with the applied nutrient load from the system. The planting of deep rooted grasses is recommended to encourage nutrient uptake. The wastewater system complies with the required setbacks to downslope surface water. There is a low environmental risk associated with onsite wastewater disposal.

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

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	Complies with A1 (b) (i) Land application area will be located with a minimum separation distance of 3m from an upslope or level building. Complies with A1 (b) (ii) Land application area will be located with a minimum separation distance of 7m of 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 > 100m 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) (ii) Land application area will be located with a minimum separation distance of 6m 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 (a) 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 A6 (a) No limiting layer identified
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

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AS1547:2012 – Loading Certificate – Septic System Design

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

Site Address: 1533 Dolphin Sands Rd, Dolphin Sands

System Capacity: 6 people @ 120L/person/day

Summary of Design Criteria

DLR: 24L/m^2/day.

Absorption area: 30m^2

Reserve area location /use: Not assigned – more than 100% available

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 capacity of system and site area (provided loading changes within 25% of design)

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. Risk considered acceptable.

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. Septic tank de-sludging must also be monitored to prevent excessive sludge and scum accumulation. Monitoring and regulation by the property owner required to ensure compliance.

Other operational 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 septic tank must be desludged at least every 3 years, and any other infrastructure such as septic tank outlet filters 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.

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: O'Connor, Sarah and Tim *Owner /Agent*

39 Lynrowan Drive *Address*

Acton Park 7170 *Suburb/postcode*

Qualified person details:

Qualified person: John-Paul Cumming

Address: 29 Kirksway Place

Battery Point 7004

Phone No: 03 6223 1839

Fax No:

Licence No: AO999

Email address: jcumming@geosolutions.net.au

Qualifications and Insurance details: Certified Professional Soil Scientist (CPSS stage 2)

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

Speciality area of expertise: AS2870-2011 Foundation Classification

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

Details of work:

Address: 1533 Dolphin Sands Road

Dolphin Sands 7325

Lot No: 199

Certificate of title No: 54666/19 9

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

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

Certificate details:

Certificate type: Foundation Classification

(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.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		5153	23/10/2019

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: O'Connor, Sarah and Tim *Owner name*
39 Lynrowan Drive *Address*
Acton Park 7170 *Suburb/postcode*

Designer details:

Name: John-Paul Cumming
Category: Bld. Srvcs. Dsgnr. - Hydraulic
Business name: Geo-Environmental Solutions
Phone No: 03 6223 1839
Business address: 29 Kirksway Place
Battery Point 7004
Fax No: N/A
Licence No: CC774A
Email address: office@geosolutions.net.au

Details of the proposed work:

Owner/Applicant Jason Nickerson
Designer's project reference No. 5153
Address: 1533 Dolphin Sands Road
Lot No: 54666/199
Dolphin Sands

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 absorption trench

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Geo-Environmental Solutions	Date: Oct-19
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Geo-Environmental Solutions	Date: Oct-19
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by: Geo-Environmental Solutions	Date: Oct-19

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:

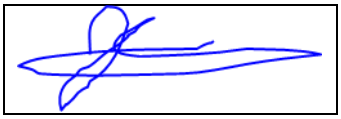
Geo-Environmental Assessment – 1533 Dolphin Sands Rd – October 2019 - GES

Attribution as designer:

I John-Paul Cumming, 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.

	Name: (print)	*Signed*	*Date*
Designer:	John-Paul Cumming		23/10/2019
Licence No:	CC774A		

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:

- [X] The works will not increase the demand for water supplied by TasWater
- [X] 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
- [X] The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- [X] The works will not damage or interfere with TasWater's works
- [X] The works will not adversely affect TasWater's operations
- [X] The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- [X] I have checked the LISTMap to confirm the location of TasWater infrastructure
- [X] 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 ....John-Paul Cumming.... 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

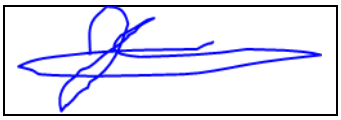
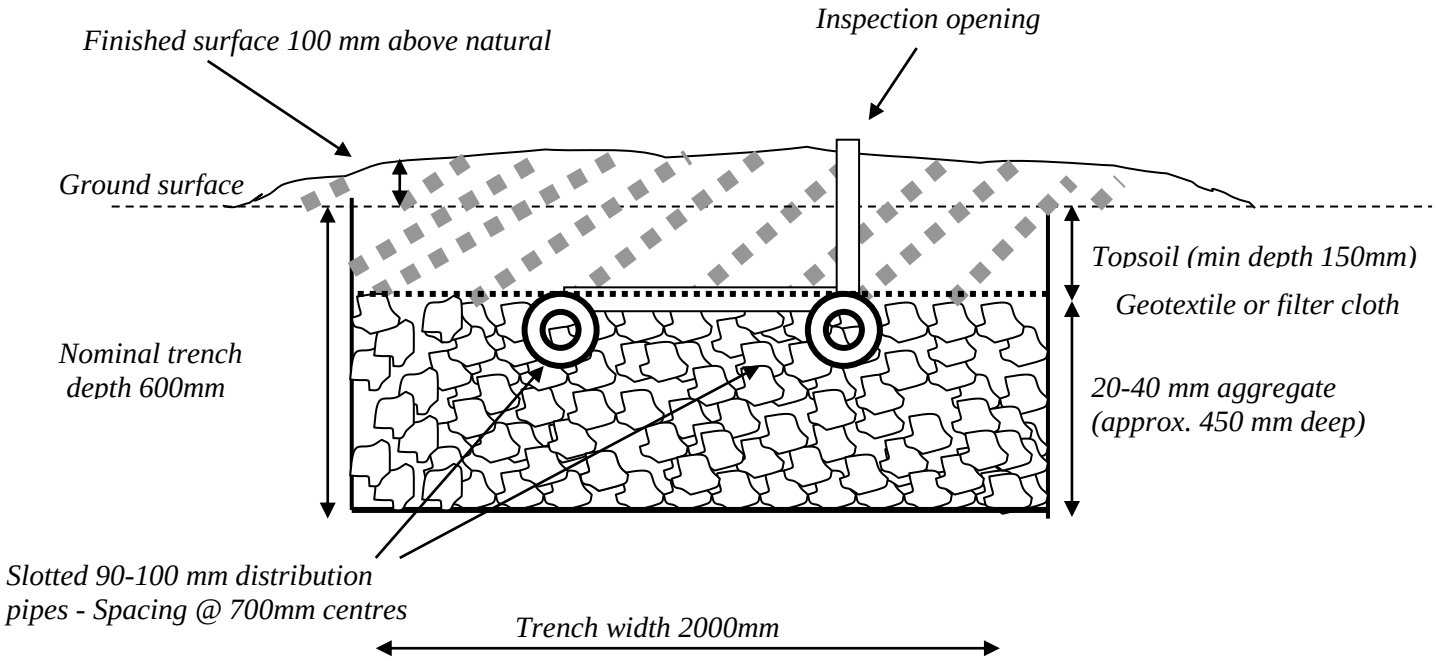
	Name: (print)	*Signed*	*Date*
Designer:	John-Paul Cumming		23/10/2019

Figure 1 – absorption trench



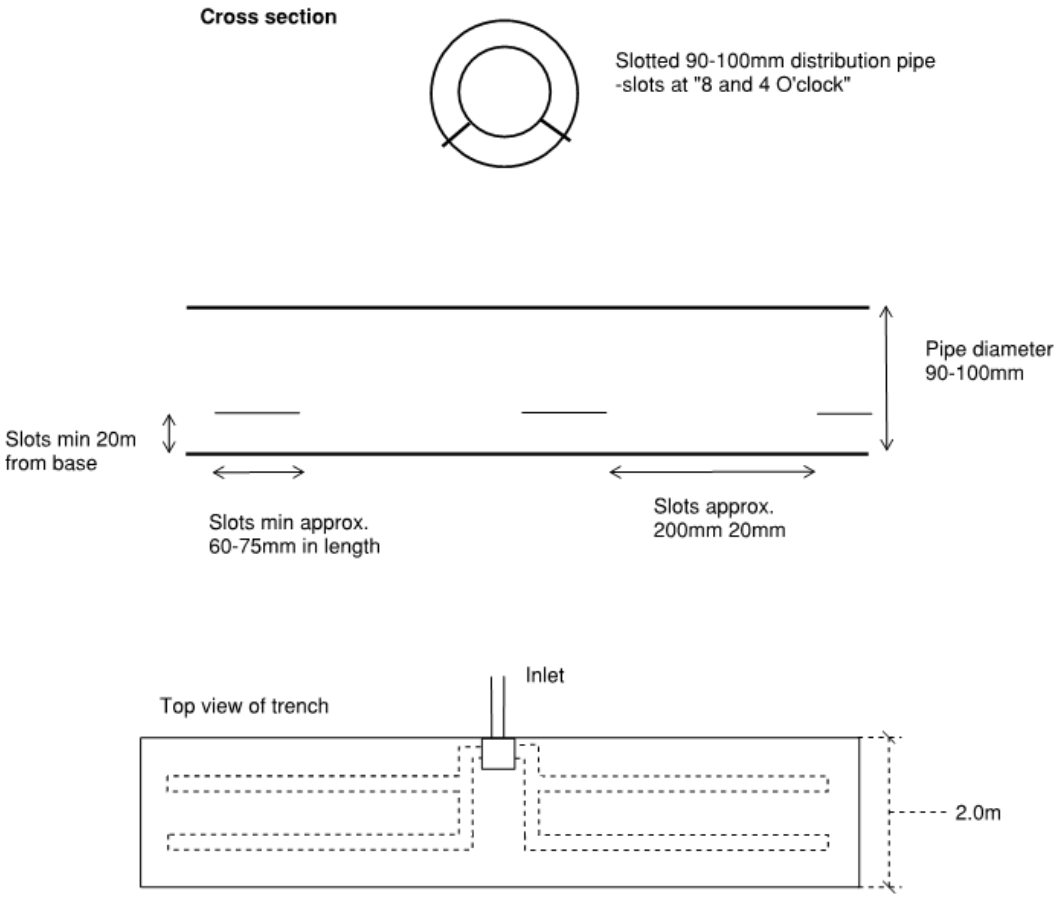
Design notes:

1. Absorption trench dimensions of up to 25m long by 0.6m deep by 2m wide.
2. Base of trenches to be excavated level and smearing and compaction avoided.
3. Lower 400mm of bed to be filled with 20mm drainage aggregate and slotted 100mm distribution pipes packed into upper 100mm of aggregate
4. Final finished surface with sandy loam from on site to be 100 mm above natural surface to allow for settlement.
5. Construction on slopes up to 20% to allow trench depth range 600mm upslope edge to 400mm on down slope edge.
6. On slopes over 5% the sandy loam cover should be 75-100mm above natural with a toe no less than 500mm in length to avoid surface water accumulation (up slope ag drain also recommended to divert surface water flows).
7. The distribution pipe grid must be absolutely level to allow even distribution of effluent around the absorption area – it is recommended that the level be

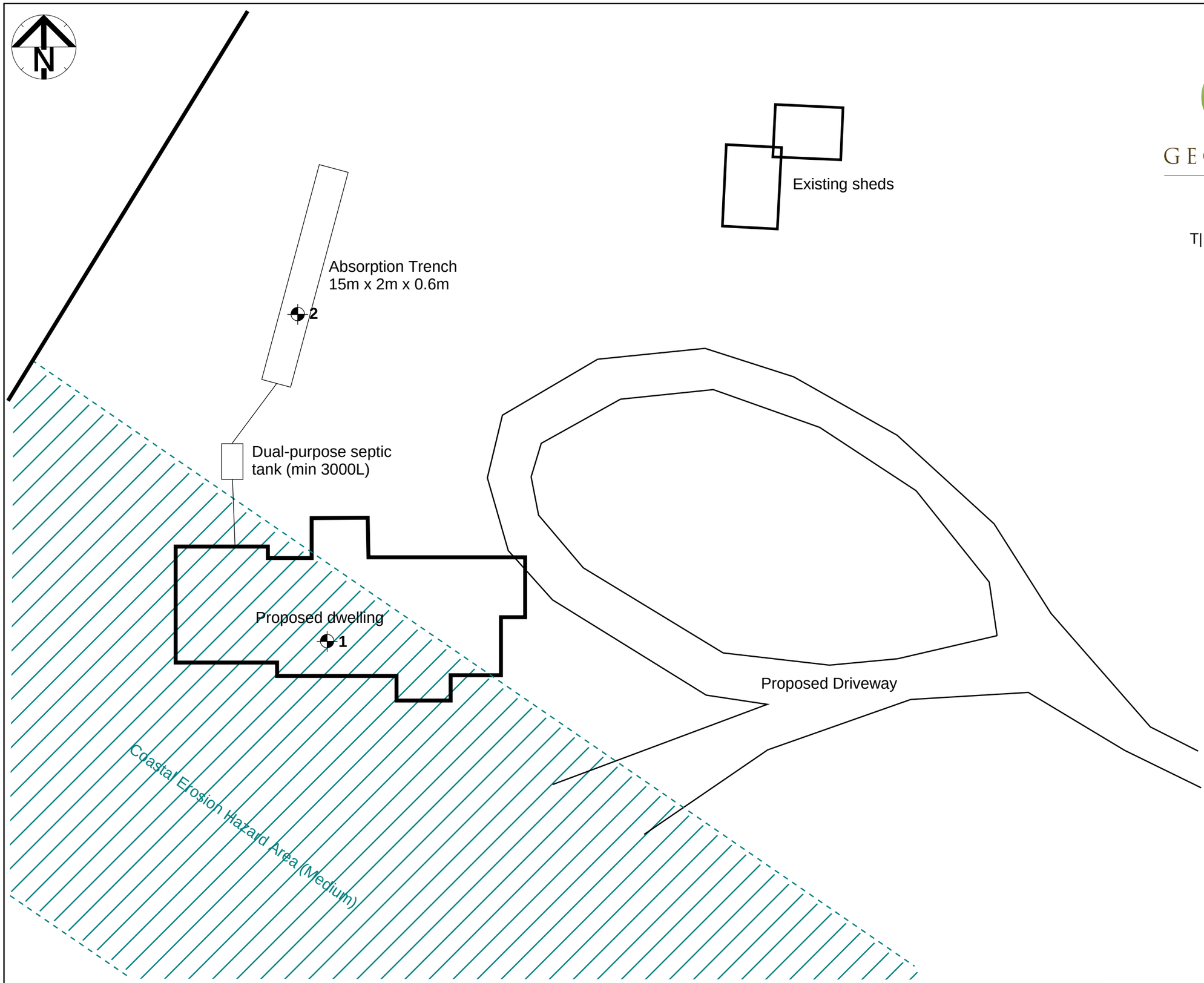
verified by running water into the system before backfilling and commissioning the trench

8. The slotted 90-100mm PVC distribution pipes must be slotted at “8 and 4 o’clock” when looking at the pipe section end-on, with the slots running level along the horizontal length of the pipe – please see figure 2 – or commercially available pre-slotted PVC pipe utilised
9. . All works on site to comply with AS3500 and Tasmanian Plumbing code.

Figure 2 - Distribution pipe detail



Slotted 90-100mm pvc pipe @ 700mm spacing with a splitter box to ensure even distribution



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

GES Wastewater Design:

Dual purpose septic tank (min 3000L)

Absorption trench
1 x 15m x 2m x 0.6m

Notes:
- Absorption trench to align with natural contours of the land

Setbacks:
3m min upslope or level building
7m min downslope building
1.5m min upslope or level boundary
6m min downslope boundary
100m min downslope water

Approximate Test Hole Location

Refer to GES report

Dr. John Paul Cumming
Building Services Designer-
Hydraulic
CCC774A

23/10/2019

Do not scale from these drawings. Dimensions to take precedence over scale.	Sarah & Tim O'Connor 1533 Dolphin Sands Rd Dolphin Sands	C.T.: 54666/199 PID: 5280523	Date: 23/10/2019	On-Site Wastewater Management Plan	Drawing Number: 1 Scale 1:250	Sheet 1 of 1 Prepared by: ED

28 Suncrest Avenue
Lenah Valley, TAS 7008
mark@ecotas.com.au
www.ecotas.com.au
(03) 62 283 220
0407 008 685
ABN 83 464 107 291

Sarah O'Connor
39 Lynrowan Drive
Acton TAS 7170

27 September 2019

Dear Sarah

RE: 1533 Dolphin Sands Road, Dolphin Sands (PID 5280523; C.T. 54666/199)
Planning advice (ecological values)

Please find following a statement of findings on ecological values associated with the title at 1533 Dolphin Sands Road, Dolphin Sands, Tasmania (PID 5280523; C.T. 54666/199), proposed for development (residential dwelling).

I recommend that this cover letter and attached report (including the appended *Natural Values Atlas*, *Biodiversity Values Database* and *Protected Matters Search Tool* reports) be provided with any planning applications, as it addresses the potential concerns in regard to ecological values usually raised at the local government level of assessment.

Note that this letter and attached reports do not constitute legal advice. 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

ECOLOGICAL ASSESSMENT OF 1533 DOLPHIN SANDS ROAD (PID 5280523; C.T. 54666/199), DOLPHIN SANDS, TASMANIA

Environmental Consulting Options Tasmania (ECO*tas*) for Sarah O'Connor

27 September 2019

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ECOLOGICAL ASSESSMENT OF 1533 DOLPHIN SANDS ROAD (PID 5280523; C.T. 54666/199), DOLPHIN SANDS, TASMANIA

SUPPORT DOCUMENTATION FOR FUTURE DEVELOPMENT APPLICATION UNDER *GLAMORGAN-SPRING BAY INTERIM PLANNING SCHEME 2015*

Prepared by Mark Wapstra for Sarah O'Connor, 27 September 2019

INTRODUCTION

Preamble

Sarah O'Connor (owner) engaged Environmental Consulting Options Tasmania (ECO*tas*) to provide planning advice in relation to the management of ecological (flora and fauna) values associated with a private title at 1533 Dolphin Sands Road (PID 5280523; C.T. 54666/199), Dolphin Sands, Tasmania (Figures 1-3l Figure 4 shows the land use proposal).

It is usual for land subdivisions and similar level development proposals to be subject to highly detailed ecological assessments, followed by reporting that complies with the Department of Primary Industries, Parks, Water & Environment's *Guidelines for Natural Values Surveys - Terrestrial Development Proposals* (DPIPWE 2015), a document that outlines the various ecological values that need to be assessed. In the case of the current title, the assessment and report have been tailored to recognise the existing vegetation classification and condition (essentially a title with quite high levels of modification) to address specific matters pertinent to the provisions of the *Glamorgan-Spring Bay Interim Planning Scheme 2015*. Having said this, this report on the ecological values of the subject title addresses the various items covered by the *Guidelines for Natural Values Surveys* and additional information can be provided to planning authorities if needed.

Land use proposal and description of title

Under the *Glamorgan-Spring Bay Interim Planning Scheme 2015*, the title subject to a future development application is zoned as Particular Purpose and wholly subject to the Biodiversity Protection Area (BPA) overlay. Other overlays are also present but are outside the scope of the present assessment and report.

The title is located on the part of the Dolphin Sands spit that was subject to historical clearing and subsequent aerial sowing of (mainland-sourced) "boobialla" (*Acacia longifolia* subsp. *sophorae*, coast wattle) that ended up dominating extensive parts of the spit. This particular part of the spit is now largely dominated by a mosaic of marram grass and coast wattle scrub, with various sized patches of more natural remnants of scrub, woodland and forest.

The topography of the title is gently undulating stabilised sand dunes with the elevation a few metres above sea level, with the central dune attaining perhaps ca. 10 m elevation.

The title is not fenced. A well-formed driveway from Dolphin Sands Road accesses the approximate middle of the title, where an old shack is located. There is also a shed on the title, as well as other older informal tracks and cleared areas. The northern part of the title was subject to an accidental bushfire on 9 Apr. 2019 (referred to as the Dolphin Sands 190111817 incident).

The geology of the title is wholly mapped as Quaternary-age "sand, gravel and mud of alluvial, lacustrine and littoral origin" (geocode: Qh), which was confirmed by site assessment. The geology is mentioned because it has a strong influence on the classification of vegetation and the potential occurrence of threatened flora (and to a lesser extent, threatened fauna).

The title is bounded to the north by Dolphin Sands Road, to the east and west by private titles, and to the south by an informal reserve on other public land (administered by Crown Land Services).

Figure 1. General location of the subject title [source: TheList]

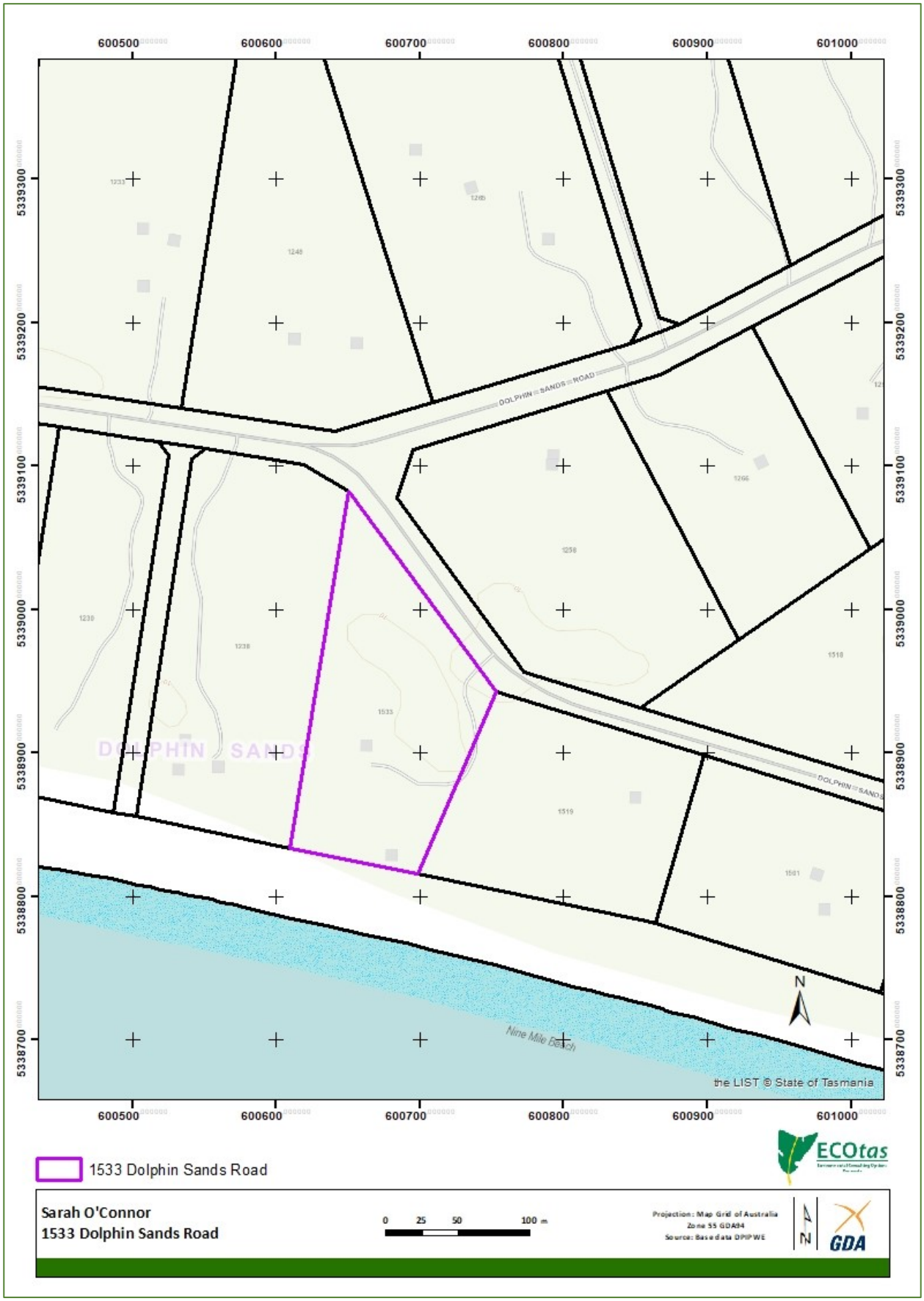


Figure 2. Detailed location of the subject title [source: TheList]

Figure 3. Detailed location of the subject title, showing TheList's orthoimagery [source: TheList]

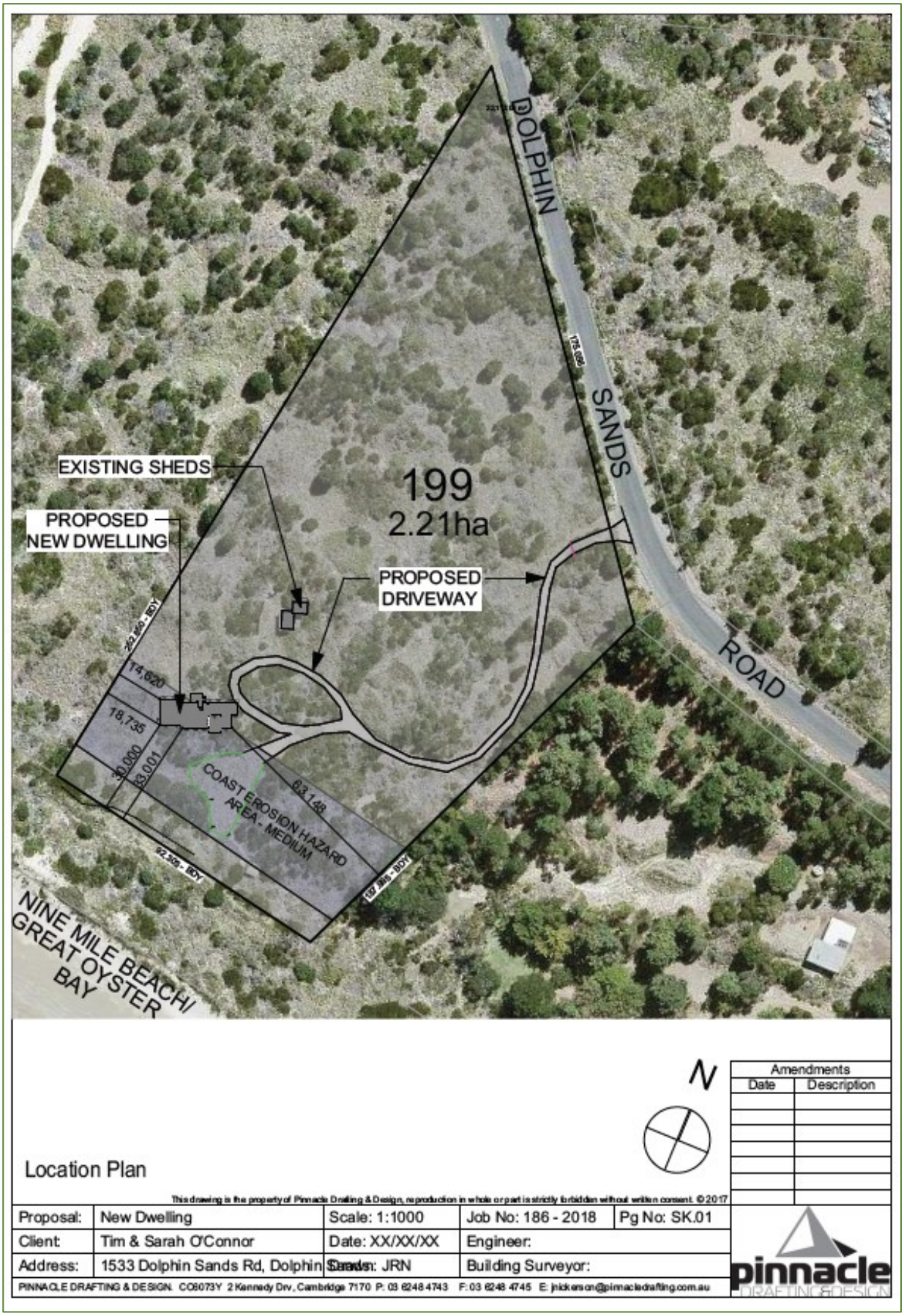


Figure 4. Land use proposal [source: Sarah O'Connor]

METHODS

Database checks

TheList was examined to determined existing vegetation mapping and known sites for threatened flora and fauna. Database reports were produced under DPIPWE's *Natural Values Atlas* (DPIPWE 2019), the Forest Practices Authority's *Biodiversity Values Database* (FPA 2019) and the Commonwealth Department of the Environment & Energy's *Protected Matters Search Tool* (CofA 2019) to support the assessment process (all appended for reference).

Field assessment

The title area was assessed on 25 September 2019 by Mark Wapstra. The area was assessed by meandering transects through the study area to map vegetation transitions, populations of threatened flora (none present), potential habitat of threatened fauna and other management issues such as invasive weed species (none present).

While the title boundaries are not defined by fences (or similar), cadastral information uploaded to the iPhone application iGIS was used to guide the assessment. Note that the assessment included the fringe of Dolphin Sands Road between the title boundary and the sealed road verge, as well as the coastal (Crown) strip between the title boundary and Nine Mile Beach.

Vegetation classification

Vegetation was classified by waypointing vegetation transitions (using hand-held GPS – Garmin Oregon 600) for later comparison to aerial imagery. The structure and composition of the vegetation type(s) was described using nominal 30 m radius plots at a representative site within the vegetation type(s), and compiling "running" species lists between plots and vegetation type(s).

Threatened flora

With reference to the threatened flora, the survey included consideration of the most likely habitats for such species, and if detected, their location marked using hand-held GPS (none detected so further methods not provided).

Threatened fauna

Surveys for threatened fauna were largely limited to an examination of "potential habitat" (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs.

Weed and hygiene issues

The site was also assessed with respect to plant species classified as declared weeds under the Tasmanian *Weed Management Act 1999*, Weeds of National Significance (WoNS) or "environmental weeds" (author opinion and as included in *A Guide to Environmental and Agricultural Weeds of Southern Tasmania*, NRM South 2017).

The site was also assessed with respect to potential impacts of plant and animal pathogens, by reference to habitat types and field symptoms

FINDINGS

Vegetation types

Existing vegetation mapping

This section, which comments on the existing TASVEG 3.0 and TASVEG Live mapping for the study area, is included to highlight the differences between existing mapping and the more recent mapping from the present study to ensure that any parties assessing land use proposals (via this report) do not rely on existing mapping. Note that TASVEG mapping, which was mainly a desktop mapping exercise based on aerial photography, is often substantially different to ground-truthed vegetation mapping, especially at a local scale. An examination of existing vegetation mapping is usually a useful pre-assessment exercise to gain an understanding of the range of habitat types likely to be present and the level of previous botanical surveys.

TASVEG 3.0 and TASVEG Live map the subject title identically as *Acacia longifolia* coastal scrub (TASVEG code: SAL) – see Figure 5.

Revised vegetation mapping

Field assessment confirmed that the subject title is best mapped as SAL (revised vegetation map not provided). While the recent fire event has masked the vegetation classification to a slight degree, sufficient shrubs and remnant/regenerating understorey was present to classify the northern half of the title the same as the unburnt southern half of the title. I have chosen to subsume the existing tracks and buildings into a broader concept of SAL rather than separate as urban areas (TASVEG code: FUR) or extra-urban miscellaneous (TASVEG code: FUM) because these disturbed areas still support the same species as immediately adjacent areas.

SAL actually occurs as a complex mosaic with marram grassland (TASVEG code: FMG) but separating the two at any realistic scale is not practical, nor warranted, given that neither SAL or FRG have a high priority for conservation management, and their configuration is geographically and temporally transient.

The SAL vegetation is characterised by a shrub layer of variable height (to ca. 5 m) and density (from ca. 5% cover through to ca. 80-90% cover) dominated by *Acacia longifolia* subsp. *sophorae* (coast wattle with sparse *Banksia marginata* (silver banksia), one sapling of *Eucalyptus viminalis* (white gum), occasional *Monotoca elliptica* (tree broomheath) and *Leucopogon parviflorus* (coast beardheath). There are plantings of mainland Australian *Eucalyptus botryoides* and *Eucalyptus cladocalyx*, as well as putatively native *Callitris rhomboidea* (oyster bay pine). Other shrubs include occasional *Carpobrotus rossii* (pigface), *Rhagodia candolleana* (coastal saltbush) and one *Astroloma humifusum* (native cranberry). *Pteridium esculentum* (bracken) is currently absent but may have been present pre-fire. Graminoids are sparse and include *Ficinia nodosa* (knobby clubsedge), *Lomandra longifolia* (sagg), *Dianella brevicaulis* (shortstem flaxlily) and *Lepidosperma gladiatum* (coast swordsedge). Grasses are variably dense and include mainly *Ammophila arenaria* (marram grass) with limited native grass species but including *Austrostipa stipoides* (coast speargrass), *Poa labillardierei* (silver tussockgrass), *Rytidosperma caespitosum* (common wallabygrass), *Microlaena stipoides* (weeping grass) and *Tetrarrhena distichophylla* (hairy ricegrass). Herbs are scattered but nowhere abundant and include *Wahlenbergia litticola* (coast bluebell), *Galium australe* (tangled bedstraw), *Cynoglossum australe* (coast houndstongue), *Actites megalocarpus* (dune thistle), *Dichondra repens* (kidney weed), *Oxalis* sp. (oxalis), and *Acaena novae-zelandiae* (buzzy).

Refer to Plates 1-8.

Plates 1-4. Examples of recently burnt SAL in the northern part of the title

Plates 5-8. Examples of unburnt SAL in the southern part of the title, showing the mosaic of SAL/FRG (top two images) and existing areas of disturbance subsumed into SAL (lower two images)

Figure 5. Existing TASVEG 3.0 and TASVEG Live vegetation mapping for the subject title and surrounds (refer to text for codes) [source: TheList]

The vegetation type identified from the subject title is classified as threatened under Schedule 3A of the Tasmanian *Nature Conservation Act 2002,* does not equate to a threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Protection Act 1999*, and are classified as low priority biodiversity values under the *Glamorgan-Spring Bay Interim Planning Scheme 2015.* There are no sites identified from within the title that require special management with respect to vegetation types.

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*. No such species were detected by field assessment.

The *Natural Values Atlas* report indicates several records of threatened flora within 5,000 m of the subject area (see appended report). These (except wholly marine and pelagic species) are listed below with a brief commentary on the likelihood of the site supporting the species, and the potential impacts of the development on these species (Table 1).

Table 1. Threatened flora reported from within 5,000 m of the subject title

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from the DPIPWE's *Natural Values Atlas* (DPIPWE 2019) and other sources where indicated. Habitat descriptions are taken from TSS (2003+) and FPA (2016), except where otherwise indicated. Species marked with # are listed in CofA (2019).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on project area and database records**
Acacia ulicifolia juniper wattle	r -	*Acacia ulicifolia* is found in sandy coastal heaths and open heathy forest and woodland in the north and east of Tasmania. Populations are often sparsely distributed and most sites are near-coastal but it can occasionally extend inland (up to 30 km).	Potential habitat absent.
Bertya tasmanica subsp. *tasmanica* tasmanian bertya	e EN #	*Bertya tasmanica* subsp. *tasmanica* mainly occurs on riparian sites in the northern Midlands (e.g. St Pauls River) and east coast (e.g. Apsley River). It is associated with *Eucalyptus ovata–Callitris oblonga* forest on some sites. Other dominants include *E. rodwayi* and *E. viminalis*. A large population at Swanwick is atypical, with plants occurring within near-coastal vegetation dominated by *Allocasuarina verticillata (*drooping sheoak).	Potential habitat absent (except in the most general of terms). This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Caladenia caudata tailed spider-orchid	v VU #	*Caladenia caudata* has highly variable habitat, which includes the central north: *Eucalyptus obliqua* heathy forest on low undulating hills; the northeast: *E. globulus* grassy/heathy coastal forest, *E. amygdalina* heathy woodland and forest, *Allocasuarina* woodland; and the southeast: *E. amygdalina* forest and woodland on sandstone, coastal *E. viminalis* forest on deep sands. Substrates vary from dolerite to sandstone to granite, with soils ranging from deep windblown sands, sands derived from sandstone and well-developed clay loams developed from dolerite. A high degree of insolation is typical of many sites.	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
Caustis pentandra thick twistsedge	r -	*Caustis pentandra* occurs on sandy soils derived from granite in coastal heathland and heathy woodland, mainly between Freycinet Peninsula and Binalong Bay (with some outlying historical sites).	Potential habitat absent.
Conospermum hookeri tasmanian smokebush	v VU #	*Conospermum hookeri* usually occurs in coastal and near-coastal heathland and heathy forest/woodland dominated by *Eucalyptus amygdalina* or *E. tenuiramis*. It extends from Bruny Island to the Furneaux islands, on granite or sandy, acid, low-nutrient soils. There are some inland occurrences in heathy *E. amygdalina* forest on granite substrates (e.g. near Avoca, Royal Ruby Flats).	Potential habitat absent (except in the most general of terms). This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Corunastylis morrisii bearded midge-orchid	e -	*Corunastylis morrisii* occurs in near-coastal lowland habitats in buttongrass moorland and sedgy open eucalypt woodland on moderately-drained sites, including raised clay pans in poorly drained peaty sedgeland.	Potential habitat absent.
Corunastylis nuda tiny midge-orchid	r -	*Corunastylis nuda* occurs in a wide range of habitats from near sea level to 1,000 m a.s.l., on a range of different soil types and geologies. Vegetation types include scrub, subalpine grassland, open rock plates, heathy open forest, shrubby dry and wet sclerophyll forest.	Potential habitat absent.
Desmodium gunnii southern ticktrefoil	v -	*Desmodium gunnii* occurs in the north and sub-coastal areas of the northeast, with outlying sites at Woolnorth. It grows mostly in damp sclerophyll forest and woodland, usually on fertile sites.	Potential habitat absent.
Dianella amoena grassland flaxlily	r EN # only	*Dianella amoena* occurs mainly in the northern and southern Midlands, where it grows in native grasslands and grassy woodlands.	Potential habitat effectively absent. This distinctive graminoid species was not detected (no seasonal constraint on detection and/or identification).
Epacris barbata bearded heath	e EN #	*Epacris barbata* is found only on Freycinet Peninsula and Schouten Island. It occurs exclusively on granite-based siliceous soils, growing in open heath and heathy woodland/forest in hilly and low-lying terrain from 30-500 m a.s.l.	Potential habitat absent (species is restricted to granite-derived soils on Freycinet Peninsula).
Euphrasia collina subsp. *deflexifolia* eastern eyebright	r -	*Euphrasia collina* subsp. *deflexifolia* occurs in open woodland or heath (sometimes extending to forest), often associated with road edges, tracks and depressions near the headwaters of creeks. Its habitat is associated with the availability of open patches of ground maintained by fire or other disturbance, the proximity of low vegetation and relatively high soil moisture in spring.	Potential habitat absent.
Glycine latrobeana clover glycine	v VU # only	*Glycine latrobeana* occurs in a range of habitats, geologies and vegetation types. Soils are usually fertile but can be sandy when adjacent to or overlaying fertile soils. The species mainly occurs on flats and undulating terrain over a wide geographical range, including near-coastal environments, the Midlands, and the Central Plateau. It mainly occurs in grassy/heathy forests and woodlands and native grasslands.	Potential habitat absent. This species does not occur in this part of Tasmania.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
Glycine microphylla small-leaf glycine	v -	*Glycine microphylla* occurs in dry to dampish sclerophyll forest and woodland in the north and east of the State, with outlying sites at Woolnorth.	Potential habitat present. This distinctive perennial scrambling herb was not detected (no significant seasonal constraint on detection and/or identification).
Lachnagrostis billardierei subsp. *tenuiseta* small-awn blowngrass	r -	*Lachnagrostis billardierei* subsp. *tenuiseta* grows on deep windblown sands, such as on the edge of the seaward side of sand dunes. It can grow amongst stands of marram grass, close to the beach, either on or between the first two or three sand dunes (subsp. *billardierei* tends to grow in more sheltered positions).	Potential habitat widespread. This distinctive perennial grass was not detected (no significant seasonal constraint on detection and/or identification).
Lepidosperma forsythii stout rapiersedge	r -	*Lepidosperma forsythii* occurs in wet heathland and sedgeland.	Potential habitat absent.
Lepidium hyssopifolium soft peppercress	e EN # only	The native habitat of *Lepidium hyssopifolium* is the growth suppression zone beneath large trees in grassy woodlands and grasslands (e.g. over-mature black wattles and isolated eucalypts in rough pasture). *Lepidium hyssopifolium* is now found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania between sea-level to 500 metres a.s.l. in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. It can also occur on frequently slashed grassy/weedy roadside verges where shade trees are absent.	Potential habitat absent.
Melaleuca pustulata warty paperbark	r -	*Melaleuca pustulata* occurs in a range of habitats including dry open woodland (often on dolerite in forests dominated by *Eucalyptus pulchella*), grassland and scrub, riparian zones and stable dunes in sparse coastal shrubbery. It is restricted to the State's Central East coast.	Potential habitat present. I have mapped the occurrence of this species (for personal reasons) along the verges of Dolphin Sands Road and more widely in the Dolphin Sands area. I suspect the species is being spread by mechanical disturbance (roadside slashing) with only scattered natural occurrences elsewhere. This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Orthoceras strictum horned orchid	r -	*Orthoceras strictum* occurs in a wide range of habitat types including buttongrass moorland, sedgy and scrubby heathland, sedgy eucalypt shrubland and open forest, usually on poorly- to moderately-drained peaty, sandy and clay soils that are at least seasonally moist. It can also occur on thin mossy soils at soaks on and below rock faces. The species has a wide elevation range from sea level to 1000 m a.s.l.	Potential habitat absent.
Pimelea curviflora var. *gracilis* slender curved riceflower	r -	*Pimelea curviflora* var. *gracilis* occurs in a range of vegetation types from wet and dry sclerophyll forest to hardwood plantations. Understories vary from open and grassy to densely shrubby. It can densely colonise disturbed sites such as firebreaks, log landings and tracks.	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
Pimelea flava subsp. *flava* yellow riceflower	r -	*Pimelea flava* subsp. *flava* occurs in wet and dry sclerophyll forest and woodland, and extends into hardwood and softwood plantations. It often occurs abundantly on disturbed sites such as in logged forest, firebreaks, powerline easements and road batters.	Potential habitat marginally present (albeit atypical of known sites). This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Pterostylis squamata ruddy greenhood	v -	*Pterostylis squamata* occurs in heathy and grassy open eucalypt forest, woodland and heathland on well-drained sandy and clay loams.	Potential habitat absent.
Pterostylis ziegeleri grassland greenhood	v VU #	*Pterostylis ziegeleri* occurs in the State's south, east and north, with an outlying occurrence in the northwest. In coastal areas, the species occurs on the slopes of low stabilised sand dunes and in grassy dune swales, while in the Midlands it grows in native grassland or grassy woodland on well-drained clay loams derived from basalt.	Potential habitat marginally present. In nearby areas, the species occurs in areas of *Eucalyptus viminalis* woodland and coastal scrub, but is absent from areas dominated by marram grass. The subject title has limited areas with potential habitat and I do not recommend a further timed-targeted survey to coincide with the peak flowering period (Wapstra 2018), as there is a statistically very low likelihood of occurrence. That said, I examined the known population along Dolphin Sands Road (on the verge where council installed the new information sign in the heart of the population) prior to the present survey and easily detected early budding rosettes such that the present survey was considered appropriate to detect the species. It is noted that despite the recent fire across the northern part of the title, several herbs and grasses were already re-sprouting and still present below unburnt *Banksia marginata* and *Acacia longifolia* subsp. *sophorae*.
Schoenus brevifolius zigzag bogsedge	r -	*Schoenus brevifolius* grows in shallow water around the fringes of lagoons in the northeast.	Potential habitat absent.
Senecio psilocarpus swamp fireweed	e VU # only	*Senecio psilocarpus* is known from six widely scattered sites in the northern half of the State, including King and Flinders islands. It occurs in swampy habitats including broad valley floors associated with rivers, edges of farm dams amongst low-lying grazing/cropping ground, herb-rich native grassland in a broad swale between stable sand dunes, adjacent to wetlands in native grassland, herbaceous marshland and low-lying lagoon systems.	Potential habitat absent.
Stenanthemum pimeleoides propeller plant	v VU # only	*Stenanthemum pimeleoides* is restricted to Tasmania's central East Coast and the Northern Midlands, where it occurs in dry sclerophyll forest or woodland with an open heathy or shrubby understorey. The topography tends to be flat to gently sloping. The species occurs in the drier parts of the State with rainfall between 500-800 mm per year, and usually at elevations below 100 m.	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
Spyridium vexilliferum var. *vexilliferum* helicopter bush	r -	*Spyridium vexilliferum* occurs in a range of vegetation types, including sandy heaths, rock plates and dry sclerophyll forest and woodland (mainly dominated by *Eucalyptus amygdalina*). It is found on a range of substrates (e.g. mudstone, granite, laterite gravels) from near-coastal areas in the east, north and west of the State, to the Midlands and lower Derwent Valley. It is most abundant in open or disturbed areas, as it can proliferate from soil-stored seed after disturbance.	Potential habitat marginally present (albeit atypical of known sites). This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Stenopetalum lineare narrow threadpetal	e -	*Stenopetalum lineare* typically grows in grass-covered low dunes but it also extends to scrub-covered dunes (coast wattle), and there is one inland site on a rocky outcrop in dry sclerophyll forest.	Potential habitat present. I have spent considerable time mapping the occurrences of this species in the greater Dolphin Sands area (all of the database records are "mine"). This species was not detected from the subject title. It appears to be detectable all year round, including from early seedlings. It is noted that despite the recent fire across the northern part of the title, several herbs and grasses were already re-sprouting and still present below unburnt *Banksia marginata* and *Acacia longifolia* subsp. *sophorae*.
Thelymitra atronitida blackhood sun-orchid	e -	*Thelymitra atronitida* has been recorded from near-coastal heathland, sedgeland and open heathy/sedgy eucalypt woodland on relatively poorly-drained sandy loams. The altitude range of known sites is 10-120 m a.s.l.	Potential habitat absent.
Thelymitra jonesii skyblue sun-orchid	e EN # only	*Thelymitra jonesii* occurs in moist coastal heath on sandy to peaty soils and in *Eucalyptus obliqua* forest in deep loam soil over dolerite.	Potential habitat absent.
Thelymitra malvina mauvetuft sun-orchid	e -	*Thelymitra malvina* has been recorded from coastal heath and sedgeland on sandy loams or clay loams at low elevations.	Potential habitat absent.
Thryptomene micrantha ribbed heathmyrtle	v -	*Thryptomene micrantha* is restricted to near-coastal areas between Bicheno and the southern tip of the Freycinet Peninsula. It may form locally dense thickets on sands derived from Devonian granite, typically in coastal heathland or *Eucalyptus amygdalina* heathy woodland or forest on gently undulating lower slopes or flats.	Potential habitat present (although the species is not known on this side of Great Oyster Bay). This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Tricostularia pauciflora needle bogsedge	r -	*Tricostularia pauciflora* is found in sandy heaths, dunes and heath on clay soils around coastal areas.	Potential habitat marginally present (albeit atypical of known sites). This distinctive perennial sedge was not detected (no seasonal constraint on detection and/or identification).
Trithuria submersa submerged watertuft	r -	*Trithuria submersa* occurs in the Northern Midlands, near-coastal areas in the east and northeast, King Island, Flinders Island and Cape Barren Island, with an isolated record from the Central Highlands. Habitat includes areas subject to flooding, such as the margins of wetlands, small watercourses, shallow temporary depressions and wet heathlands.	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
Utricularia australis yellow bladderwort	r -	*Utricularia australis* has a widespread distribution, ranging from the Gordon River in the southwest to the northern part of Flinders Island in the far northeast (and also reportedly from the Derwent River in the State's south). It grows in stationary or slow-moving water, including natural lakes, farm dams and reservoirs, where it has been reported as forming 'locally dense swards'.	Potential habitat absent.
Viminaria juncea golden spray	e -	*Viminaria juncea* grows close to sea level in the Moulting Lagoon area on soils prone to periodic waterlogging and drying out in summer. The associated vegetation is generally a sedgy shrubland.	Potential habitat absent.
Wilsonia rotundifolia roundleaf wilsonia	r -	*Wilsonia rotundifolia* is found in coastal and inland saltmarshes in the eastern part of the State.	Potential habitat absent.
Xanthorrhoea arenaria sand grasstree	v VU #	*Xanthorrhoea arenaria* is restricted to coastal areas from Bridport in the northeast to Coles Bay on the East Coast, where it occurs in coastal sandy heathland, extending into heathy woodland and forest, mainly dominated by *Eucalyptus amygdalina.*	Potential habitat absent.
Xerochrysum palustre swamp everlasting	v VU # only	*Xerochrysum palustre* has a scattered distribution with populations in the northeast, east coast, Central Highlands and Midlands, all below about 700 m elevation. It occurs in wetlands, grassy to sedgy wet heathlands and extends to associated heathy *Eucalyptus ovata* woodlands. Sites are usually inundated for part of the year.	Potential habitat absent (no wetland habitats present).

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*. Site assessment did not detect any such species, nor significant potential habitat of such species.

The *Natural Values Atlas* report indicates several records of threatened fauna within 5,000 m of the subject area (see appended report). These (except wholly marine and pelagic species) are listed below with a brief commentary on the likelihood of the site supporting the species, and the potential impacts of the development on these species (Table 2).

Any development will not have will not have a deleterious impact on known sites (or significant potential habitat) of fauna species classified as threatened under the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. In my opinion, specific referral to government agencies administering these Acts is not warranted.

Table 2. Threatened fauna potentially present within 5,000 m of the subject title

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from the DPIPWE's *Natural Values Atlas* (DPIPWE 2019), Bryant & Jackson (1999) and FPA (2019); marine, wholly pelagic and littoral species such as marine mammals, fish and offshore seabirds are excluded. Species marked with # are listed in CofA (2019).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on project area and database records**
Accipiter novaehollandiae grey goshawk	e -	Potential habitat is native forest with mature elements below 600 m altitude, particularly along watercourses. Significant habitat for the grey goshawk may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body.	Potential habitat absent (site is dry coastal wattle and marram grass). The species may very occasionally utilise the greater title area as part of a home range and for foraging but small-scale development will not have a significant impact on this aspect of the life history of the species.
Antipodia chaostola tax. *leucophaea* chaostola skipper	e EN #	Potential habitat is dry forest and woodland supporting *Gahnia radula* (usually on sandstone and other sedimentary rock types) or *Gahnia microstachya* (usually on granite-based substrates).	Potential habitat absent. Both *Gahnia* species are not present.
Aquila audax subsp. *fleayi* wedge-tailed eagle	e EN #	Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands).	Potential nesting habitat absent. No known nests within 5,000 m of subject title; all surrounding vegetation of similar treeless form as within subject title (also high levels of disturbance). The species may utilise the greater title area as part of a home range and for foraging but small-scale development will not have a significant impact on this aspect of the life history of the species.
Botaurus poiciloptilus Australasian bittern	- EN #	Potential habitat is comprised of wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. *Phragmites*, *Cyperus*, *Eleocharis*, *Juncus*, *Typha*, *Baumea*, *Bolboschoenus*) or cutting grass (*Gahnia*) growing over a muddy or peaty substrate (TSSC 2011).	Potential habitat absent. No wetlands are present.
Ceyx azureus subsp. *diemenensis* Tasmanian azure kingfisher	e EN # only	Potential foraging habitat is primarily freshwater (occasionally estuarine) waterbodies such as large rivers and streams with well-developed overhanging vegetation suitable for perching and water deep enough for dive-feeding. Potential breeding habitat is usually steep banks of large rivers (a breeding site is a hole (burrow) drilled in the bank).	Potential habitat absent. No ephemeral or permanent waterbodies or drainage features present within or close to the subject title.
Dasyurus maculatus subsp. *maculatus* spotted-tailed quoll	r VU #	Potential habitat is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex and steep rocky areas are present, and includes remnant patches in cleared agricultural land.	Potential habitat very marginally present. No evidence (e.g. scats) of the species was observed. The site is unlikely to support dens of the species because of the understorey lacking substantial large coarse woody debris, rock piles, and wombat burrows.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
			The species may utilise the greater title area as part of a home range and for foraging but development at the scale proposed and within the context of surrounding land uses will not have a significant impact on potential habitat of the species.
Dasyurus viverrinus eastern quoll	- EN #	Potential habitat is a variety of habitats including rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest/native grassland mosaics which are bounded by agricultural land.	Potential habitat very marginally present. See under spotted-tailed quoll.
Galaxias fontanus Swan galaxias	v VU	Potential habitat is slow to moderately fast-flowing streams containing permanent water (even when not flowing), which have good instream cover from overhanging banks and/or logs, and shade from overhanging vegetation. A population can only be maintained where barriers have prevented establishment of trout and redfin perch. The nature of these barriers is variable and can include permanent natural structures such as waterfalls and chutes and also low flow-dependent features such as marshes, ephemeral water-losing and remnant channels, braided channel floodplain features.	Potential habitat absent. No ephemeral or permanent waterbodies or drainage features present within the subject title. The site is also well outside the recognised range of the species.
Haliaeetus leucogaster white-bellied sea-eagle	v -	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used.	Potential nesting habitat absent. No known nests within 5,000 m of subject title; all surrounding vegetation of similar treeless form as within subject title (also high levels of disturbance). The species may utilise the greater title area as part of a home range and for foraging (although this would be mainly over Nine Mile Beach and Moulting Lagoon) but small-scale development will not have a significant impact on this aspect of the life history of the species.
Hirundapus caudacutus white-throated needletail	- VU #	Occasional non-breeding migrant to Tasmania only.	Potential habitat widespread but this is an aerially-foraging bird that rarely lands.
Lathamus discolor swift parrot	e CR #	Potential foraging habitat comprises *E. globulus* or *E. ovata* trees that are old enough to flower. Potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees.	*Eucalyptus ovata* is absent so this aspect of potential foraging habitat is not present. *Eucalyptus globulus* is absent so this aspect of potential foraging habitat is not present. Hollow-bearing trees are absent so potential breeding habitat is not present.
Litoria raniformis green and golden frog	v VU	Potential habitat is permanent and temporary waterbodies, usually with vegetation in or around them, including features such as natural lagoons, permanently or seasonally inundated swamps and wetlands, farm dams, irrigation channels, artificial water-holding sites such as old quarries, slow-flowing stretches of streams and rivers and drainage features.	Potential habitat absent. No ephemeral or permanent waterbodies or drainage features present within the subject title.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
Pardalotus quadragintus forty-spotted pardalote	e EN	Potential habitat is any forest and woodland supporting *Eucalyptus viminalis* (white gum) where the canopy cover of *E. viminalis* is greater than or equal to 10% or where *E. viminalis* occurs as a localised canopy dominant or co-dominant in patches exceeding 0.25 ha.	Potential habitat absent. *Eucalyptus viminalis* is only present as a single small tree (less than 5 m tall). The forty-spotted pardalote appears to be absent from the Dolphin Sands spit, despite the extensive areas of superficially ideal habitat – this may be due to competition with aggressive native birds (such as the noisy miner and striated pardalote) and introduced species (such as the kookaburra).
Perameles gunnii subsp. *gunnii* eastern barred bandicoot	- VU #	Potential habitat is open vegetation types including woodlands and open forests with a grassy understorey, native and exotic grasslands, particularly in landscapes with a mosaic of agricultural land and remnant bushland. Significant habitat is dense tussock grass-sagg-sedge swards, piles of coarse woody debris and denser patches of low shrubs (especially those that are densely branched close to the ground providing shelter) within the core range of the species.	Potential habitat marginally present. The species can occur in a range vegetation types but tends to be most prevalent in grassier and more open habitats. The species may utilise the greater title area as part of a home range and for foraging but small-scale development will not have a significant impact on this aspect of the life history of the species. Development may manifestly benefit the species by creating open areas suitable for foraging.
Prototroctes maraena Australian grayling	v VU #	Potential habitat is all streams and rivers in their lower to middle reaches. Areas above permanent barriers (e.g. Prosser River dam, weirs) that prevent fish migration, are not potential habitat.	Potential habitat absent. No ephemeral or permanent waterbodies or drainage features present within the subject title.
Pseudemoia pagenstecheri tussock skink	v -	Potential habitat comprises native grasslands dominated by tussock-forming grasses.	Potential habitat absent. Native grassland is absent.
Pseudemoia rawlinsoni glossy grass skink	r -	Potential habitat of *Pseudemoia rawlinsoni* is wetlands and swampy sites (including grassy wetlands, teatree swamps and grassy sedgelands), and margins of such habitats.	Potential habitat absent. No swampy vegetation is present.
Pseudomys novaehollandiae New Holland mouse	e VU #	Potential habitat of *Pseudomys novaehollandiae* is heathlands (mainly dry heathlands but also where dry heathlands form a mosaic with other heathland, moorland and scrub complexes), heathy woodlands (i.e. eucalypt canopy cover 5-20%), *Allocasuarina*-dominated forests on sandy substrates (not dolerite or basalt), and vegetated sand dunes. Key indicator plant species include (but are not restricted to) *Aotus ericoides*, *Lepidosperma concavum*, *Hypolaena fastigiata* and *Xanthorrhoea* spp.	Potential habitat absent. The site does not support heathland or heathy woodland and none of the key indicator plant species are present.
Sarcophilus harrisii Tasmanian devil	e EN #	Potential habitat is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (4-27 km^2). Significant habitat is a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range	Potential habitat present. See under spotted-tailed quoll.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
		(Pemberton 1990). Potential denning habitat is areas of burrowable, well-drained soil, log piles or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass.	
Tyto novaehollandiae subsp. *castanops* masked owl	e VU #	Potential habitat is all areas with trees with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may constitute potential habitat. Significant habitat is any areas within the core range of native dry forest with trees over 100 cm dbh with large hollows (≥15 cm entrance diameter).	Potential nesting habitat absent. Large trees with large hollows are absent from the title. The species may utilise the greater title area as part of a home range and for foraging but small-scale development will not have a significant impact on this aspect of the life history of the species.

Other ecological matters

Weeds

No plant species classified as declared within the meaning of the Tasmanian *Weed Management Act 1999* were detected from within the title area. Special management (e.g. a complex weed management plan) is not considered warranted because owner occupation is considered the most appropriate (and realistic) means of achieving control of any declared species, should they arise during or post-works.

Several planning manuals provide guidance on appropriate management actions to minimise the introduction of weeds and disease during works, which can be referred to develop site-specific prescriptions for any future works. These manuals include:

- Allan, K. & Gartenstein, S. (2010). *Keeping It Clean: A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*. NRM South, Hobart;
- Rudman T. (2005). *Interim* Phytophthora cinnamomi *Management Guidelines*. Nature Conservation Report 05/7, Biodiversity Conservation Branch, Department of Primary Industries, Water & Environment, Hobart;
- Rudman, T., Tucker, D. & French, D. (2004). *Washdown Procedures for Weed and Disease Control*. Edition 1. Department of Primary Industries, Water & Environment, Hobart; and
- DPIPWE (2015). *Weed and Disease Planning and Hygiene Guidelines - Preventing the Spread of Weeds and Diseases in Tasmania*. Department of Primary Industries, Parks, Water & Environment, Hobart.

Rootrot pathogen, *Phytophthora cinnamomi*

Phytophthora cinnamomi (PC) is widespread in lowland areas of Tasmania, across all land tenures. However, disease will not develop when soils are too cold or too dry. For these reasons, PC is not a threat to susceptible plant species that grow at altitudes higher than about 700 m a.s.l. or where annual rainfall is less than about 600 mm (e.g. Midlands and Derwent Valley). Furthermore, disease is unlikely to develop beneath a dense canopy of vegetation because shading cools the soils to below the optimum temperature for the pathogen. A continuous canopy of vegetation taller than about 2 m is sufficient to suppress disease. Hence PC is not considered a threat to susceptible plant species growing in wet sclerophyll forests,

rainforests (except disturbed rainforests on infertile soils) and scrub e.g. teatree scrub (Rudman 2005; FPA 2009).

According to Rudman (2005) and FPA (2009), the vegetation type recorded from the subject title is not susceptible to the root-rot pathogen, *Phytophthora cinnamomi*. No evidence of the pathogen was noted (i.e. no dead or dying susceptible plant species, which included *Banksia marginata, Monotoca elliptica, Astroloma humifusum and Leucopogon parviflorus*).

It is reasonable to consider the title area to be pathogen-free. Refer to section on weeds for planning manuals/guidelines.

Myrtle wilt

Myrtle wilt, caused by a wind-borne fungus (*Chalara australis*), occurs naturally in rainforest where myrtle beech (*Nothofagus cunninghamii*) is present. The fungus enters wounds in the tree, usually caused by damage from wood-boring insects, wind damage and forest clearing. The incidence of myrtle wilt often increases forest clearing events such as windthrow and wildfire. *Nothofagus cunninghamii* is absent from the development area. No special management is recommended.

Myrtle rust

Myrtle rust is a disease limited to plants in the Myrtaceae family. This plant disease is a member of the guava rust complex caused by *Austropuccinia psidii*, a known significant pathogen of Myrtaceae plants outside Australia. Infestations are currently limited to NSW, Victoria, Queensland and Tasmania (DPIPWE 2015).

No evidence of myrtle rust was noted (planted specimens of *Eucalyptus botryoides* and *Eucalyptus cladocalyx*, as well as a single regrowth specimen of presumably indigenous *Eucalyptus viminalis*, were all healthy). The longer-term management issue for the site is to ensure that any ornamental and/or rehabilitation plantings undertaken source plants from a reputable nursery free from the pathogen (such facilities are already subject to strict biosecurity legislation, policies and protocols).

Chytrid fungus and other freshwater pathogens

Native freshwater species and habitat are under threat from freshwater pests and pathogens including *Phytophthora cinnamomi* (root rot), *Batrachochytrium dendrobatidis* (Chytrid frog disease), *Mucor amphibiorum* (platypus Mucor disease) and the freshwater algal pest *Didymosphenia geminata* (Didymo) (Allan & Gartenstein 2010). Freshwater pests and pathogens are spread to new areas when contaminated water, mud, gravel, soil and plant material or infected animals are moved between sites. Contaminated materials and animals are commonly transported on boots, equipment, vehicles tyres and during road construction and maintenance activities. Once a pest pathogen is present in a water system it is usually impossible to eradicate. The manual *Keeping it Clean - A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens* (Allan & Gartenstein 2010) provides information on how to prevent the spread of freshwater pests and pathogens in Tasmanian waterways wetlands, swamps and boggy areas.

The title area does not support any permanent or ephemeral waterbodies or drainage features. No special management is recommended.

Matters of National Environmental Significance – Threatened Ecological Communities

CofA (2019) indicates that the threatened ecological communities, listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999) Giant Kelp Marine Forests of South East Australia (listed as Endangered), Subtropical and Temperate Coastal Saltmarsh (listed as Vulnerable), and Tasmanian Forests and Woodlands dominated by Black Gum or Brookers Gum (*Eucalyptus ovata*/*Eucalyptus brookeriana*) (listed as Critically Endangered) are likely to occur, or may occur, within the area. None of these vegetation communities are present within or adjacent to the title.

Matters of National Environmental Significance – Ramsar wetlands

CofA (2019) indicates that the study area is within 10 km of the wetland of international importance known as Apsley Marshes and within the Ramsar site known as Moulting Lagoon. The subject title does not include any wetland features itself and is not within the catchment of the above features (technically "drains" directly into Great Oyster Bay across Nine Mile Beach)..

Bushfire hazard management

While I am not an accredited bushfire hazard practitioner, my site assessment indicated very little management of native vegetation will be required to satisfy bushfire hazard management requirements. In my opinion, any such management will have a negligible impact on the "natural values" of the site, irrespective of the final BAL rating achieved.

SUMMARY

Refer to following "compliance statement" that addresses the provisions of the Biodiversity Code under the *Glamorgan-Spring Bay Interim Planning Scheme 2015*.

REFERENCES

Allan, K. & Gartenstein, S. (2010). *Keeping It Clean: A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*. NRM South, Hobart.

APG (Angiosperm Phylogeny Group) (2016). An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV. *Botanical Journal of the Linnean Society* 181(1): 1–20. [for scientific and taxonomic nomenclature of vascular plants]

Bryant, S.L. & Jackson, J. (1999). *Tasmania's Threatened Fauna Handbook: What, Where and How to Protect Tasmania's Threatened Animals*. Threatened Species Unit, Parks & Wildlife Service, Hobart.

CofA (Commonwealth Australia) (2019). *Protected Matters Search Tool Report* for a polygon defining the title, dated 24 August 2019. [appended]

de Salas, M.F. & Baker, M.L. (2019). *A Census of the Vascular Plants of Tasmania, including Macquarie Island*. Tasmanian Herbarium, Hobart. [for scientific and taxonomic nomenclature of vascular plants]

DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2015). *Weed and Disease Planning and Hygiene Guidelines – Preventing the Spread of Weeds and Diseases in Tasmania*. Department of Primary Industries, Parks, Water & Environment, Hobart.

DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2015). *Guidelines for Natural Values Surveys - Terrestrial Development Proposals.* Department of Primary Industries, Parks, Water & Environment, Hobart.

DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2019). *Natural Values Atlas Report ECOtas_1533DolphinSandsRoad* for a polygon defining the title area (centred on 600676mE 5338928mN), buffered by 5 km, dated 24 August 2019. [appended]

DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2019). Threatened Native Vegetation Communities List, as per Schedule 3A of the Tasmanian *Nature Conservation Act 2002*. http://dpipwe.tas.gov.au/conservation/flora-of-tasmania/monitoring-and-mapping-tasmanias-vegetation-(tasveg)/tasveg-the-digital-vegetation-map-of-tasmania/threatened-native-vegetation-communities.

Duretto, M.F. (Ed.) (2009+) *Flora of Tasmania Online*. Tasmanian Herbarium, Hobart. [for scientific and taxonomic nomenclature of vascular plants]

FPA (Forest Practices Authority) (2009). *Management of* Phytophthora cinnamomi *in Production Forests*. Flora Technical Note No. 8. Forest Practices Authority, Hobart.

FPA (Forest Practices Authority) (2019). *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 600676mE 5338928mN (nominally the centroid of the *Natural Values Atlas* report), buffered by 2 km, hyperlinked species' profiles and predicted range boundary maps, dated 24 August 2019. [appended]

FPA (Forest Practices Authority) (2016). *Habitat Descriptions for Threatened Flora in Tasmania*. Forest Practices Authority, Hobart.

Kitchener, A. & Harris, S. (2013+). *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation*. Edition 2 (online version). Department of Primary Industries, Parks, Water & Environment, Hobart. [for classification and nomenclature of vegetation mapping units]

NRM South (2017). *A Guide to Environmental and Agricultural Weeds of Southern Tasmania*. NRM South, Hobart.

Rudman T. (2005). *Interim* Phytophthora cinnamomi *Management Guidelines*. Nature Conservation Report 05/7, Biodiversity Conservation Branch, Department of Primary Industries, Water & Environment, Hobart.

Rudman, T., Tucker, D. & French, D. (2004). *Washdown Procedures for Weed and Disease Control*. Edition 1. Department of Primary Industries, Water & Environment, Hobart.

TSS (Threatened Species Section) (2003+). *Notesheets* and *Listing Statements for* various threatened species. Department of Primary Industries, Parks, Water & Environment, Hobart.

TSSC (Threatened Species Scientific Committee) (2011). *Commonwealth Conservation Advice on* Botaurus poiciloptilus *(Australasian Bittern).* Department of Sustainability, Environment, Water, Population & Communities. Canberra.

Wapstra, M. (2018). *Flowering Times of Tasmanian Orchids: A Practical Guide for Field Botanists*. Self-published by the author (4th Edition, July 2018 version).

Wapstra, H., Wapstra, A., Wapstra, M. & Gilfedder, L. (2005+, updated online at www.dpipwe.tas.gov.au). *The Little Book of Common Names for Tasmanian Plants*. Department of Primary Industries, Water & Environment, Hobart. [for vernacular nomenclature of vascular plants]

"COMPLIANCE STATEMENT" (BIODIVERSITY CODE) FOR 1533 DOLPHIN SANDS ROAD (PID 5280523; C.T. 54666/199), DOLPHIN SANDS, TASMANIA

SUPPORT DOCUMENTATION FOR FUTURE DEVELOPMENT APPLICATION UNDER *GLAMORGAN-SPRING BAY INTERIM PLANNING SCHEME 2015*

Prepared by Mark Wapstra for Sarah O'Connor, 27 September 2019

Preamble

Note that the following "compliance statement" is my interpretation of the provisions of the *Glamorgan Spring Bay Interim Planning Scheme 2015* and does not represent the views of Glamorgan Spring Bay Council. The following does not constitute legal advice. It is recommended that formal advice be sought from the relevant agency prior to acting on any aspect of this statement.

Under the *Glamorgan Spring Bay Interim Planning Scheme 2015*, the title proposed for development is zoned as Particular Purpose (Dolphin Sands) and wholly subject to the Biodiversity Protection Area overlay, designated as such because of the presence of the non-threatened vegetation type *Acacia longifolia* coastal scrub (TASVEG code: SAL) i.e. the overlay reflects the presence of native vegetation as mapped on TASVEG.

Below I address the various relevant provisions of the *Scheme* that relate to the management of values considered in the preceding report, with the emphasis on addressing the intent and specifics of the Biodiversity Code.

Particular Purpose zoning

The purpose of the Particular Purpose (Dolphin Sands) zone is stated below:

34.1 Zone Purpose

34.1.1 Zone Purpose Statements

34.1.1.1 To protect the environmentally fragile nature of the Dolphin Sands area particularly with respect to land stability, vegetation, wildlife and landscape amenity.

34.1.1.2 To ensure that use or development has minimal disturbance to the natural environment and visual amenity of the area.

In my opinion, a residential dwelling positioned as proposed (see Figure 4), i.e. in the more disturbed part of the title amongst non-threatened semi-native vegetation (highly modified by historical land use), should not compromise the zone purpose.

Under the Use Table (Section 34.2), "Residential" is a Permitted Use Class with the Qualification "Only if single dwelling or homebased business".

The Development Standards for Building Works are stated at clause 34.4. Those clauses relevant to ecological values are stated below:

34.4.1 Building Height

Objective: To protect the landscape and natural values and ensure that buildings compliment the coastal bushland character, privacy and seclusion that residents of Dolphin Sands enjoy.

This clause is primarily related to ensuring the "character" of the area, which is partly related to the natural values. However, the specific clauses relate to building height, which is not of direct relevance to ecological values.

34.4.1 Setback

Objective: To protect the landscape and natural values and ensure that buildings compliment the coastal bushland character, privacy and seclusion that residents of Dolphin Sands enjoy.

The majority of the clauses relate to the specific setbacks required from particular boundaries, which have little direct relevance to the ecological values of the site.

Clause A4, however, states:

A4: All buildings are to be located in existing areas clear of native vegetation or within a building envelope shown on the title.

The Acceptable Solution A4 may be difficult to satisfy because (a) I do not believe that the title has a defined building envelope and (b) the whole title supports native vegetation. That said, the proposed site for the residence in semi-native vegetation only i.e. *Acacia longifolia* coastal scrub (SAL)/marram grassland (FMG), in the part of the title that has been previously modified to some extent.

The Performance Criteria are stated at P4, as follows:

P4: Buildings may be located in areas containing native vegetation where no other alternatives exist due to lack of cleared areas with suitable topography, setbacks, and having regard to bushfire hazard management.

On this basis, the proposed positioning of the residence will be acceptable under the Particular Purpose (Dolphin Sands) zoning.

Biodiversity Code

The purpose of the Biodiversity Code is stated below:

E10.1 Purpose

E10.1.1

The purpose of this provision is to:

(a) minimise loss of identified threatened native vegetation communities and threatened flora species;

(b) conserve identified threatened fauna species by minimising clearance of important habitat and managing environmental impact;

(c) minimise loss of other biodiversity values that are recognised as locally significant by the Planning Authority.

The subject title supports only non-threatened vegetation in the form of a mosaic of *Acacia longifolia* coastal scrub (SAL)/marram grassland (FMG), such that E10.1.1(a) does not have application in relation to threatened native vegetation communities.

The subject title does not support any populations of threatened flora, such that E10.1.1(a) does not have application in relation to threatened flora.

The subject title does not contain identified threatened fauna species or important habitat for such species, such that E10.1.1(b) does not have application.

I am not aware of "other biodiversity values that are recognised as locally significant by the Planning Authority", such that E10.1.1(c) probably does not have direct application. However, the values identified in Table E10.1 (Priority Biodiversity Values) are explored below.

Table E10.1 indicates that "high priority biodiversity values" are:

> Native vegetation communities listed as threatened under the *Nature Conservation Act 2002* (Tas)
>
> AND
>
> Important habitat for threatened species listed under the *Threatened species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999*.

Neither of these values is present, such that "high priority biodiversity values" are not present.

Table E10.1 indicates that "moderate priority biodiversity values" are:

> Other habitat for threatened species listed under the *Threatened species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999*.

Unfortunately, this *Scheme* does not include a definition of "other habitat" or any description of the concept. In a highly technical sense, any vegetation type (including modified land) could qualify as "other habitat for threatened species" such that it becomes almost impossible to discount any area of native vegetation (however modified), or even many patches of modified land such as pasture, regenerating cleared land, plantations, etc., within the municipality as not being "moderate priority biodiversity value", which is clearly not the intent. However, in my professional opinion, the title does not support habitat types strongly associated with threatened flora or fauna (and no populations of threatened flora or fauna were identified), such that I do not believe that the subject title supports "moderate priority biodiversity values".

Table E10.1 indicates that "low priority biodiversity values" are:

> Other native vegetation communities.

The title supports only "low priority biodiversity values".

The application of the Biodiversity Code is stated below:

> **E10.2 Application**
>
> This code applies to development involving clearance and conversion or disturbance of native vegetation within a Biodiversity Protection Area.

The title is entirely covered by the Biodiversity Protection Area overlay. Under the *Scheme*, "native vegetation" is defined as:

> "means plants that are indigenous to Tasmania including trees, shrubs, herbs and grasses that have not been planted for domestic or commercial purposes".

For the purposes of this analysis, it is assumed that a development will require at least some clearance and conversion and/or disturbance of native vegetation such that the Code has application.

"Clearance and conversion" is defined as:

> "the process of removing native vegetation from an area of land and:
>
> (a) leaving the area of land, on a permanent or extended basis, in a state predominantly unvegetated with native vegetation; or
>
> (b) replacing the native vegetation so removed, on a permanent or extended basis, with residential, commercial, mining, agriculture or other non-agricultural development.

This concept would relate to any areas that currently support native vegetation and will end up totally cleared such as for a building or access.

"Disturbance" is defined as:

> "the alteration of the structure and species composition of a native vegetation community through actions including cutting down, felling, thinning, logging, removing or destroying of a native vegetation community.

This concept would relate to an area designated for fuel hazard management, although it is noted that while there may be minor structural modification (mainly understorey), the species composition will essentially remain the same between managed and un-managed vegetation.

Because the Biodiversity Code has possible application, Section E10.5 has relevance, as follows:

> **E10.5 Application Requirements**
>
> E10.5.1
>
> In addition to any other application requirements, the planning authority may require the applicant to provide a natural values determination if considered necessary to determine compliance with acceptable solutions.
>
> E10.5.2
>
> In addition to any other application requirements, the planning authority may require the applicant to provide any of the following information if considered necessary to determine compliance with performance criteria:
>
> (a) a natural values determination;
>
> (b) a natural values assessment;
>
> (c) a report detailing how impacts on priority biodiversity values will be avoided, minimised, and/or mitigated;
>
> (d) a special circumstances justification report;
>
> (e) a biodiversity offsets plan.

The intent of the present report and "compliance statement" is to meet the requirements of Section E10.5.2 of the Biodiversity Code.

The objective for Building and Works Development Standards are stated below:

> **E10.7 Development Standards**
>
> E10.7.1 Buildings and Works
>
> Objective: To ensure that development for buildings and works that involves clearance and conversion or disturbance within a Biodiversity Protection Area does not result in unnecessary or unacceptable loss of priority biodiversity values.

While the *Scheme* (or Code) does not define terms such as "unnecessary or unacceptable", these are effectively defined by reference to the Acceptable Solutions. As a general statement, however, provided that the works result in the minimal clearing of native vegetation, development is unlikely to compromise the objective for buildings and works.

The Acceptable Solutions effectively define the concepts of "unnecessary or unacceptable loss of priority biodiversity values", and are stated as:

> **A1**
>
> Clearance and conversion or disturbance must comply with one of the following:
>
> (a) be within a Building Area on a plan of subdivision approved under this planning scheme.
>
> (b) The development is for a single dwelling on an existing lot within the Low Density Residential Zone, Rural Living Zone or Environmental Living Zone and:

(i) clearance and conversion or disturbance is confined to Low Priority Biodiversity Values;

(ii) the area of clearance and conversion is no more than 3,000 m^2;

(iii) the area of disturbance is no more than 6,000 m^2;

(c) The development is other than for a single dwelling on an existing lot within the Low Density Residential Zone, Rural Living Zone or Environmental Living Zone and:

(i) clearance and conversion or disturbance is confined to Low Priority Biodiversity Values;

(ii) the area of clearance and conversion is no more than 1,500 m^2;

(iii) the area of disturbance is no more than 3,000 m^2;

The Acceptable Solutions cannot be met because the subject title does not include a Building Area, and is zoned as Particular Purpose.

Under the Performance Criteria, where low priority biodiversity values are present, the following has application:

P1

Clearance and conversion or disturbance must satisfy the following:

(a) if low priority biodiversity values:

(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;

(ii) impacts resulting from future bushfire hazard management measures are minimised as far as reasonably practicable through appropriate siting and fire-resistant design of habitable buildings;

With respect to the identified ecological values (i.e. non-threatened vegetation type, no populations of threatened flora, no important potential habitat of threatened fauna, no other significant values), clause(a)(i) is met provided that the clearance and conversion and disturbance of native vegetation is minimised. Clause (b)(ii) will be met through the development of an appropriate bushfire hazard management plan (should one be required), noting that the site assessment has not identified any particular biodiversity values that will constrain such a plan, irrespective of the location of project elements.

On the basis of the above analysis, in my opinion a development within the title will be able to meet the intent and specifics of the provisions of the Biodiversity Code.

Natural Values Atlas Report

Authoritative, comprehensive information on Tasmania's natural values.

Reference:	ECOtas_1533DolphinSandsRoad
Requested For:	MWapstra
Report Type:	Summary Report
Timestamp:	11:26:02 AM Tuesday 24 September 2019
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

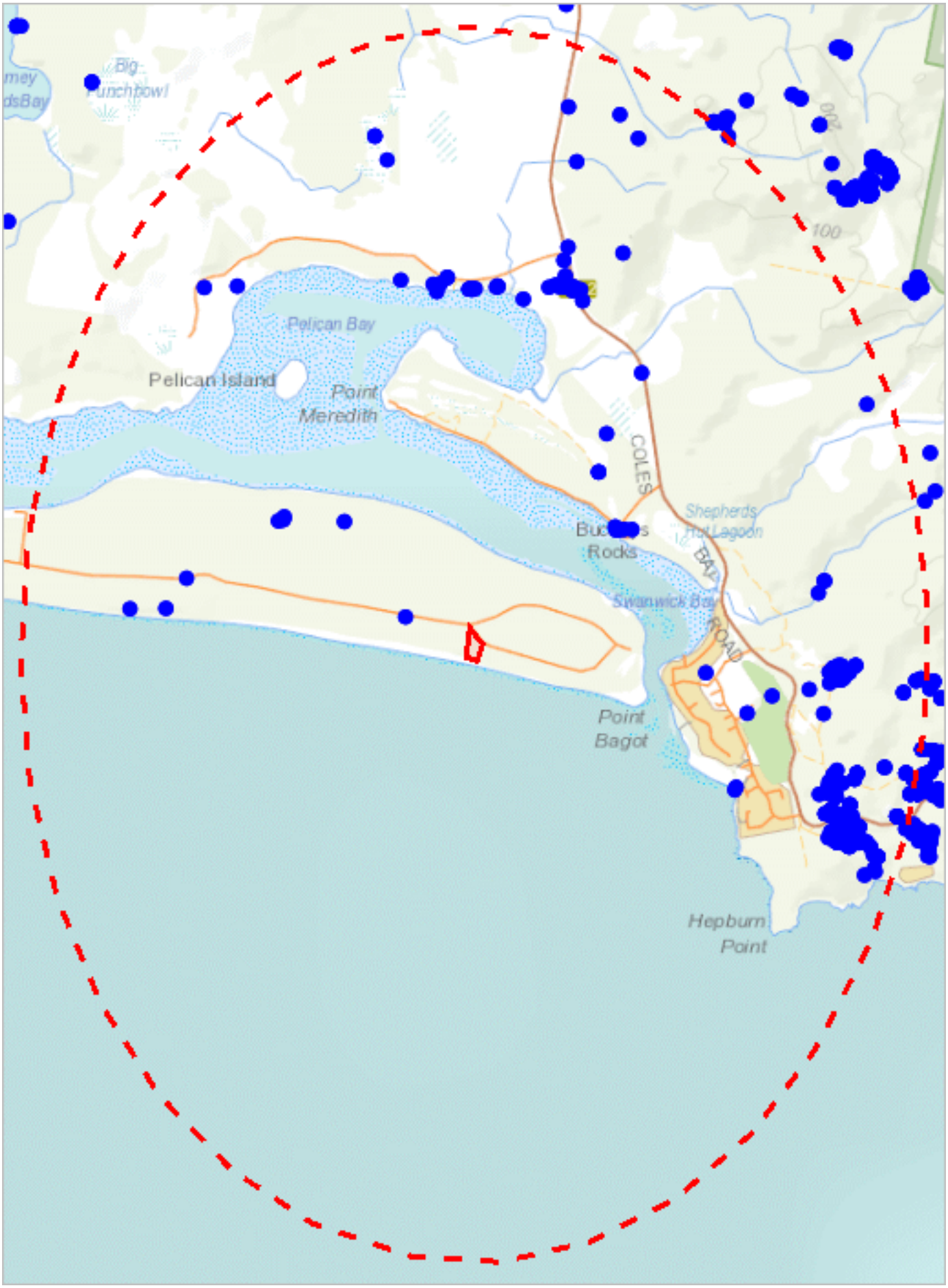
The centroid for this query GDA94: 600676.0, 5338928.0 falls within:

Property: 5280523

*** No threatened flora found within 500 metres ***

Threatened flora within 5000 metres

604699, 5344335



596667, 5333568

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

Legend: Cadastral Parcels

Threatened flora within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Acacia ulicifolia	juniper wattle	r		n	90	17-May-2019
Bertya tasmanica subsp. tasmanica	tasmanian bertya	e	EN	e	2	25-Apr-2004
Caladenia caudata	tailed spider-orchid	v	VU	e	1	10-Sep-1990
Caustis pentandra	thick twistsedge	r		n	147	17-May-2019
Conospermum hookeri	tasmanian smokebush	v	VU	e	71	17-May-2019
Corunastylis morrisii	bearded midge-orchid	e		n	2	01-Jan-2002
Corunastylis nuda	tiny midge-orchid	r		n	1	16-Mar-1993
Desmodium gunnii	southern ticktrefoil	v		n	64	26-Feb-2019
Euphrasia collina subsp. deflexifolia	eastern eyebright	r		e	17	08-Nov-2008
Glycine microphylla	small-leaf glycine	v		n	71	26-Feb-2019
Lachnagrostis billardierei subsp. tenuiseta	small-awn blowngrass	r		e	5	28-Jan-1999
Lepidosperma forsythii	stout rapiersedge	r		n	5	31-Oct-2016
Melaleuca pustulata	warty paperbark	r		e	5	05-Jul-2016
Orthoceras strictum	horned orchid	r		n	1	02-Jan-2002
Pimelea curviflora	curved riceflower	p		n	1	21-Jan-2004
Pimelea flava subsp. flava	yellow riceflower	r		n	14	08-Nov-2014
Pterostylis squamata	ruddy greenhood	v		n	6	04-Mar-2011
Pterostylis ziegeleri	grassland greenhood	v	VU	e	5	04-Mar-2011
Schoenus brevifolius	zigzag bogsedge	r		n	6	18-Feb-2012
Spyridium vexilliferum var. vexilliferum	helicopter bush	r		n	23	02-Nov-2016
Stenopetalum lineare	narrow threadpetal	e		n	2	10-Jun-2018
Thelymitra atronitida	blackhood sun-orchid	e		n	96	09-Nov-2018
Thelymitra malvina	mauvetuft sun-orchid	e		n	27	11-Nov-2012
Thryptomene micrantha	ribbed heathmyrtle	v		n	112	14-Dec-2018
Tricostularia pauciflora	needle bogsedge	r		n	8	15-Dec-2016
Trithuria submersa	submerged watertuft	r		n	3	06-Mar-2007
Utricularia australis	yellow bladderwort	r		n	2	19-Apr-2010
Viminaria juncea	golden spray	e		n	43	08-Nov-2015
Wilsonia rotundifolia	roundleaf wilsonia	r		n	1	01-Feb-1979
Xanthorrhoea aff. arenaria		pv	PVU	e	16	02-Nov-2016
Xanthorrhoea arenaria	sand grasstree	v	VU	e	27	21-Nov-2009

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@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened fauna within 500 metres

601286, 5339790

600079, 5338108

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

Legend: Cadastral Parcels

Threatened fauna within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Thinornis rubricollis	hooded plover		VU	n	2	26-Nov-1998

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
Pseudomys novaehollandiae	new holland mouse	e	VU	n	1	0	1
Lathamus discolor	swift parrot	e	CR	mbe	1	0	1
Antipodia chaostola	chaostola skipper	e	EN		1	0	0
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	1	0	0
Litoria raniformis	green and gold frog	v	VU	n	1	0	1
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	2	0	0
Galaxias fontanus	swan galaxias	e	EN	e	1	0	0
Brachiopsilus ziebelli	Ziebells Handfish	e	VU	e	1	0	0
Tyto novaehollandiae subsp. castanops	masked owl (tasmanian)	e	VU	e	1	0	1
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	1	0	0
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	0
Perameles gunnii	eastern barred bandicoot		VU	n	1	0	1
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1

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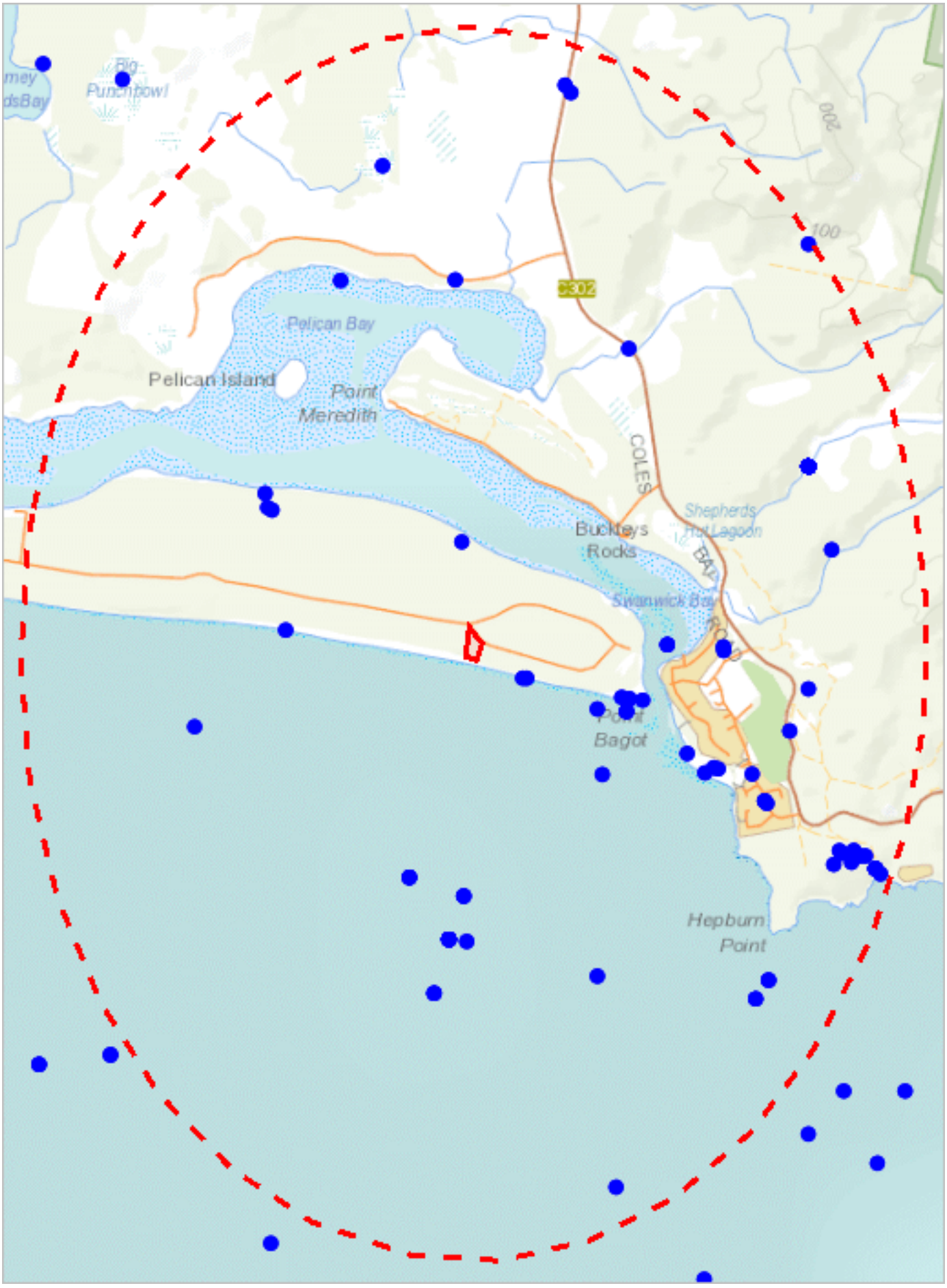
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened fauna within 5000 metres

604699, 5344335



596667, 5333568

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

Threatened fauna within 5000 metres

Legend: Verified and Unverified observations

Legend: Cadastral Parcels

Threatened fauna within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Accipiter novaehollandiae	grey goshawk	e		n	1	01-Feb-2009
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	3	21-May-1979
Botaurus poiciloptilus	australasian bittern		EN	n	3	08-Mar-2012
Calidris ferruginea	curlew sandpiper		CR	n	2	04-Jun-1980
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	2	01-Jul-1996
Dasyurus viverrinus	eastern quoll		EN	n	4	01-Jan-1990
Diomedea cauta subsp. cauta	shy albatross	pv	PVU		2	04-Jun-1980
Diomedea exulans subsp. chionoptera	wandering albatross	pe	PVU	n	1	03-Jul-1978
Eubalaena australis	southern right whale	e	EN	m	16	19-Jun-2011
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	23	26-Nov-2012
Hirundapus caudacutus	white-throated needletail		VU	n	2	14-Mar-1981
Lathamus discolor	swift parrot	e	CR	mbe	5	16-Feb-1994
Limosa lapponica subsp. baueri	western alaskan bar-tailed godwit		VU	n	1	04-Nov-1977
Litoria raniformis	green and gold frog	v	VU	n	2	04-Mar-2010
Megaptera novaeangliae	humpback whale	e	VU	m	14	25-Sep-2011
Pachyptila turtur subantarctica	southern fairy prion	e	VU		2	04-Jun-1980
Poliocephalus cristatus subsp. australis	great crested grebe	pv			2	22-Oct-1980
Pseudomys novaehollandiae	new holland mouse	e	VU	n	11	01-Nov-2002
Sarcophilus harrisii	tasmanian devil	e	EN	e	2	26-Dec-1979
Sterna nereis subsp. nereis	fairy tern	pv	PVU		3	05-Oct-1979
Sternula albifrons subsp. sinensis	little tern	e		n	1	07-Jan-2012
Sternula nereis subsp. nereis	fairy tern	v	VU	n	1	07-Jan-2012
Thinornis rubricollis	hooded plover		VU	n	28	19-Jan-2012
Tyto novaehollandiae subsp. castanops	masked owl (tasmanian)	e	VU	e	1	28-Sep-2018

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
Antipodia chaostola	chaostola skipper	e	EN		2	0	0
Pseudomys novaehollandiae	new holland mouse	e	VU	n	1	0	2
Lathamus discolor	swift parrot	e	CR	mbe	1	0	1
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	1	0	0
Litoria raniformis	green and gold frog	v	VU	n	1	0	1
Prototroctes maraena	australian grayling	v	VU	ae	5	0	0
Pseudemoia rawlinsoni	glossy grass skink	r		n	0	0	1
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	3	0	0
Galaxias fontanus	swan galaxias	e	EN	e	1	0	0
Brachiopsilus ziebelli	Ziebells Handfish	e	VU	e	1	0	0
Tyto novaehollandiae subsp. castanops	masked owl (tasmanian)	e	VU	e	1	0	1
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	1	0	0
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	0
Perameles gunnii	eastern barred bandicoot		VU	n	1	0	1
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1

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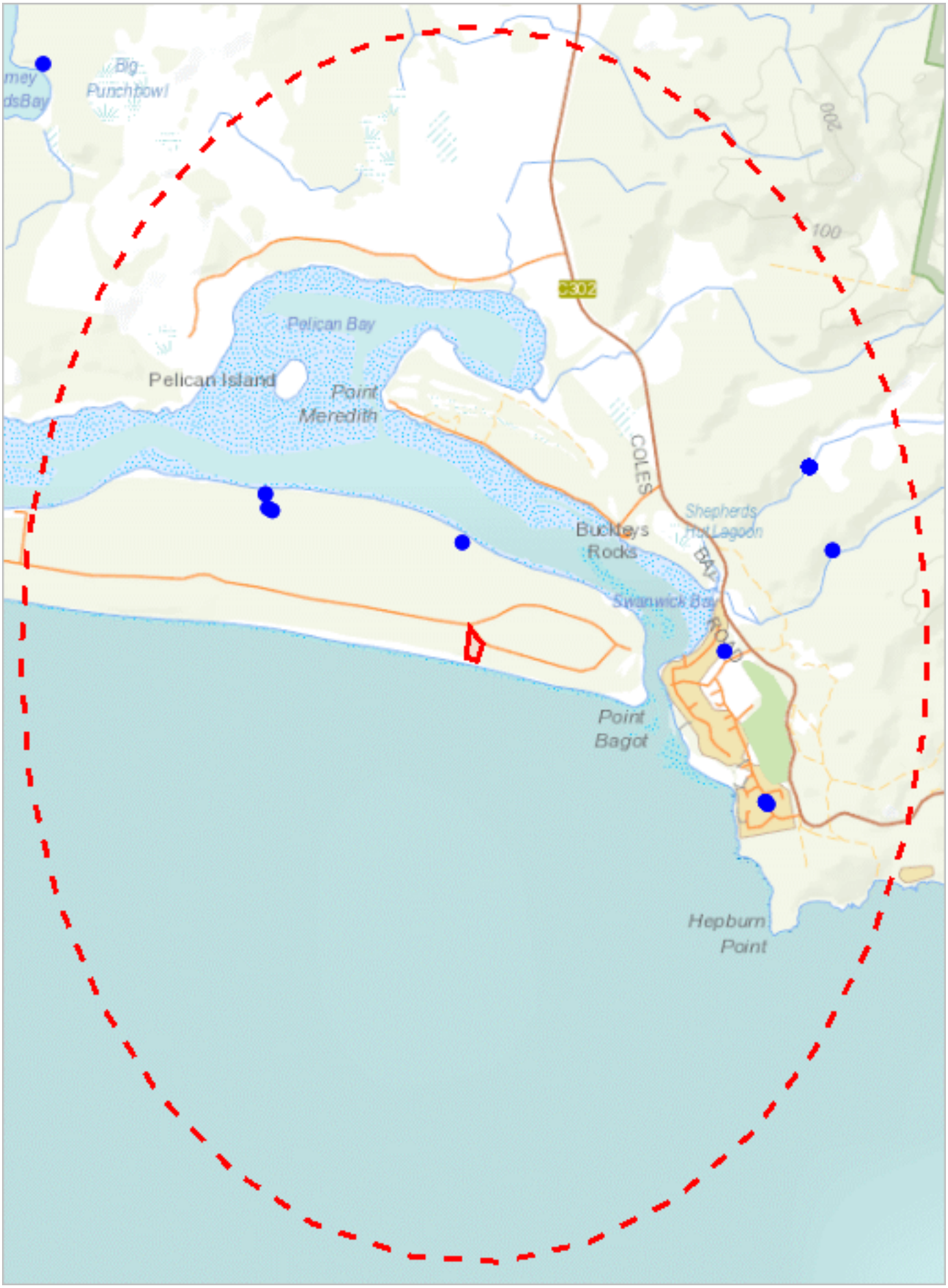
Email: ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Raptor nests or sightings found within 500 metres. ***

Raptor nests and sightings within 5000 metres

604699, 5344335



596667, 5333568

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
- Point Unverified
- Line Verified
- Line Unverified
- Polygon 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
1721	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	20-Oct-2008
1819	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	01-Jan-2009
1930	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	01-May-2011
313	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	1	01-Jan-1985
314	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	2	26-Nov-2012
	Accipiter novaehollandiae	grey goshawk	Sighting	1	01-Feb-2009
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	3	21-May-1979
	Falco peregrinus	peregrine falcon	Sighting	1	11-Jan-1980
	Haliaeetus leucogaster	white-bellied sea-eagle	Sighting	17	06-Nov-1980

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@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Tas Management Act Weeds within 500 m

601286, 5339790

600079, 5338108

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

Legend: Cadastral Parcels

Tas Management Act Weeds within 500 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Chrysanthemoides monilifera subsp. monilifera	boneseed	1	01-Dec-2000
Marrubium vulgare	white horehound	1	01-Nov-2015

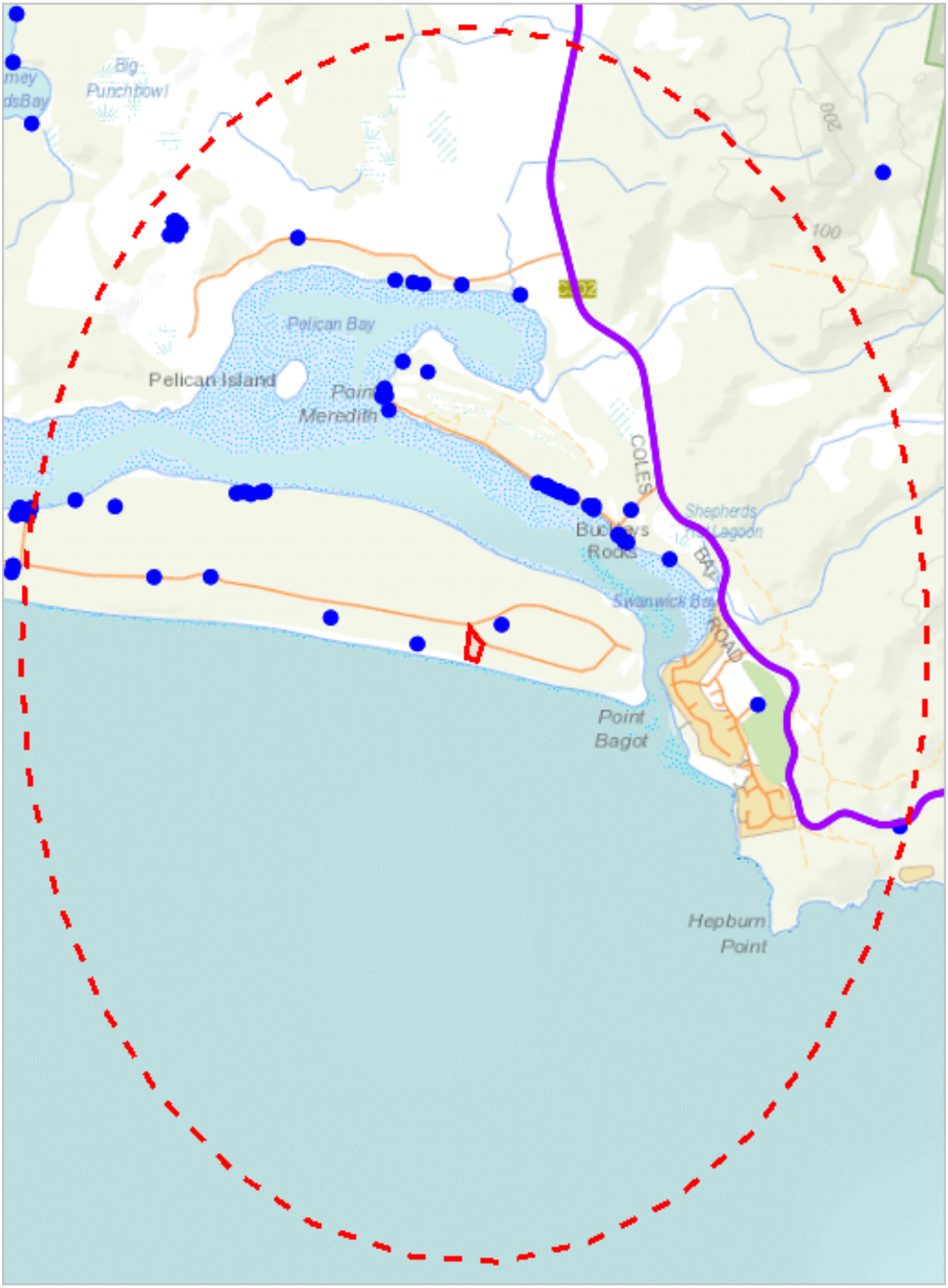
Unverified Records

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

http://dpipwe.tas.gov.au/invasive-species/weeds

Tas Management Act Weeds within 5000 m

604699, 5344335



596667, 5333568

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

Legend: Cadastral Parcels

Tas Management Act Weeds within 5000 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Carduus tenuiflorus	winged thistle	1	02-Jan-1981
Chrysanthemoides monilifera subsp. monilifera	boneseed	1	01-Dec-2000
Cortaderia sp.	pampas grass	3	16-Mar-2017
Lycium ferocissimum	african boxthorn	3	01-Jan-2007
Marrubium vulgare	white horehound	1	01-Nov-2015
Salix x sepulcralis nothovar. chrysocoma	golden weeping willow	1	17-Jan-2019
Ulex europaeus	gorse	89	29-Mar-2018

Unverified Records

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

http://dpipwe.tas.gov.au/invasive-species/weeds

*** No Priority Weeds found within 500 metres ***

Priority Weeds within 5000 m

604699, 5344335

596667, 5333568

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

Legend: Cadastral Parcels

Priority Weeds within 5000 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Cenchrus clandestinus	kikuyu grass	1	11-Oct-2011
Gomphocarpus fruticosus subsp. fruticosus	swanplant	1	26-Apr-2018
Reseda luteola	weld	1	26-Feb-2019
Verbascum thapsus	great mullein	1	17-Jan-2018

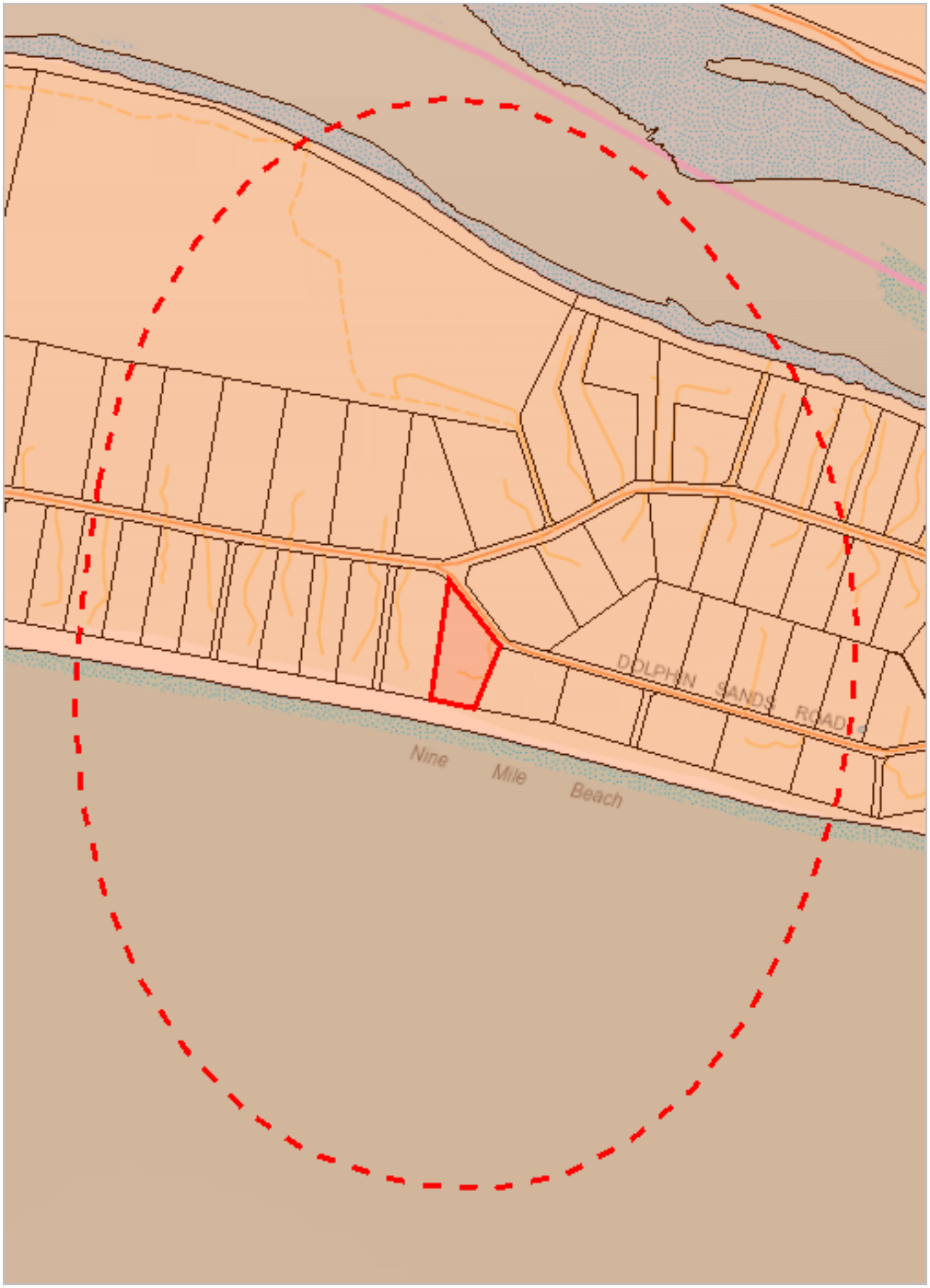
Unverified Records

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

http://dpipwe.tas.gov.au/invasive-species/weeds

Geoconservation sites within 1000 metres

601665, 5340295



599699, 5337604

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

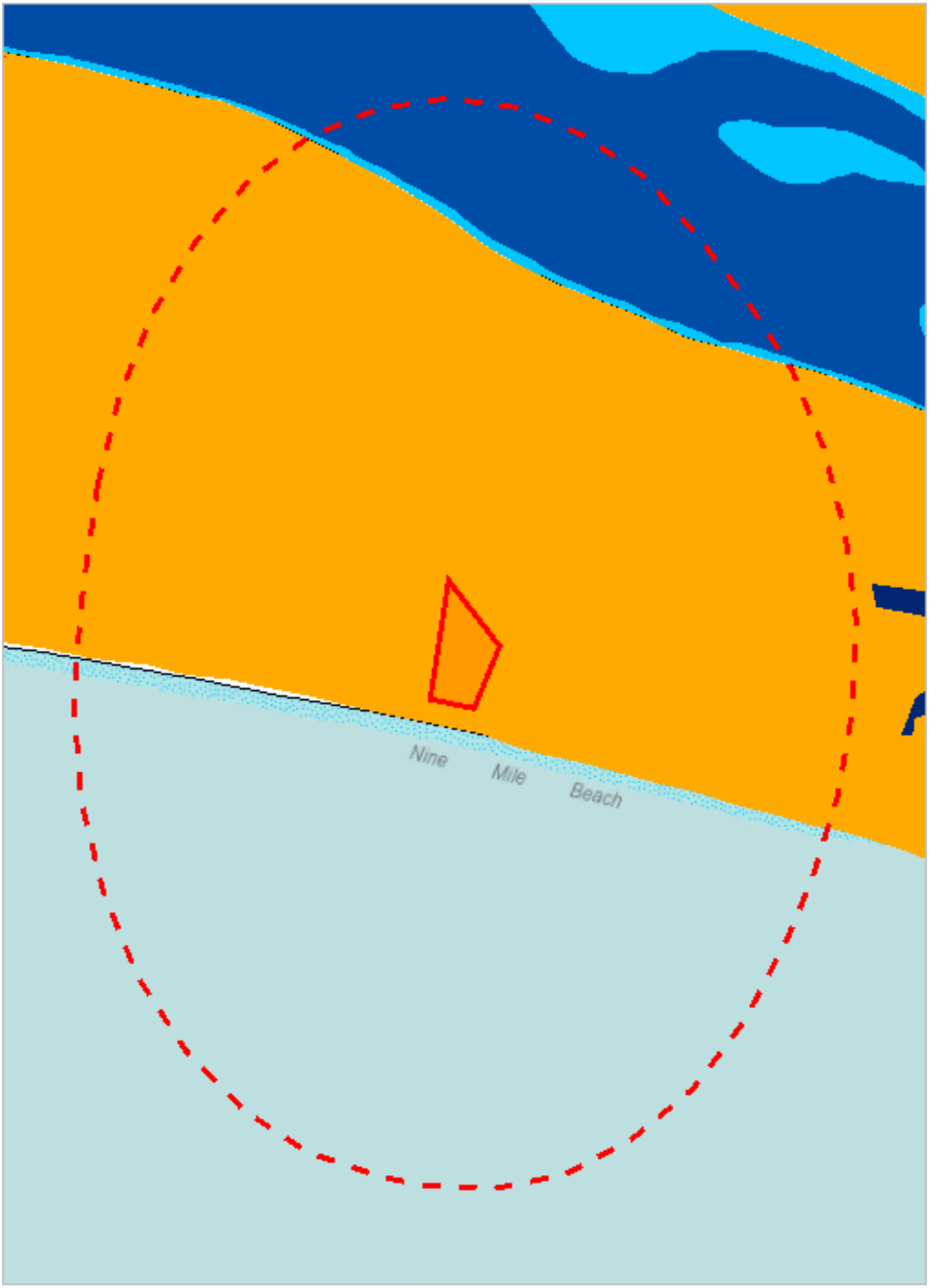
Id	Name	Statement of Significance	Significance Level	Status
2410	Moulting Lagoon - Great Oyster Bay	Notable example of type.	District	Listed

For more information about the Geoconservation Database, please visit the website: http://dpipwe.tas.gov.au/conservation/geoconservation
or contact the Geoconservation Officer:

Telephone: (03) 6165 4401
Email: Geoconservation.Enquiries@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Acid Sulfate Soils within 1000 metres

601665, 5340295



599699, 5337604

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	Low	Bh(p3)	Low probability of occurance (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). 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	Bi(p2)	Low probability of occurance (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.
Coastal Acid Sulfate Soils	Low	Bi(p3)	Low probability of occurance (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). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.
Marine Subaqueous and Intertidal Acid Sulfate Soils	High	Aa(p3)	High probability of occurance (>70% chance of occurrence in mapping unit). Subaqueous material in subtidal wetland, PASS material and/or MBO. Often seagrasses. 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.
Marine Subaqueous and Intertidal Acid Sulfate Soils	High	Ab(p3)	High probability of occurance (>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

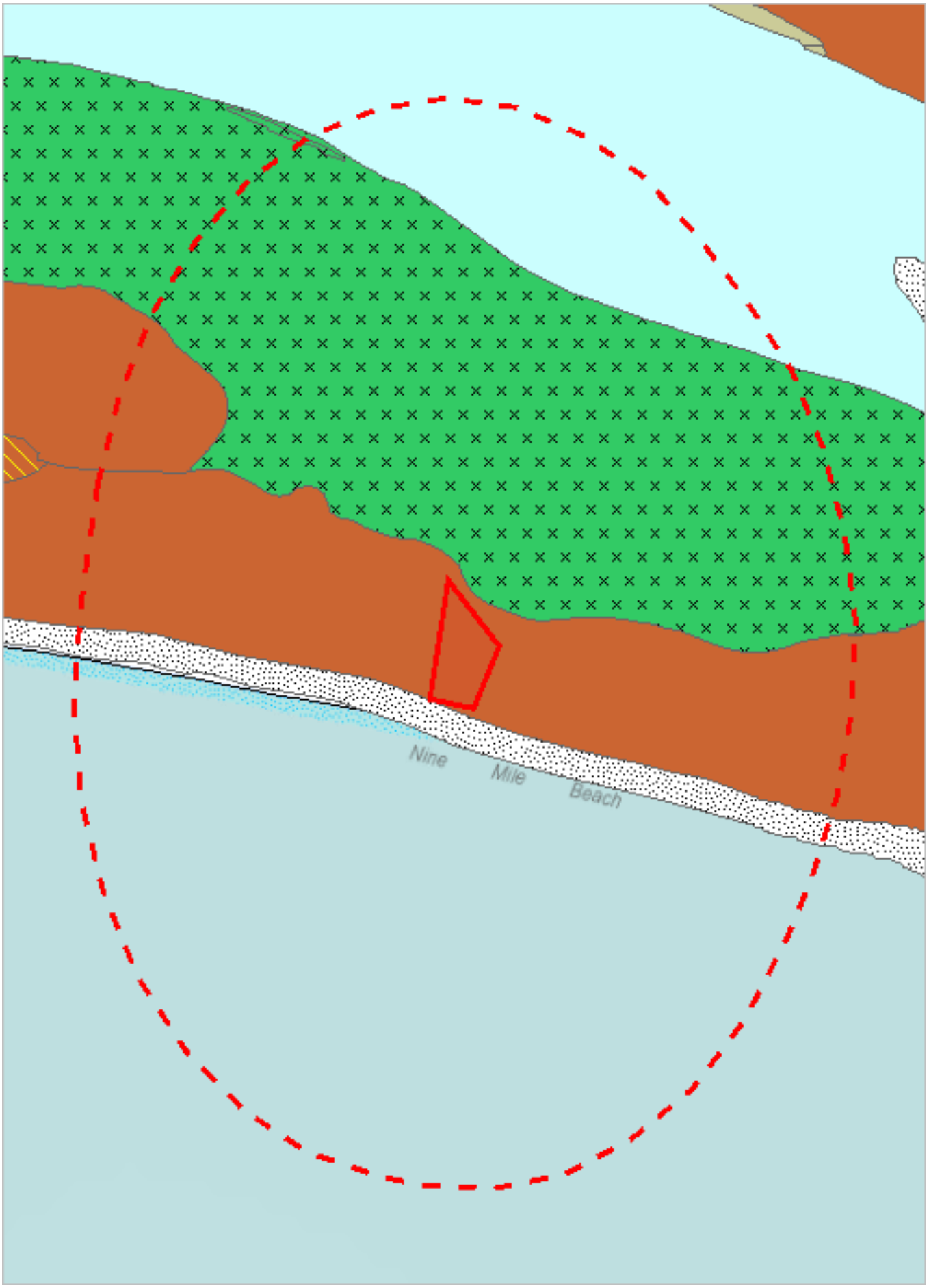
Fax: (03) 6336 5111

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

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

TASVEG 3.0 Communities within 1000 metres

601665, 5340295

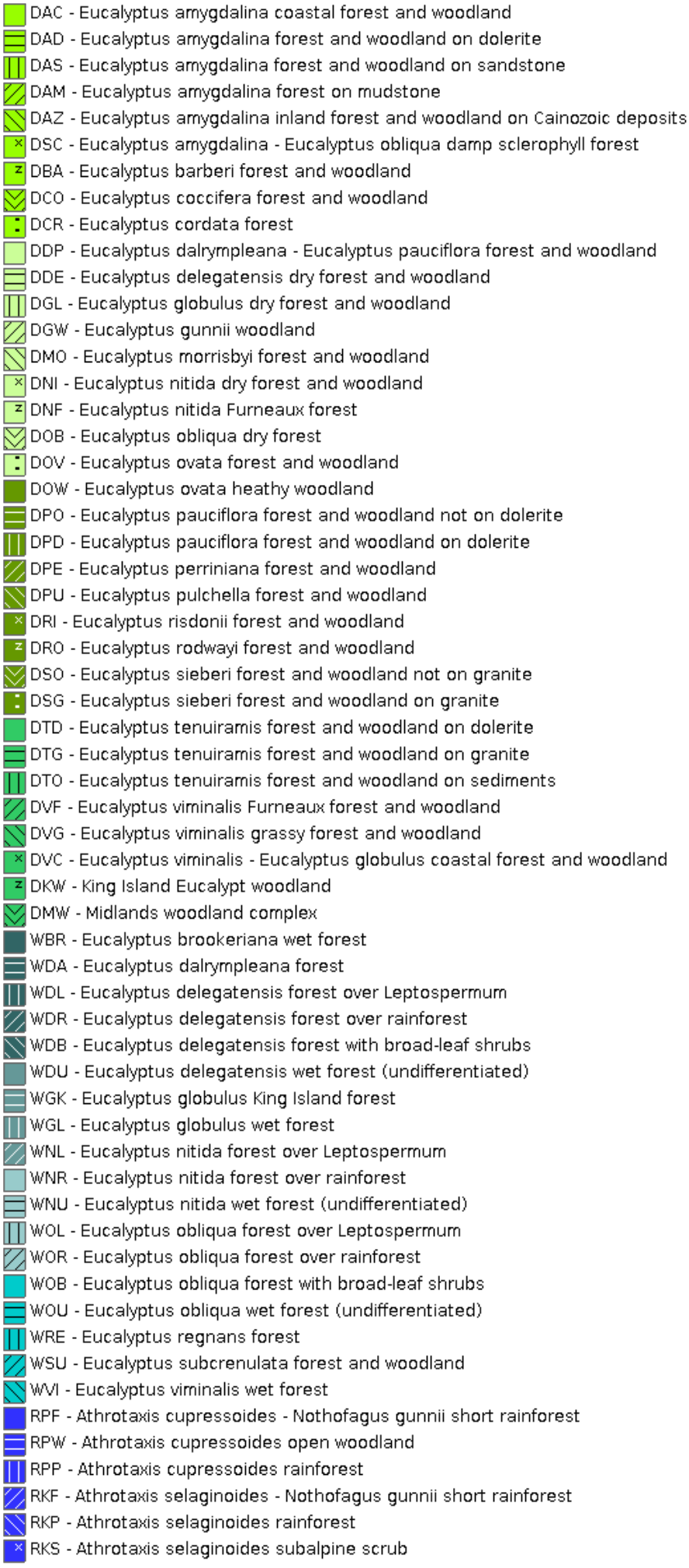


599699, 5337604

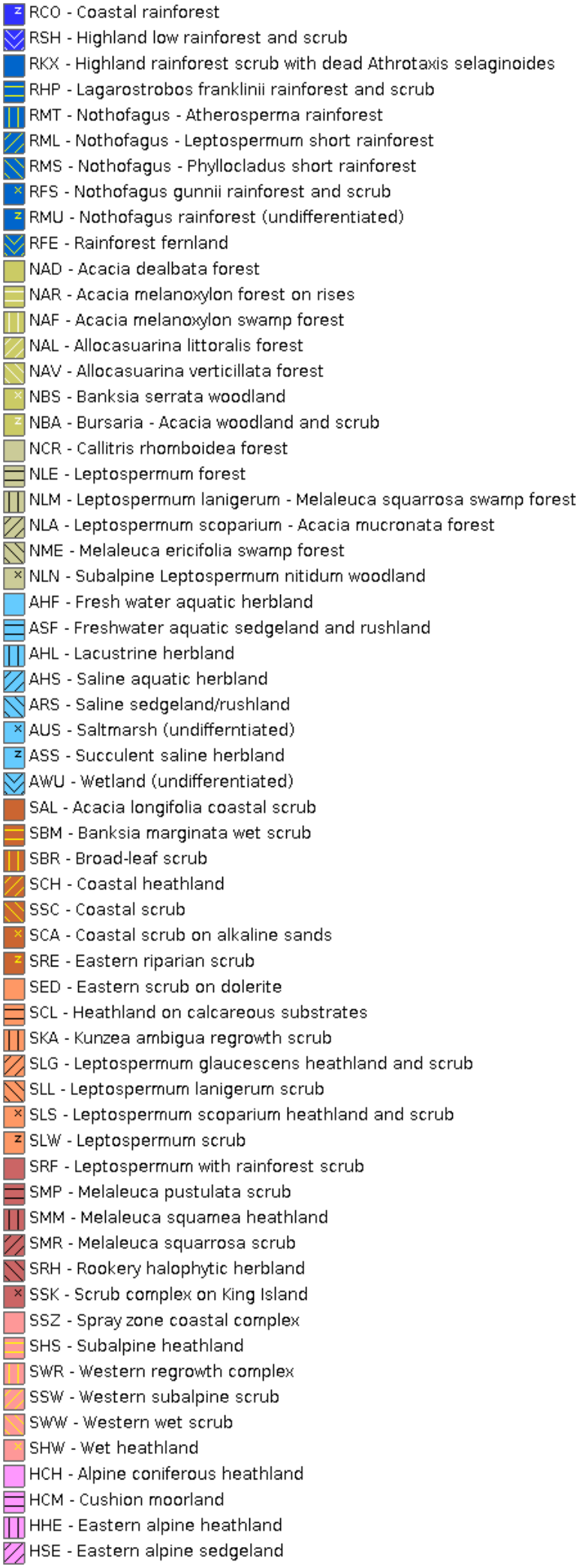
Please note that some layers may not display at all requested map scales

TASVEG 3.0 Communities within 1000 metres

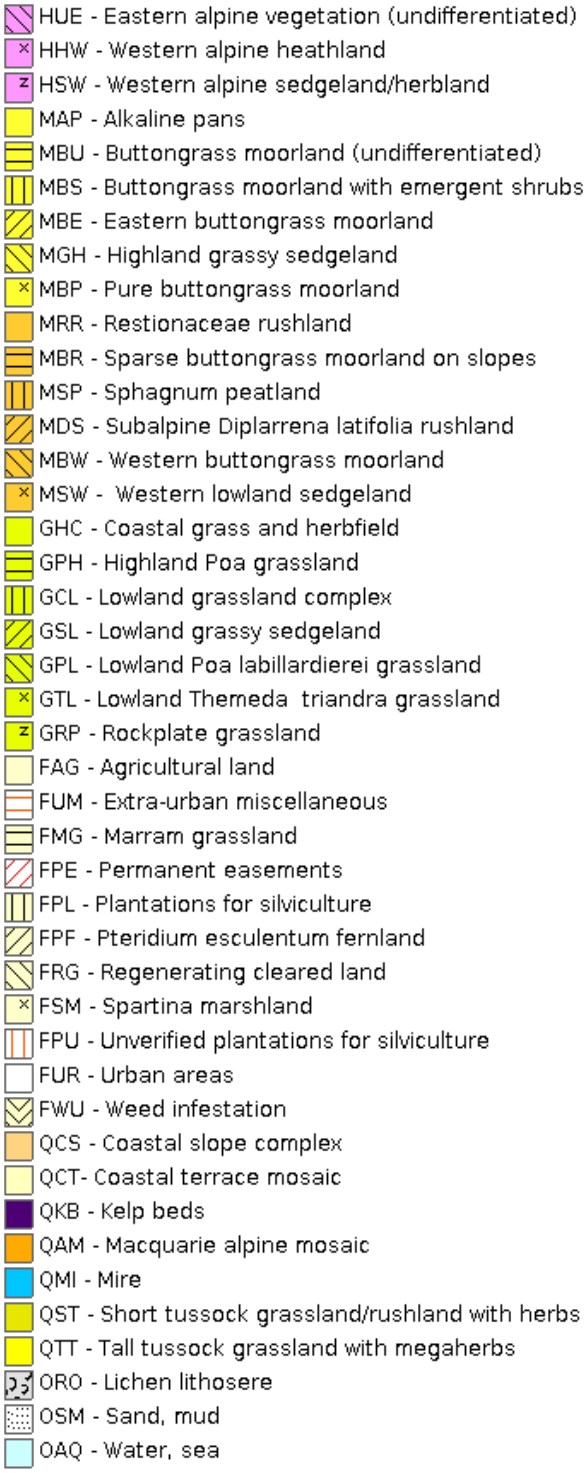
Legend: TASVEG 3.0



TASVEG 3.0 Communities within 1000 metres



TASVEG 3.0 Communities within 1000 metres



Legend: Cadastral Parcels

TASVEG 3.0 Communities within 1000 metres

Code	Community	Emergent Species
DVC	(DVC) Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland	
OAQ	(OAQ) Water, sea	
OSM	(OSM) Sand, mud	
SAL	(SAL) Acacia longifolia coastal scrub	

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.
Telephone: (03) 6165 4320
Email: TVMMPSupport@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened Communities (TNVC 2014) within 1000 metres

601665, 5340295

599699, 5337604

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

Threatened Communities (TNVC 2014) 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 gunni 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 sedgeland
- 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

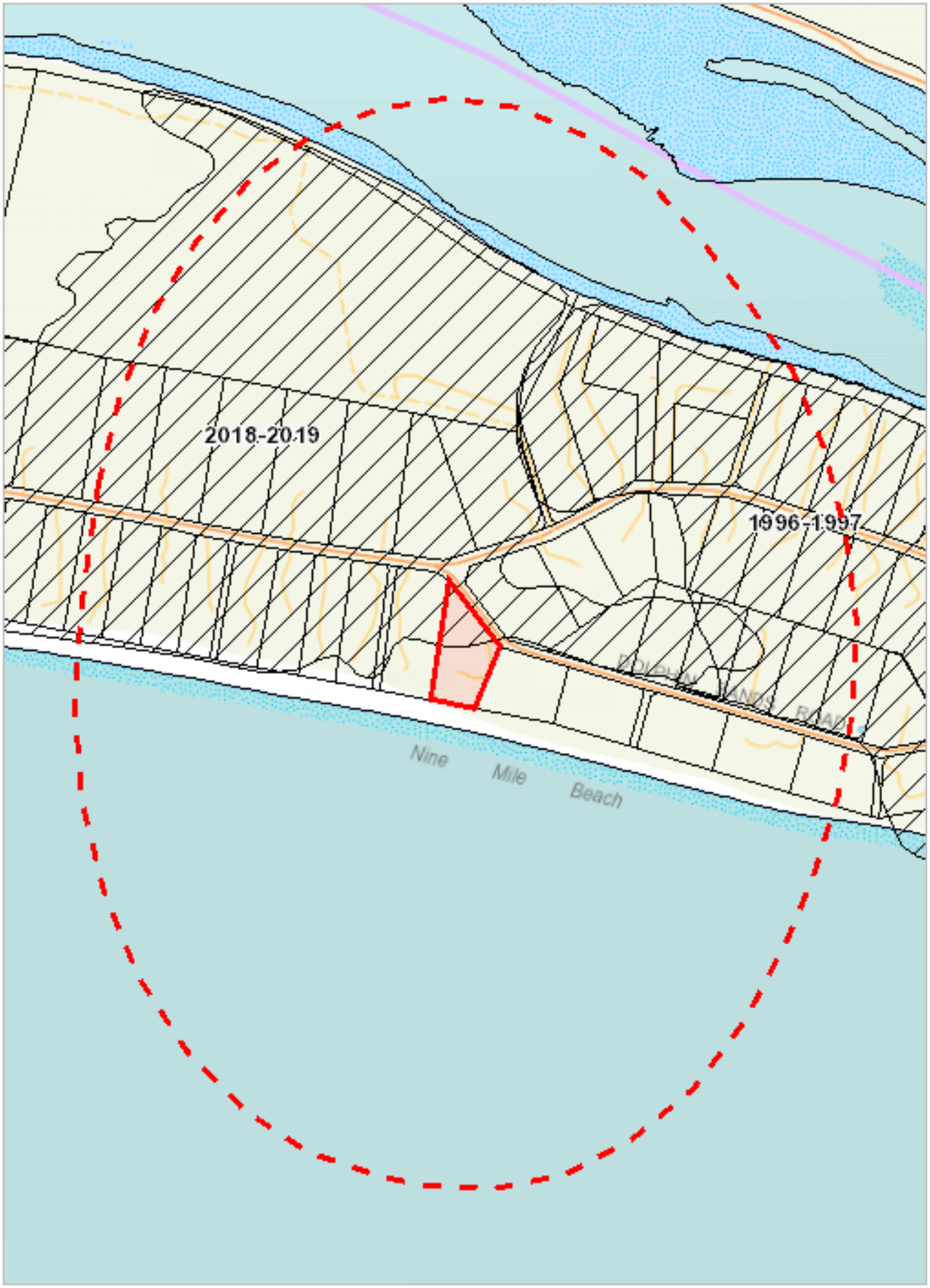
Threatened Communities (TNVC 2014) within 1000 metres

Scheduled Community Id	Scheduled Community Name
23	Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.
Telephone: (03) 6165 4320
Email: TVMMPSupport@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Fire History (All) within 1000 metres

601665, 5340295



599699, 5337604

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

Bushfire

Completed Planned Burn

Legend: Cadastral Parcels

Fire History (All) within 1000 metres

Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
1304	Dophin Sands	25-Nov-1996	Bushfire	Undetermined	87.06942842
19011817	Dolphin Sands	10-Apr-2019	Bushfire	Accidental	128.75114904

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

Fire History (Last Burnt) within 1000 metres

601665, 5340295

599699, 5337604

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

Bushfire

Completed Planned Burn

Legend: Cadastral Parcels

Fire History (Last Burnt) within 1000 metres

Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
1304	Dophin Sands	25-Nov-1996	Bushfire	Undetermined	87.06942842
19011817	Dolphin Sands	10-Apr-2019	Bushfire	Accidental	128.75114904

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

Reserves within 1000 metres

601665, 5340295

599699, 5337604

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
- Public authority land within WHA
- Future Potential Production Forest
- Informal Reserve on Permanent Timber Production Zone Land or STT managed land
- Informal Reserve on other public land
- Conservation Covenant (NCA)
- Private Nature Reserve and Conservation Covenant (NCA)
- Private Sanctuary and Conservation Covenant (NCA)
- Private Sanctuary
- Private land within WHA
- Management Agreement
- Management Agreement and Stewardship Agreement
- Stewardship Agreement
- Part 5 Agreement (Meander Dam Offset)
- Other Private Reserve

Legend: Cadastral Parcels

Reserves within 1000 metres

Name	Classification	Status	Area (HA)
Moulting Lagoon Game Reserve	Game Reserve	Dedicated Formal Reserve	4020.2200000000003
	Informal Reserve on other public land	Informal Reserve	87.2113000000001

For more information about the Tasmanian Reserve Estate, please contact the Sustainable Land Use and Information Management Branch.
Telephone: (03) 6777 2224
Email: LandManagement.Enquiries@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Known biosecurity risks within 1000 meters

601665, 5340295

599699, 5337604

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 Verified | Line Unverified

Polygon 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 http://dpipwe.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 http://dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene
- 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 http://dpipwe.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 though 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 Boundaries

Search Point 600676E,5338928N is within the following fauna range boundaries as at Tue Sep 24 2019 11:45:14 GMT+1000 (Australian Eastern Standard Time)

Common name	Species name	Range Class	Habitat Description
grey goshawk	Accipiter novaehollandiae	Potential Range	Potential habitat for the grey goshawk is native forest with mature elements below 600 m altitude, particularly along watercourses. FPA's F Technical Note 12 can be used as a guide in the identification of grey goshawk habitat. Significant habitat for the grey goshawk may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.). FPA's Fauna Technical Note 12 can be used as a guide in the identification of grey goshawk habitat.
chaostola skipper	Antipodia chaostola	Potential Range	Potential habitat for the Chaostola Skipper is dry forest and woodland supporting Gahnia radula (usually on sandstone and other sedimen rock types) or Gahnia microstachya (usually on granite-based substrates).
wedge-tailed eagle	Aquila audax subsp. fleayi	Potential Range	Potential habitat for the wedge-tailed eagle comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is wide variety of forest (including areas subject to native forest silviculture) and non-forest habitats. Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lowe than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbanc less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year. [see FPA's Fauna Technical Note 1 and FPA's Fauna Technical Note 6 for more information] Significant habitat for the wedge-tailed eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of knov nest sites (where the nest tree is still present).
spotted-tailed quoll	Dasyurus maculatus	Potential Range	Potential habitat for the spotted-tailed quoll is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex areas are present, and includes remnant patches in cleared agricultural land or plantation areas. Significant habitat for the spotted-tailed quoll is all potential denning habitat within the core range of the species. Potential denning habitat for the spotted-tailed quoll includes 1) any forest remnant (>0.5ha) in a cleared or plantation landscape that is structurally complex (high canopy, with dense understorey and ground vegetation cover), free from the risk of inundation, or 2) a rock outc rock crevice, rock pile, burrow with a small entrance, hollow logs, large piles of coarse woody debris and caves. FPA's Fauna Technical Not can be used as a guide in the identification of potential denning habitat.
eastern quoll	Dasyurus viverrinus	Core Range	Potential habitat for the Eastern quoll includes rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest and nat grassland mosaics which are bounded by agricultural land. Potential range for the Eastern Quoll is the whole of mainland Tasmania and Bruny Island. Core range for the Eastern Quoll is a specialist-defined area based primarily on modelling work published in Fancourt et al 2015 and additi expert advice.
Swan galaxias	Galaxias fontanus	Potential Range	Potential habitat for the Swan Galaxias is slow to moderately fast flowing streams containing permanent water (even when not flowing), w have good instream cover from overhanging banks and/or logs, and shade from overhanging vegetation. A population can only be maintai where barriers have prevented establishment of trout and redfin perch. The nature of these barriers is variable and can include permanent natural structures such as waterfalls and chutes and also low flow-dependent features such as marshes, ephemeral water-losing and rem channels, braided channel floodplain features. Significant habitat for the Swan galaxias is all potential habitat and a 30m stream-side reserve within the core range. This includes the Wil Priority Areas (Fauna Special Management Zones) on the upper Swan River, Tater Garden Creek and upper Blue Tier Creek, and other uppe catchments of tributaries of the Macquarie, Blackman and Isis Rivers.
white-bellied sea-eagle	Haliaeetus leucogaster	Potential Range	Potential habitat for the White-Bellied Sea-eagle species comprises potential nesting habitat and potential foraging habitat. Potential forag habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting pr items (fish). Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (Class 1), lakes or complexes of large farm dams. Scat trees along river banks or pasture land may also be used. Significant habitat for the white-bellied sea-eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where nest tree still present).
swift parrot	Lathamus discolor	Core Breeding Range	Potential breeding habitat for the Swift Parrot comprises potential foraging habitat and potential nesting habitat, and is based on definitior foraging and nesting trees (see Table A in swift parrot habitat assessment Technical Note). Potential foraging habitat comprises E. globul E. ovata trees that are old enough to flower. The occurrence of foraging-habitat can be remotely assessed, although only to a limited exten using mapping layers such as GlobMap (DPIPWE 2010). Due to the scale and inadequacies in current foraging-habitat mapping, potential foraging-habitat density within operational areas may need to be largely identified by ground-based surveys as per Table B in the swift parr habitat assessment Technical Note. For management purposes potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees. The FPA mature habitat availability map (see Technical Note 2) predicts the availability of hollow-bearing tre using the relevant definitions of habitat provided in Table C of the swift parrot habitat assessment Technical Note. The mature habitat availability map is designed to be used to make landscape-scale assessments and may not be reliable for stand-level assessments require during the development of a Forest Practices Plan. At the stand-level the availability and distribution of hollow-bearing trees across a coup operation area is best determined from a ground-based assessment (see Table C in the swift parrot habitat assessment Technical Note). Significant habitat is all potential breeding habitat within the SE potential breeding range and the NW breeding areas.
green and golden frog	Litoria raniformis	Potential Range	Potential habitat for the green and gold frog is permanent and temporary waterbodies, usually with vegetation in or around them. Potentia habitat includes features such as natural lagoons, permanently or seasonally inundated swamps and wetlands, farm dams, irrigation chan artificial water-holding sites such as old quarries, slow-flowing stretches of streams and rivers and drainage features. Significant habitat fo green and gold frog is high quality potential habitat. See FPA Fauna Technical Note 18 for guidance on assessing significant habitat for the green and gold frog.
forty-spotted pardalote	Pardalotus quadragintus	Potential Range	Potential habitat for the 40-spotted pardalote is any forest and woodland supporting Eucalyptus viminalis (white gum) where the canopy c of E. viminalis is greater than or equal to 10% or where E. viminalis occurs as a localised canopy dominant or codominant in patches exce 0.25 ha. Significant habitat for the 40-spotted Pardalote is all potential habitat associated with known colonies and such habitat within 500 m of kn colonies.
australian grayling	Prototroctes maraena	Potential Range	Potential habitat for the Australian Grayling is all streams and rivers in their lower to middle reaches. Areas above permanent barriers (e.g. Prosser River dam, weirs) that prevent fish migration, are not potential habitat.
glossy grass skink	Pseudemoia rawlinsoni	Potential Range	Potential habitat for the Glossy Grass Skink is wetlands and swampy sites (including grassy wetlands, teatree swamps and grassy sedgelands), and margins of such habitats.

Common name	Species name	Range Class	Habitat Description
new holland mouse	Pseudomys novaehollandiae	Potential Range	Potential habitat for the New Holland mouse is heathlands (mainly dry heathlands but also where dry heathlands form a mosaic with other heathland, moorland and scrub complexes), heathy woodlands (i.e. eucalypt canopy cover 5-20%), Allocasuarina-dominated forests on sandy substrates (not dolerite or basalt), and vegetated sand dunes. Key indicator plant species include (but are not restricted to) Aotus ericoides, Lepidosperma concavum, Hypolaena fastigiata and Xanthorrhoea spp. Significant habitat for the New Holland mouse is all potential habitat within the core range of the species.
tasmanian devil	Sarcophilus harrisii	Potential Range	Potential habitat for the Tasmanian devil is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (4-27 km^2). Significant habitat for the Tasmanian devil is a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range (Pemberton 1990). Potential denning habitat for the Tasmanian devil is areas of burrowable, well-drained soil, log piles or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass. FPA's Fauna Technical Note 10 can be used as a guide in the identification of potential denning habitat
masked owl	Tyto novaehollandiae	Core Range	Potential habitat for the masked owl is all areas with trees with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may also constitute potential habitat. Significant habitat for the masked owl is any area of native dry forest, within the core range, with trees with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may also constitute significant habitat. See FPA Fauna Technical Note 17 for guidance on assessing masked owl habitat using 'on-ground' and remote methods.

Showing 1 to 15 of 15 entries

Threatened Fauna Records

Fauna Records within 5000m of 600676E,5338928N at Tue Sep 24 2019 11:45:14 GMT+1000 (Australian Eastern Standard Time)

Species name	Common name	Reported Position accuracy (m)	X	Y	Distance (m)	Obs. type	Obs. date	Date accuracy	Obs. state	Project code + Foreign id	NVA id
Dasyurus viverrinus	eastern quoll	100	604812	5337383	4415	Sighting	1988-01-01	Unknown	Present	qs-mj cra-rfa:qs-mj:13029/1	NVA
Dasyurus viverrinus	eastern quoll	200	603312	5338183	2739	Sighting	1988-01-01	Unknown	Present	qs-mj cra-rfa:qs-mj:13030/1	NVA

Showing 1 to 2 of 2 entries

Threatened Flora Records

Flora Records within 2000m of 600676E, 5338928N at Tue Sep 24 2019 11:45:14 GMT+1000 (Australian Eastern Standard Time)

Species name	Common name	Reported Position accuracy (m)	X	Y	Distance (m)	Obs. type	Obs. date	Date accuracy	Obs. state	NVA id
Lachnagrostis billardierei subsp. tenuiseta	small-awn blowngrass	2000	600112	5339183	619	Sighting	1981-12-29	Day	Present	NVA
Pterostylis ziegeleri	grassland greenhood	100	601912	5339883	1562	Sighting	1992-09-01	Month	Present	NVA
Pterostylis ziegeleri	grassland greenhood	100	602012	5339883	1642	Sighting	1992-10-14	Unknown	Present	NVA
Pterostylis ziegeleri	grassland greenhood	100	602612	5338683	1951	Sighting	1992-10-15	Unknown	Present	NVA
Pterostylis ziegeleri	grassland greenhood	100	599612	5339983	1498	Sighting	1985-10-26	Unknown	Present	NVA
Pterostylis squamata	ruddy greenhood	50	599062	5339997	1936	Sighting	2001-12-23	Day	Present	NVA
Pterostylis squamata	ruddy greenhood	10	599098	5340004	1910	Sighting	2006-02-05	Day	Present	NVA
Pterostylis squamata	ruddy greenhood	10	599105	5340012	1909	Sighting	2006-02-05	Day	Present	NVA
Melaleuca pustulata	warty paperbark	10	601740	5340364	1787	Sighting	2007-06-05	Day	Present	NVA
Glycine microphylla	small-leaf glycine	5	601947	5339885	1591	Sighting	2011-03-04	Day	Present	NVA
Pterostylis squamata	ruddy greenhood	5	601877	5339896	1543	Sighting	2011-03-04	Day	Present	NVA
Glycine microphylla	small-leaf glycine	5	601873	5339907	1546	Sighting	2011-03-04	Day	Present	NVA
Pterostylis ziegeleri	grassland greenhood	5	601883	5339879	1537	Sighting	2011-03-04	Day	Present	NVA
Melaleuca pustulata	warty paperbark	25	601740	5340364	1787	Sighting	2007-07-05	Day	Present	NVA
Pterostylis squamata	ruddy greenhood	50	599111	5340029	1913	Sighting	2006-02-05	Day	Present	NVA

Showing 1 to 15 of 15 entries

Threatened Flora Survey Notes

SURVEY SKILL LEVEL

Refer to Threatened Flora Species Survey Notes (FPA 2016) for more information.

Survey skill level:

1: highly distinctive species – an FPO or forest planner can undertake surveys

2: distinctive species – a flora-competent forest planner can undertake surveys

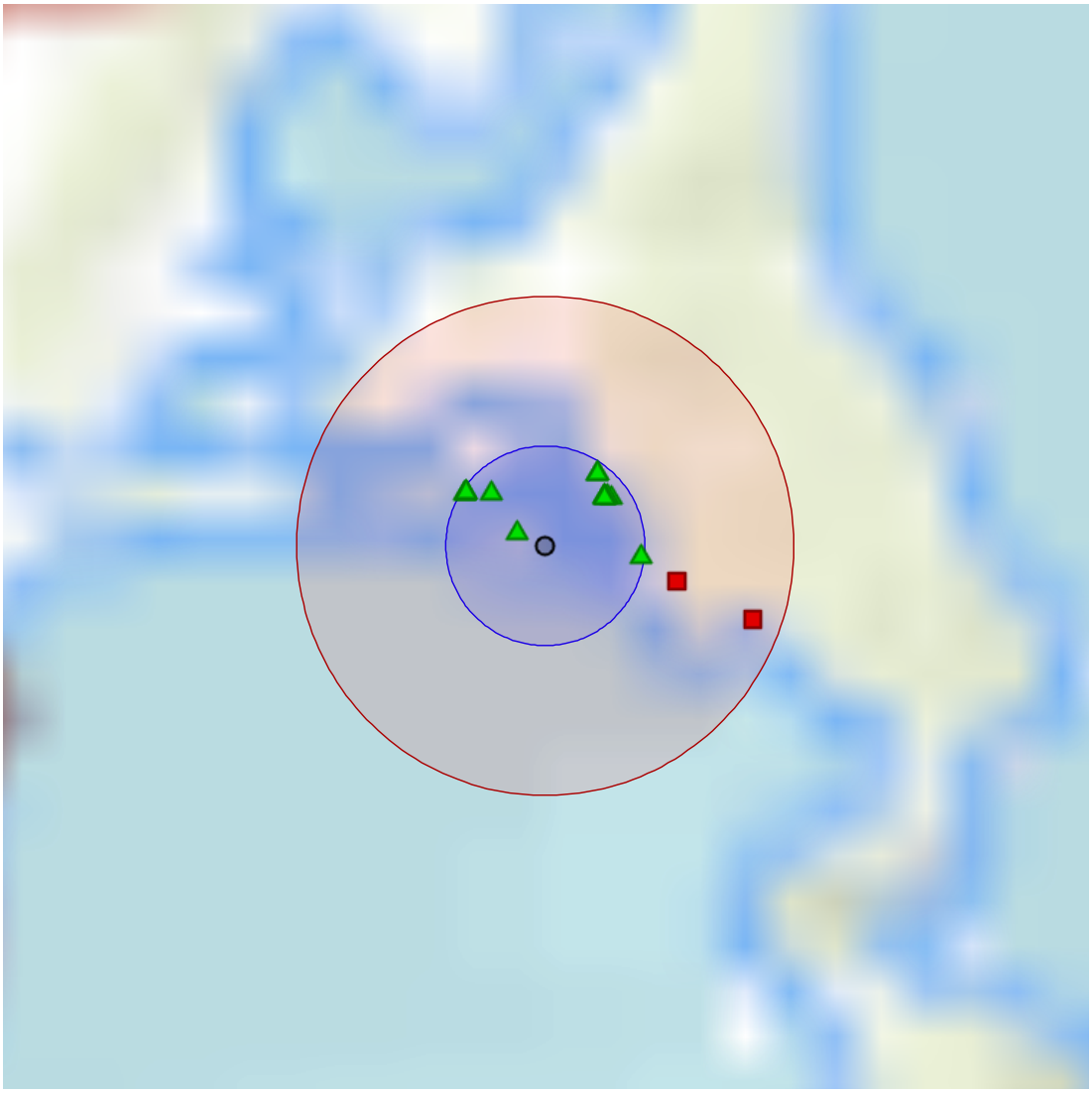
3: non-distinctive species and species occupying specialised niches – only experienced field botanists can undertake surveys

HABITAT DESCRIPTION

Refer to Habitat Descriptions of Threatened Flora in Tasmania (FPA 2016) for more information.

Species name	Common name	Life form	Status TSPA, EPBCA	Habitat description	Survey guidelines	Survey skill level
Glycine microphylla	small-leaf glycine	herb	v, -	Glycine microphylla occurs in dry to dampish sclerophyll forest and woodland in the north and east of the State, with outlying sites at Woolnorth.	This twining herb can be identified (with experience) from its trifoliate leaves, but the presence of flowers (September to November) or seedpods is useful.	3
Melaleuca pustulata	warty paperbark	shrub	r, -	Melaleuca pustulata occurs in a range of habitats including dry open woodland (often on dolerite in forests dominated by Eucalyptus pulchella), grassland and scrub, riparian zones and stable dunes in sparse coastal shrubbery. It is restricted to the State's Central East coast.	This species of medium to tall (dense) shrub can be identified at any time of the year from a combination of habitat, growth habit, appearance and leaf morphology.	1
Pterostylis squamata	ruddy greenhood	orchid	r (v pending), -	Pterostylis squamata occurs in heathy and grassy open eucalypt forest, woodland and heathland on well-drained sandy and clay loams.	Flowers are required for the identification of this ground orchid, which dies back to subterranean tubers after flowering. Flowering is between December and March, but varies considerably between sites. More information on survey time can be found in Flowering Times of Tasmanian Orchids: A Practical Guide for Field Botanists.	3
Pterostylis ziegeleri	grassland greenhood	orchid	v, VU	Pterostylis ziegeleri occurs in the State's south, east and north, with an outlying occurrence in the northwest. In coastal areas, the species occurs on the slopes of low stabilised sand dunes and in grassy dune swales, while in the Midlands it grows in native grassland or grassy woodland on well-drained clay loams derived from basalt.	Flowers are required for the identification of this spring-flowering ground orchid, which dies back to subterranean tubers after flowering, though the characteristic labellum appendage can be seen even in shrivelled flowers, albeit with some difficulty. More information on survey time can be found in Flowering Times of Tasmanian Orchids: A Practical Guide for Field Botanists.	3

Showing 1 to 4 of 4 entries



GEO-ENVIRONMENTAL SOLUTIONS

Proposed Residential Development – 1533 Dolphin Sands Road, Dolphin Sands

Bushfire Hazard Report

Applicant: S and T O'Connor

October 2019 GES05153v1.0

GEO- ENVIRONMENTAL SOLUTIONS
29 Kirksway Place, Battery Point, Tasmania. 7004. T|62231839 E|office@geosolutions.net.au www.geosolutions.net.au

Contents

Disclaimer

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

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

Authorship

This report was prepared by Mark Van den Berg BSc. (Hons.) FPO (planning) of Geo Environmental Solutions. Base data for mapping: TasMap, Digital and aerial photography: Mark Van den Berg, GoogleEarth.

1.0 Purpose

This bushfire hazard report is intended to provide information in relation to the proposal. It will demonstrate compliance with the *Building Amendment (Bushfire-Prone Areas) Regulations 2014*, and the *Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas, version 2.1 29th August 2017*. Provide a certificate of others (form 55) as specified by the Director of Building Control for bushfire hazard and give guidance by way of a certified bushfire hazard management plan which shows a means of protection from bushfires in a form approved by the Chief Fire Officer of the Tasmania Fire Service.

2.0 Summary

Site details & compliance

Title reference	54666/199
PID	5280523
Address	1533 Dolphin Sands Road, Dolphin Sands
Applicant	S and T O'Connor
Municipality	Glamorgan – Spring Bay
Planning Scheme	Glamorgan – Spring Bay Interim Planning Scheme 2015
Zoning	Particular Purpose
Land size	~2.2Ha
Bushfire Attack Level	BAL-29
Certificate of others (form 55)	Complete and attached
Bushfire Hazard Management Plan	Certified & Attached

Development of a new building at 1533 Dolphin Sands Road, Dolphin Sands requires demonstrated compliance with *Building Amendment (Bushfire-Prone Areas) Regulations 2014*, and the *Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas, version 2.1 29th August 2017*, the site is located in a bushfire prone area. The Bushfire attack level has been determined as 'BAL-29', provisions for property access and water supplies for firefighting will be required as detailed in this report and the Bushfire Hazard Management Plan (BHMP).

3.0 Introduction

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

4.0 Proposal

It is proposed that a new building be developed at 1533 Dolphin Sands Road, Dolphin Sands (appendix B). Construction standards for buildings, property access, water supplies for firefighting and hazard management areas will be required (as appropriate) to meet the standards outlined in the *'Director's Determination – Requirements for Building in Bushfire-Prone Areas'* and '*Australian Standard 3959-2018 Construction of Buildings in Bushfire-prone Areas.*

5.0 Bushfire Attack Level (BAL) Assessment

5.1 Methods

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

5.2 Site Description

The proposal is located at 1533 Dolphin Sands Road, Dolphin Sands, in the municipality of Glamorgan – Spring Bay and is zoned Particular Purpose under the Glamorgan – Spring Bay Interim Planning Scheme 2015. Access to the lot will be by an existing crossover from Dolphin Sands Road, a council-maintained road. The lot is ~2.2Ha, is irregular in shape and is located approximately 3.4km north west of Hepburn Point (Figure 1).

Adjacent lands surrounding the lot are zoned particular purpose with environmental management to the south. At a landscape scale the site is near coastline in a rural setting characterised by predominantly native forest vegetation. The lot is generally flat with no discerning aspect and is unlikely to influence fire behaviour.

Vegetation surrounding the lot was assessed (Table 1) and described as 'Scrub' (as per AS3959-2018). The classified vegetation potentially having the greatest impact on the site occurs on every azimuth of the site (Figure 2). The vegetation classification system as defined in AS 3959-2018 Table 2.3 and Figure 2.3 (A to G) has been used to determine vegetation types within 100 metres of the site (Table 1).

Figure 1. The lot in a topographical context (lot outlined in pink).

Figure 2. Shows the approximate location of the site (pink line) in the context of the adjacent lands and classified vegetation.

Table 1. Bushfire Attack Level (BAL) Assessment

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North	Scrub^	flat 0º	0 to >100 metres	13 metres	**BAL-29**
	--	--	--		
	--	--	--		
	--	--	--		
East	Scrub^	flat 0º	0 to >100 metres	13 metres	**BAL-29**
	--	--	--		
	--	--	--		
	--	--	--		
South	Scrub^	flat 0º	0 to 53 metres	13 metres	**BAL-29**
	Exclusion 2.2.3.2 (e, f)^^	flat 0º	53 to >100 metres		
	--	--	--		
	--	--	--		
West	Scrub^	flat 0º	0 to >100 metres	13 metres	**BAL-29**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 amendment 3, Table 2.3 and Figures 2.4(A) to 2.4 (G).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018 amendment 3, section 2.2.3.2, (a) to (f).

6.0 Results

The bushfire attack level for the site has been determined as BAL-29. The risk is considered to be high and there is an increased risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to an increased level of radiant heat at the site. The construction elements are expected to be exposed to a heat flux not greater than 29 kW/m^2.

6.1 Property Access

B) Property access length is 30 metres or greater; or access is for a fire appliance to a fire fighting 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;

(f) Cross falls of less than 3° (1:20 or 5%);

(g) Dips less than 7° (1:8 or 12.5%) entry and exit angle; (h) Curves with a minimum inner radius of 10 metres;

(i) Maximum gradient of 15° (1:3.5 or 28%) for sealed roads, and 10° (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.

6.2 Water supplies for fire fighting

Static water supplies and associated infrastructure for firefighting purposes will be provided in accordance with table 4.3B of the Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas, version 2.1 29th August 2017.

The following elements of table 4.3B as noted above will be required to meet compliance;

A Distance between building area to be protected and water supply

B Static water supplies

C Fittings, Pipework and accessories (including tank and stands)

D Signage for static water supply connections

E Hardstand

6.3 Hazard Management Area.

The Bushfire Attack Level for this site is BAL-29. A hazard management area contained within the title boundaries will need to be established to achieve this outcome. Table 1 above shows the minimum separation distances (hazard management area width) for each azimuth of the site that will result in a bushfire attack level of BAL-29. These are the minimum separation distance between the site (house) and the bushfire prone vegetation. The hazard management area should have sufficient fuel removed such that the propagation or carriage of fire is significantly impeded.

Hazard management areas for new buildings on lots not provided with a BAL at the time of subdivision must meet the following requirements:

(a) Be located on the lot so as to be provided with an HMA no smaller than the separation distances required for BAL 29; and

(b) Have an HMA established in accordance with a certified bushfire hazard management plan.

The attached bushfire hazard management plan is certified and provides for the above conditions to be met. Separation distances are given and will provide for a bushfire attack level of BAL-29 at the site.

7.0 Compliance

Section 4 of the Directors Determination Requirements for Building in Bushfire-prone Areas, version 2.1, 29th August 2017.

Table 2. Deemed to Satisfy requirements s4.

Section	Requirement	Compliance
4.1. Construction Requirements	(1) Building work (including additions or alterations to an existing building) in a bushfire-prone area must be designed and constructed in accordance with an Acceptable Construction Manual determined by the BCA, being either: - (a) AS 3959-2018; or (b) Nash Standard - Steel Framed Construction in Bushfire Areas as appropriate for a BAL determined for that site.	Construction to BAL-29 of AS3959-2018 Class 1 building
	(2) Subclause (1)(a) is applicable to the following: (a) a Class 1, 2 or 3 building; or (b) a Class 10a building or deck associated with a Class 1, 2 or 3 building.	
	3) Subclause (1)(b) is applicable to the following: (a) a Class 1 building; or (b) a class 10a building or deck associated with a Class 1 building.	
	(4) Despite subsection (1) above, variations from requirements specified in 1(a) and 1(b) are as specified in Table 4.1 below.	
	(5) Despite subsections (1) and (4) above, performance requirements for buildings subject to BAL 40 or BAL Flame Zone (BAL-FZ) are not satisfied by compliance with subsections (1) or (4) above.	
4.2. Property Access	(1) A new building constructed in a bushfire-prone area must be provided with property access to the building and the fire-fighting water point, accessible by a carriageway, designed and constructed as specified in subsection (2) below.	Property access specified as per table 4.2
	(2) Vehicular access from a public road to a building must: (a) Meet the property access requirements described in Table 4.2; (b) Include access from a public road to within 90 metres of the furthest part of the building measured as a hose lay; and (c) Include access to the hardstand area for the fire-fighting water point.	
4.3. Water Supply for Fire fighting	(1) A new building constructed in a bushfire-prone area, must be provided with a water supply dedicated for fire-fighting purposes as specified in subsections (2) and (3) below.	Water supplies for fire-fighting specified as per table 4.3B
	(2) Water supplies for fire-fighting must meet the requirements described in Tables 4.3A or 4.3B.	
	(3) The water supply must be: (a) Provided from a fire hydrant or static water supply; (b) Located within the specified distance from the building to be protected; and (c) Provided with a hardstand and suitable connections.	
4.4. Hazard Management Areas	(1) A new building, or extension to a building, constructed in a bushfire-prone area must be provided with a HMA of sufficient dimensions and which provides an area around the building which separates the building from the bushfire hazard.	Hazard management area shown on the bushfire hazard management plan (BHMP), consistent with separation for BAL-29, requirements for hazard reduction on BHMP.
	(2) The HMA must comply with Table 4.4; and	
	(3) The HMA for a particular BAL must have the minimum dimensions required for the separation distances specified for that BAL in Table 2.4.4 of AS 3959-2018; and	
	(4) The HMA must be established such that fuels are reduced sufficiently, and other hazards are removed such that the fuels and other hazards do not significantly contribute to the bushfire attack.	

8.0 Guidance

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

- The area directly adjacent to the building has a significant amount of flammable material removed such that there is little to no material available to burn around the building;
- Includes non flammable areas such as paths, driveways, short cropped lawns;
- Establishment of orchards, vegetable gardens, dams or waste water effluent disposal areas on the fire prone side of the building;
- Creating wind breaks and radiation shields such as non combustible fences and low flammability hedges;
- Removing fire hazards such as wood piles, rubbish heaps and stored fuels;
- Creating and maintaining vertical as well as horizontal separation between ground fuels and tree canopies by pruning;
- It is not necessary to remove all vegetation from the defendable space, trees can provide protection from wind borne embers and radiant heat in some circumstances.

9.0 Further Information

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

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

10.0 References

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

Building Amendment (Bushfire-Prone Areas) Regulations 2016

Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas, version 1 14th March 2016. Consumer, Building and Occupational Services, Department of Justice, Tasmania.

The Bushfire Planning Group 2005, *Guidelines for development in bushfire prone areas of Tasmania – Living with fire in Tasmania,* Tasmania Fire Service, Hobart.

Tasmania Fire Service 2013, *Building for Bushfire – Planning and Building in Bushfire-Prone Areas for Owners and Builders*.

Glamorgan – Spring Bay Interim Planning Scheme 2015, Tasmanian Planning Commission 2015, Tasmanian Planning Commission, Hobart.

11.0 Limitations Statement

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

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

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

Appendix A – Site Photos

Figure 3.

Figure 4.

Figure 5.

Figure 6.

Appendix B - Site Plan

Location Plan

Amendments	
Date	Description

Proposal:	New Dwelling	Scale: 1:1000	Job No: 186 - 2018	Pg No: SK.01
Client:	Tim & Sarah O'Connor	Date: XX/XX/XX	Engineer:	
Address:	1533 Dolphin Sands Rd, Dolphin Sands	Drawn: JRN	Building Surveyor:	

PINNACLE DRAFTING & DESIGN. CC6073Y 2 Kennedy Drv, Cambridge 7170 P: 03 6248 4743 F: 03 6248 4745 E: jnickerson@pinnacledrafting.com.au

pinnacle DRAFTING&DESIGN

BUSHFIRE HAZARD MANAGEMENT PLAN

Bushfire Hazard Management Plan, 1533 Dolphin Sands Road
Dolphin Sands. October 2019. GES05153v1.0
Glamorgan - Spring Bay Interim Planning Scheme 2015

GES
GEO-ENVIRONMENTAL
SOLUTIONS
29 Kirksway Place, Battery Point
T| 62231839 E| office@geosolutions.net.au

Design and Specification Requirements
4.2 Standards for Property Access
Property access length is greater than 30 metres; or access is required for a fire appliance to access a water connection point.

The following design and construction requirements apply to property access:
(1) All-weather construction;
(2) Load capacity of at least 20 tonnes, including for bridges and culverts;
(3) Minimum carriageway width of 4 metres;
(4) Minimum vertical clearance of 4 metres;
(5) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
(6) Cross falls of less than 3° (1:20 or 5%);
(7) Dips less than 7° (1:8 or 12.5%) entry and exit angle;
(8) Curves with a minimum inner radius of 10 metres;
(9) Maximum gradient of 15° (1:3.5 or 28%) for sealed roads, and 10° (1:5.5 or 18%) for unsealed roads; and
10) Terminate with a turning area for fire appliances provided by one of the following:
(a) A turning circle with a minimum inner radius of 10 metres;
(b) A property access encircling the building; or
(c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.

4.3B Static Water Supply for Fire fighting

Static water supplies and associated infrastructure for firefighting purposes will be provided in accordance with table 4.3B of the Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas, version 2.1, 29th August 2017.

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

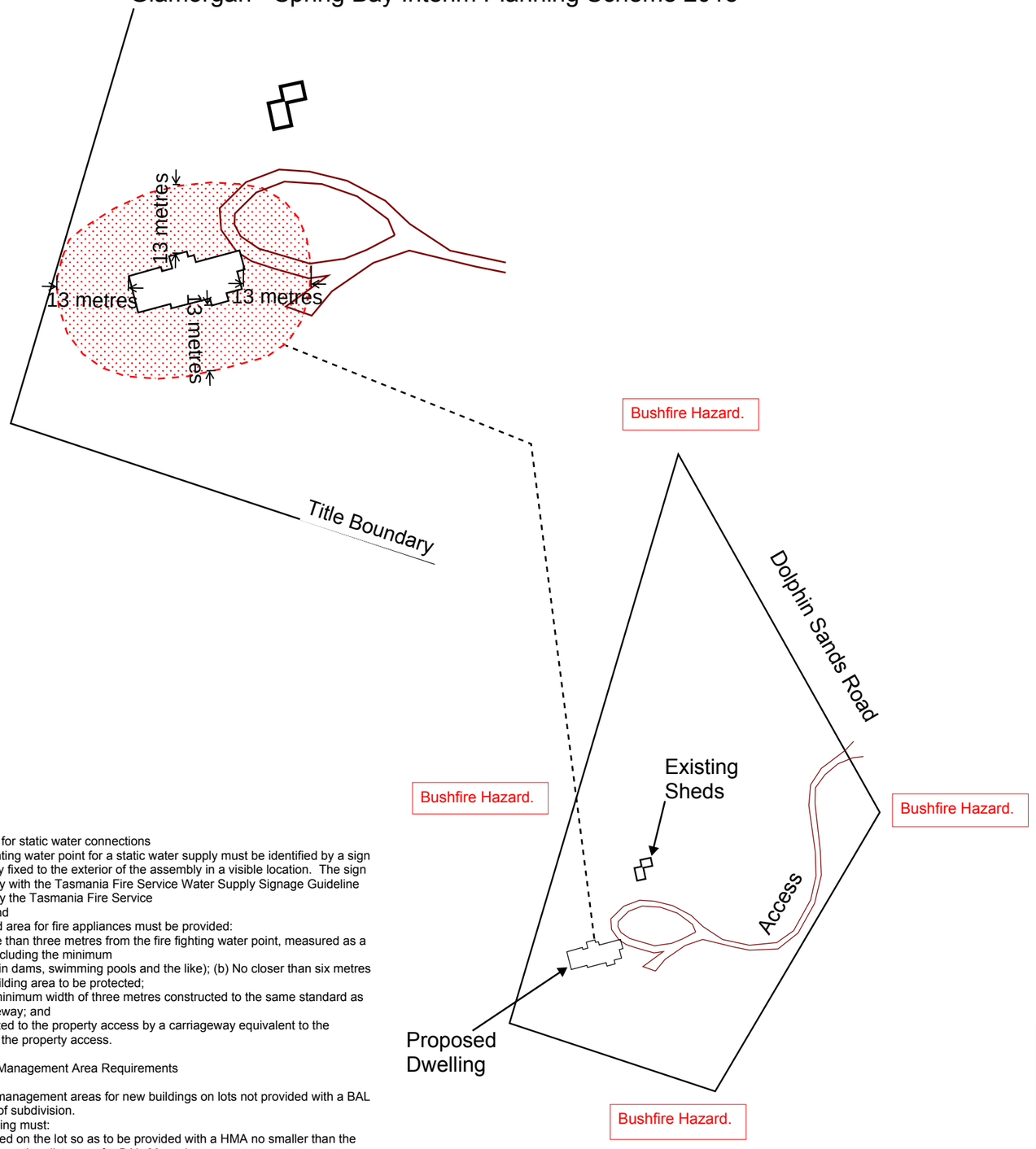
B) Static Water Supplies
A static water supply:
(a) May have a remotely located offtake connected to the static water supply;
(b) May be a supply for combined use (fire fighting and other uses) but the specified minimum quantity of fire fighting water must be available at all times;
(c) Must be a minimum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

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

D) Signage for static water connections
The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must comply with the Tasmania Fire Service Water Supply Signage Guideline published by the Tasmania Fire Service
E) Hardstand
A hardstand area for fire appliances must be provided:
(a) No more than three metres from the fire fighting water point, measured as a hose lay (including the minimum
water level in dams, swimming pools and the like); (b) No closer than six metres from the building area to be protected;
(c) With a minimum width of three metres constructed to the same standard as the carriageway; and
(d) Connected to the property access by a carriageway equivalent to the standard of the property access.

4.4Hazard Management Area Requirements

B) Hazard management areas for new buildings on lots not provided with a BAL at the time of subdivision.
A new building must:
(1) Be located on the lot so as to be provided with a HMA no smaller than the required separation distances for BAL-29; and
(2) Have a HMA established in accordance with a certified bushfire hazard management plan.



Hazard Management Area

Property Access

Building Specifications to BAL- 29 of AS3959-2018

Hazard Management Area
Is to be managed in a minimum fuel condition. This means there is insufficient fuel available to significantly increase the severity of the bushfire attack.
Guidance
•Hazard management area to be maintained in a minimum fuel condition. Locate fire hazards such as wood piles, rubbish heaps and stored fuels away from habitable buildings.
•The area directly adjacent to the building has a significant amount of flammable material removed such that there is little to no material available to burn around the building;
•Includes non flammable areas such as paths, driveways, short cropped lawns;
•Establishing orchards, vegetable gardens, dams or waste water effluent disposal areas on the fire prone side of the building where practical;
•Create wind breaks and radiation shields such as non combustible fences and low flammability hedges;
•Create and maintain vertical as well as horizontal separation between ground fuels and tree canopies by pruning;
•It is not necessary to remove all vegetation from the defendable space, trees can provide protection from wind borne embers and radiant heat under some circumstances.

Certification No. GES05153

Mark Van den Berg
Acc. No. BFP-108
Scope 1, 2, 3A, 3B, 3C.

Do not scale from these drawings. Dimensions to take precedence over scale.	S and T O'Connor 39 Lynrowan Drive Acton Park TAS 7170	C.T.: 54666/199 PID: 5280523	Date: 4/10/2019	Bushfire Hazard Management Plan: 1533 Dolphin Sands Road, Dolphin Sands. 4th October 2019. GES05153v1.0 Bushfire Hazard Report: 1533 Dolphin Sands Road, Dolphin Sands. 4th October 2019. GES05153v1.0	Drawing Number: 1.0 page scale: A3	Sheet 1 of 1 Prepared by: MvdB

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: S and T O'Connor *Owner /Agent*

39 Lynrowan Drive *Address*

Acton Park TAS 7170 *Suburb/postcode*

Qualified person details:

Qualified person: Mark Van den Berg

Address: 29 Kirksway Place

Battery Point TAS 7004

Phone No: 03 6223 1839

Fax No:

Licence No: BFP - 108

Email address: mvandenberg@geosolutions.net.au

Qualifications and Insurance details: Accredited to report on bushfire hazards under Part IVA of the Fire Service Act.
BFP-108 scope 1, 2, 3a, 3b, 3c.
Sterling Insurance PI policy No. 17080170

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

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

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

Details of work:

Address: 1533 Dolphin Sands Road

Dolphin Sands TAS 7190

Lot No: 199

Certificate of title No: 54666

The assessable item related to this certificate: New building work in a bushfire prone area.

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

Certificate details:

Certificate type: Bushfire Hazard

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

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

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

or

a building, temporary structure or plumbing installation: ☐

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Report 1533 Dolphin Sands Road, Dolphin Sands. 4th October 2019. GES05153v1.0 Bushfire Hazard Management Plan 1533 Dolphin Sands Road, Dolphin Sands. 4th October 2019. GES05153v1.0 And Form 55
Relevant calculations:	Not Applicable.
References:	Determination, Director of Building Control Requirements for Building in Bushfire-Prone Areas, version 2.1 29th August 2017. Consumer, Building and Occupational Services, Department of Justice, Tasmania. Building Amendment (Bushfire-Prone Areas) Regulations 2014 Standards Australia 2018, Standards Australia, Sydney.

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

The Bushfire Attack Level for the proposed lot is **BAL-29**. All specifications of the Bushfire hazard management plan and report to be implemented for compliance.

Scope and/or Limitations

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

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		GES05153	4/10/2019

T: (03) 6248 4218
M: 0488 235 786
F: (03) 6248 4745
WEB: http://www.pinnacledrafting.com.au/
E: jnickerson@pinnacledrafting.com.au

From: Jason Nickerson
Sent: Friday, 28 February 2020 10:19 AM
To: Robyn Bevilacqua <Robyn.Bevilacqua@freycinet.tas.gov.au>
Cc: robyn@freycinet.tas.gov.au; admin@freycinet.tas.gov.au
Subject: FW: Dolphin Sands building height photos

HI Robyn,

We have completed some site investigation and provide a cross sectional diagram along the lower height of the dune along with referenced survey heights. It would appear from the below photos and attached data that we would fit in with the Performance Criteria:
P1

Building height must:

(a) be unobtrusive within the surrounding landscape; - not visible from the beach

(b) be consistent with the surrounding pattern of development; - below examples of similar developments in the area

(c) not unreasonably impact on the amenity of adjoining lots from overshadowing, overlooking or visual bulk. – no overshadowing concerns, and visual bulk is minimized due dunes and vegetation from the neighbouring properties.

The de-identified representation is:

'I notice from the above documents that the proposed building will have a height of some 7 metres above ground level.
The planning scheme seems to indicate a maximum height of 5 metres therefore this building will be well above the dunes and clearly very visible from the beach which I would have thought is not the desired effect of building within the dunes as suggested by the planning dept?

I trust this further information will help in completing your application.

Cheers,

Jason Nickerson
DIRECTOR

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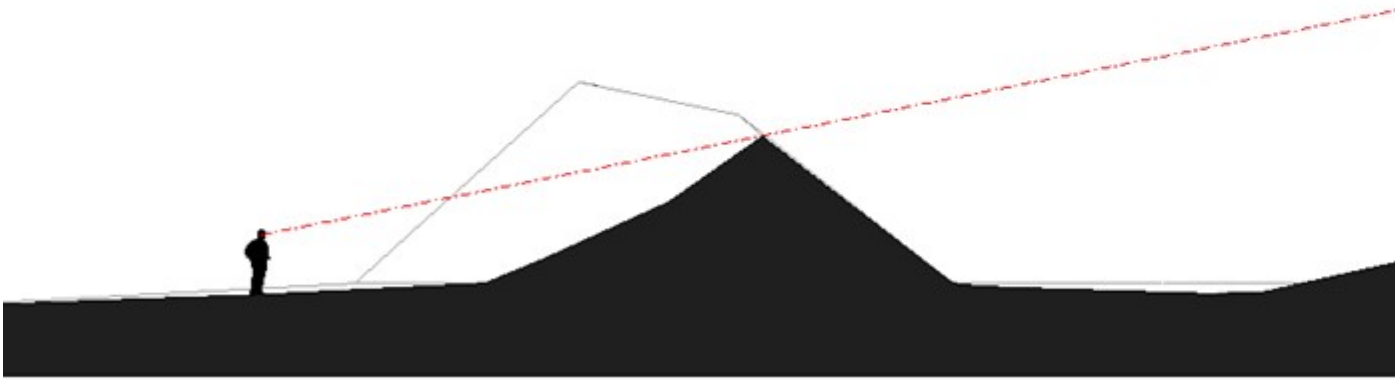

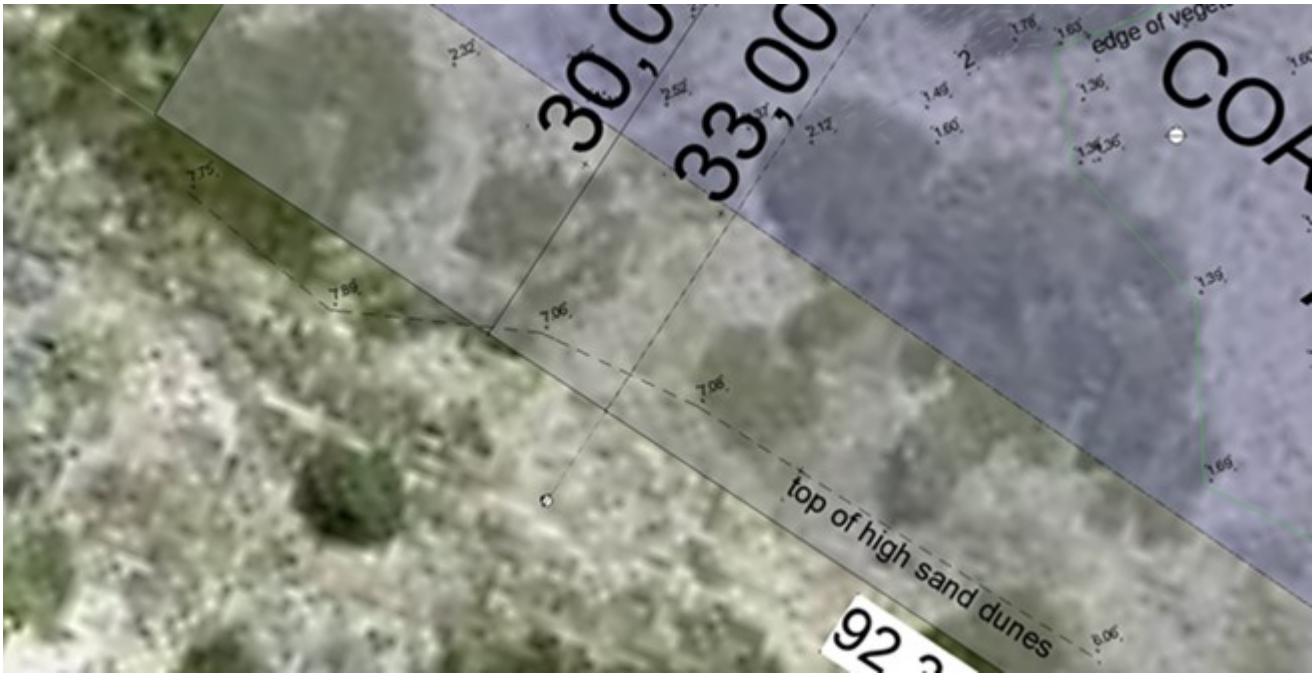

[redacted]

Sent: Monday, 24 February 2020 4:23 PM
To: Jason Nickerson <jnickerson@pinnacledrafting.com.au>
[redacted]
Subject: Dolphin Sands building height photos

Good afternoon Jason,

Please see attached images as examples of the height of other Dolphin Sands dwellings, demonstrating the consistency of our design with the surrounding pattern of development. Given that many of these are visible from the road and/or beach, which ours will not be, I can't see any problem meeting the performance criteria of 34.4.1

1204 Dolphin Sands Rd

684? Dolphin Sands Road

1062 Dolphin Sands Rd

1024 Dolphin Sands Rd

778 Dolphin Sands Rd

Other examples in recent planning applications:
157 Dolphin Sands Road - 6.7m high
1446 Dolphin Sands Road - 5.9m high

Please forward on as appropriate to planning at GSBC.

[redacted]