

# DEVELOPMENT APPLICATION PDPLANPMTD-2024/043255

**PROPOSAL:** Additions & Alterations (New Tennis Court)

**LOCATION:** 6 Vadura Place, Bellerive

**RELEVANT PLANNING SCHEME:** Tasmanian Planning Scheme - Clarence

**ADVERTISING EXPIRY DATE:** 02 May 2024

The relevant plans and documents can be inspected at the Council offices, 38 Bligh Street, Rosny Park, during normal office hours until 02 May 2024. In addition to legislative requirements, plans and documents can also be viewed at <a href="https://www.ccc.tas.gov.au">www.ccc.tas.gov.au</a> during these times.

Any person may make representations about the application to the Chief Executive Officer, by writing to PO Box 96, Rosny Park, 7018 or by electronic mail to <a href="mailto:clarence@ccc.tas.gov.au">clarence@ccc.tas.gov.au</a>. Representations must be received by Council on or before 02 May 2024.

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

Any personal information submitted is covered by Council's privacy policy, available at <a href="https://www.ccc.tas.gov.au">www.ccc.tas.gov.au</a> or at the Council offices.

# Clarence City Council



# APPLICATION FOR DEVELOPMENT / USE OR SUBDIVISION

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

Proposal:	New tennis court and associated earthworks.
Location:	Address 6 Vadura Place Suburb/Town Bellerive, TAS Postcode 7018
Current Owners/s: Applicant:	Personal Information Removed
Tax Invoice for application fees to be in the name of: (if different from applicant)	
	Estimated cost of development \$
	Is the property on the Tasmanian Heritage Register?  Yes  No  X
	(if yes, we recommend you discuss your proposal with Heritage Tasmania prior to lodgement as exemptions may apply which may save you time on your proposal)

38 Bligh Street, Rosny Park, Tasmania • Address correspondence to: General Manager, PO Box 96, Rosny Park 7018 • Dx: 70402 Telephone (03) 6217 9550 • Email cityplanning@ccc.tas.gov.au • Website www.ccc.tas.gov.au

	you had pre-applica fficer, please give th	ntion discussions with a Council neir name	Rachael Mansfield
С	urrent Use of Site:	Residential	
	oes the proposal inv y the Crown or Cour	volve land administered or owned ncil?	Yes No X
Declaration:	satisfied that covenants.  I authorise the any person for arrange for the be obtained. I land to assess  I declare that Approvals Accapplication. Verown, their section 43A, to	e Certificate of Title and Schedule of this application is not prevented by the provision of a copy of any docume or the purposes of assessment or the permission of the copyright owner I have arranged permission for Couthis application to the copyright owner that a provided the control of the copyright owner to the subject property is owned the subject property is owned the control of the the the owner's consent is attached. The information in this declaration is	ents relating to this application to public consultation. I agree to r of any part of this application to ncil's representatives to enter the of the Land Use Planning and ner of the intention to make this d or controlled by Council or the the application is submitted under
Acknowledgement:	become a pul both electroni for display p obligations. I	e that the documentation submitted blic record held by Council and more cand hard copy format in order to purposes during public consultation further acknowledge that following store documentation relating to my	tay be reproduced by Council in facilitate the assessment process; ion; and to fulfil its statutory determination of my application,
Applicant's Signature:	G:		

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



# **RESULT OF SEARCH**

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980



#### SEARCH OF TORRENS TITLE

VOLUME	FOLIO
35032	34
EDITION 8	DATE OF ISSUE 30-Oct-2019

SEARCH DATE : 09-Apr-2024 SEARCH TIME : 03.16 PM

#### DESCRIPTION OF LAND

City of CLARENCE

Lot 34 on Sealed Plan 35032

Derivation: Part of 181 Acres Gtd. to G. Mercer

Prior CT 4457/43

#### SCHEDULE 1

M785623 TRANSFER to CAITLIN LOUISE CANNAN and PAUL

CHRISTOPHER BREMNER Registered 30-Oct-2019 at 12.01

PM

#### SCHEDULE 2

Reservations and conditions in the Crown Grant if any

SP 35032 EASEMENTS in Schedule of Easements

SP 35032 COVENANTS in Schedule of Easements

SP 35032 FENCING COVENANT in Schedule of Easements

E196373 MORTGAGE to Commonwealth Bank of Australia

Registered 30-Oct-2019 at 12.02 PM

#### UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations



# **FOLIO PLAN**

RECORDER OF TITLES



Issued Pursuant to the Land Titles Act 1980

Owner: THE DIRECTOR OF HOUSING
TERENCE SCOTT CROMER & DENICE KATHLEEN CROMER
RUSSELL NEIL MORGAN & (LOT 42
JUDITH MARGARET MORGAN (LOT 44)
BAKBARA (LOT 42)

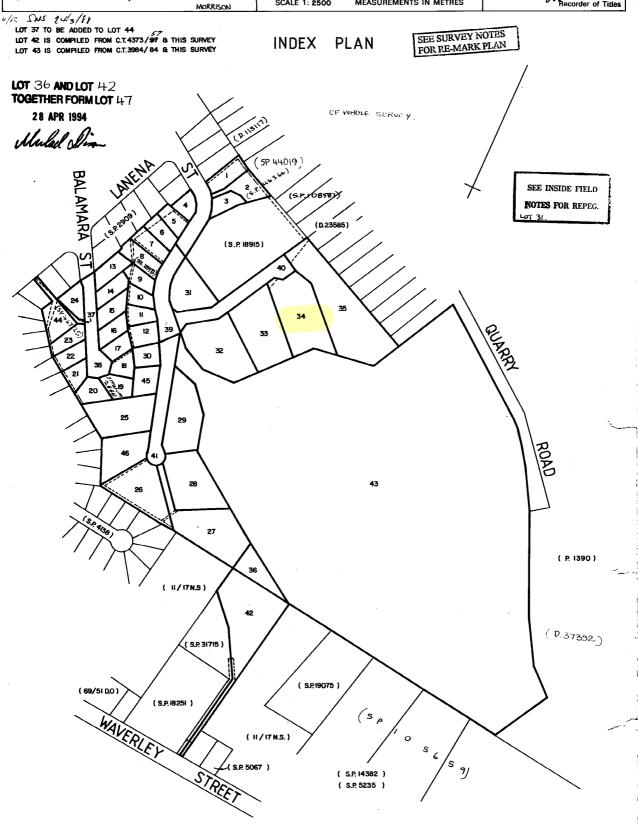
Title Reference: C.T. 3984 /84 , C.T. 4373 /9± (LOT 42) C.T. 4376 / IO(LOT 44)

Grantee: PART OF (181-0-0) GTD TO GEORGE MERCER & PART OF LOT 596 (28.0.0) GTD. TO JAMES ALEXANDER

PLAN OF SURVEY John Leonard Cerutty by Surveyor... John of land situated in the

TOWN OF BELLERIVE

MEASUREMENTS IN METRES SCALE 1: 2500



Search Date: 09 Apr 2024

Search Time: 03:17 PM

Volume Number: 35032

Revision Number: 07

Page 1 of 7



PROPOSED TENNIS COURT

6 VADURA PL, BELLERIVE, TAS 7018

DR BREMNER & DR CANNAN CLIENT:

STAGE: **DEVELOPMENT APPLICATION** COUNCIL: **CLARENCE CITY COUNCIL** 

TITLE REF: 35032 / 34

JOB No.: 065

С	UPDATES	2024.03.14	SOME	SM
В	CLIENT REQUESTED AMENDMENTS	2024.02.15	ALL	CDP
Α	DA PLAN SET - INITIAL ISSUE	2023.10.27	ALL	CDP
RFV	AMENDMENTS	DATE	SHFFT	DRW

# REVISION SCHEDULE

**DETAILS** 

SITE AREA: 4239 m2 SITE COVERAGE: 51%

NEW IMPERVIOUS AREA: 490.57 m2

See sheet A-04

ZONE:

**RURAL LIVING** 

OVERLAY(S):

NATURAL ASSETS CODE BUSHFIRE-PRONE AREAS CODE

WIND REGION: SOIL CLASS: TERRAIN CATEGORY: SHIELDING CLASS: TOPOGRAPHIC CLASS: WIND CLASS:

ALPINE AREA: LESS THAN 900m AHD CORROSION ENVIRONMENT: >100m FROM BREAKING SURF

#### **SHEET LIST**

A-02 EXISTING SITE PLAN

A-06 SHEET DELETED

A-07 SITE PLAN 1:200

A-08 SECTIONS

A-09 3D PERSPECTIVES

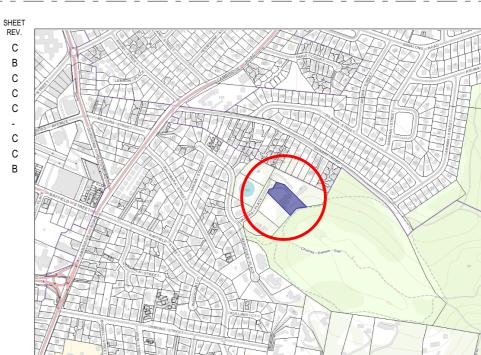
No. SHEET NAME

A-01 COVER SHEET

A-03 SITE DEMOLITION PLAN

A-04 PROPOSED SITE PLAN

A-05 CONCEPT LANDSCAPING PLAN



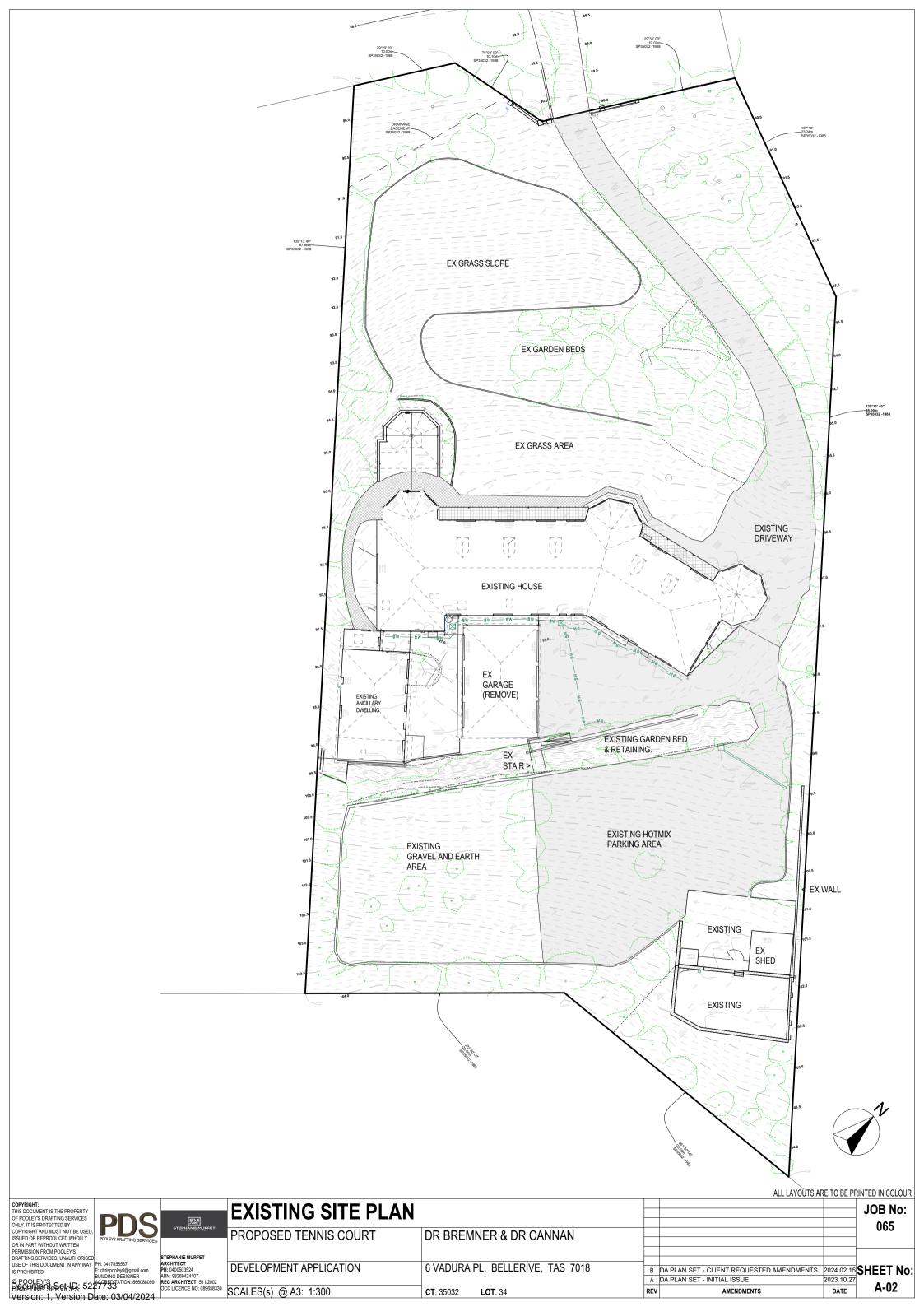
# SITE LOCATION

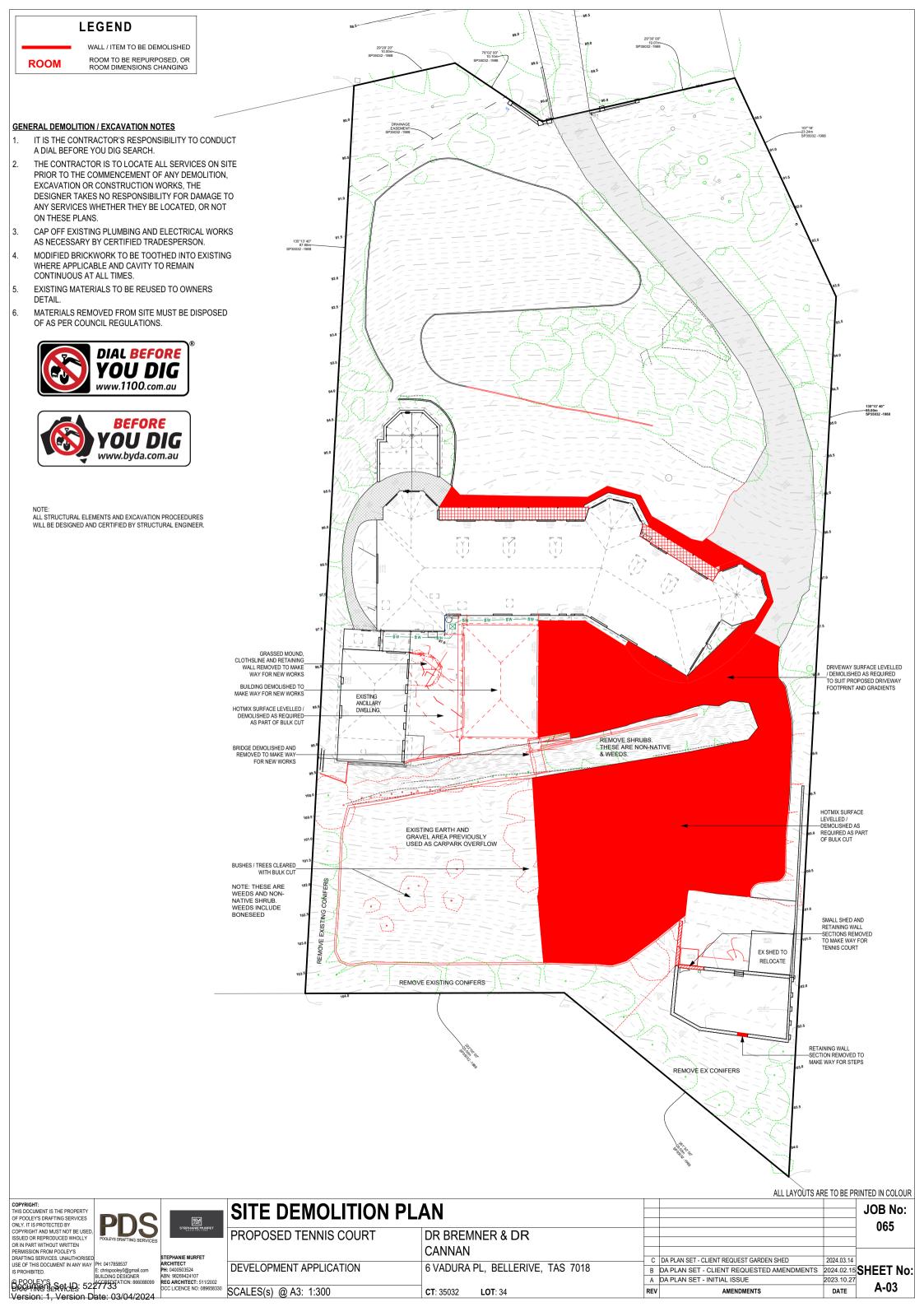


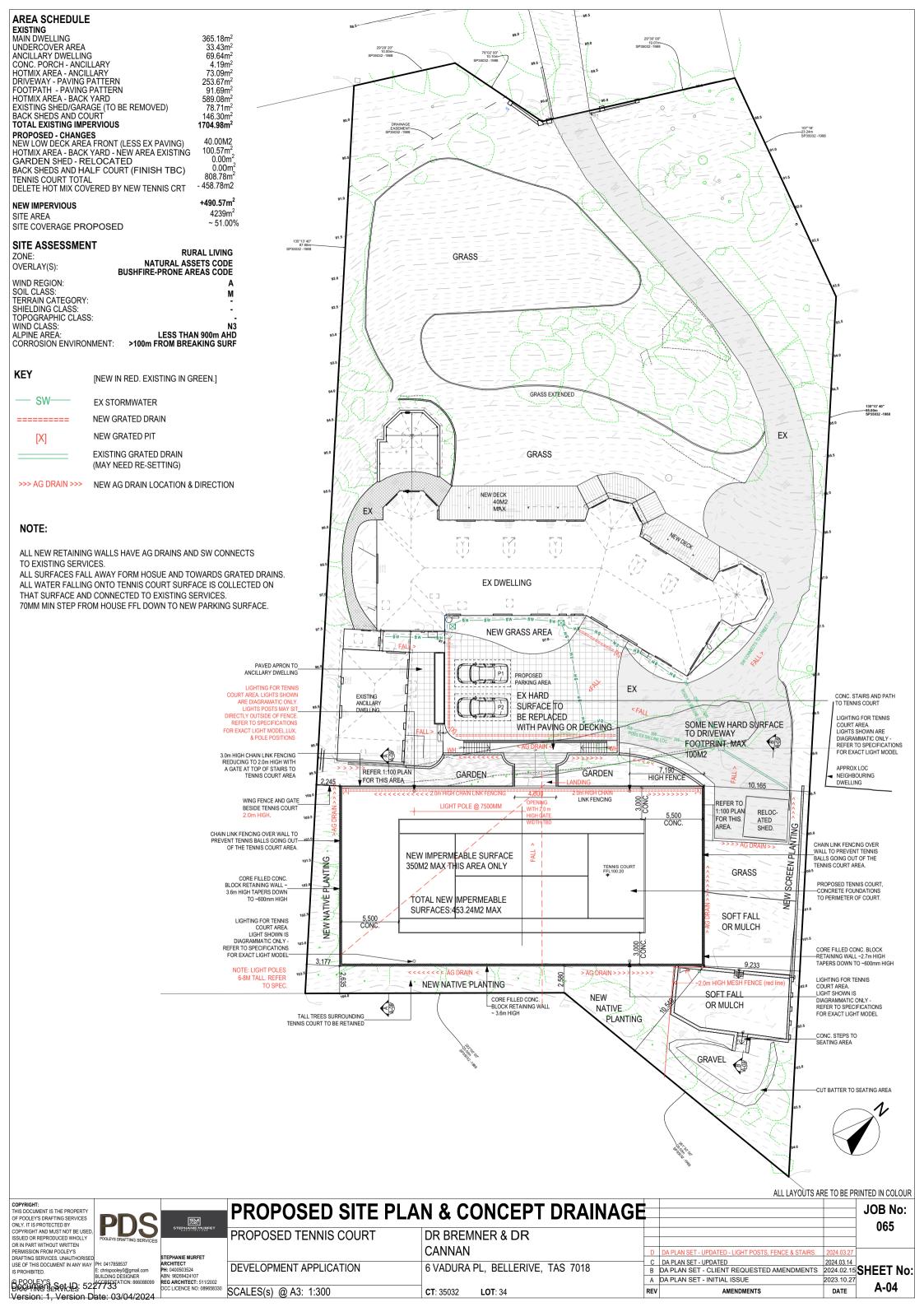
STEPHANIE MURFET ARCHITECT PH: 0400503524 ABN: 98269424107 REG ARCHITECT: 511/2002

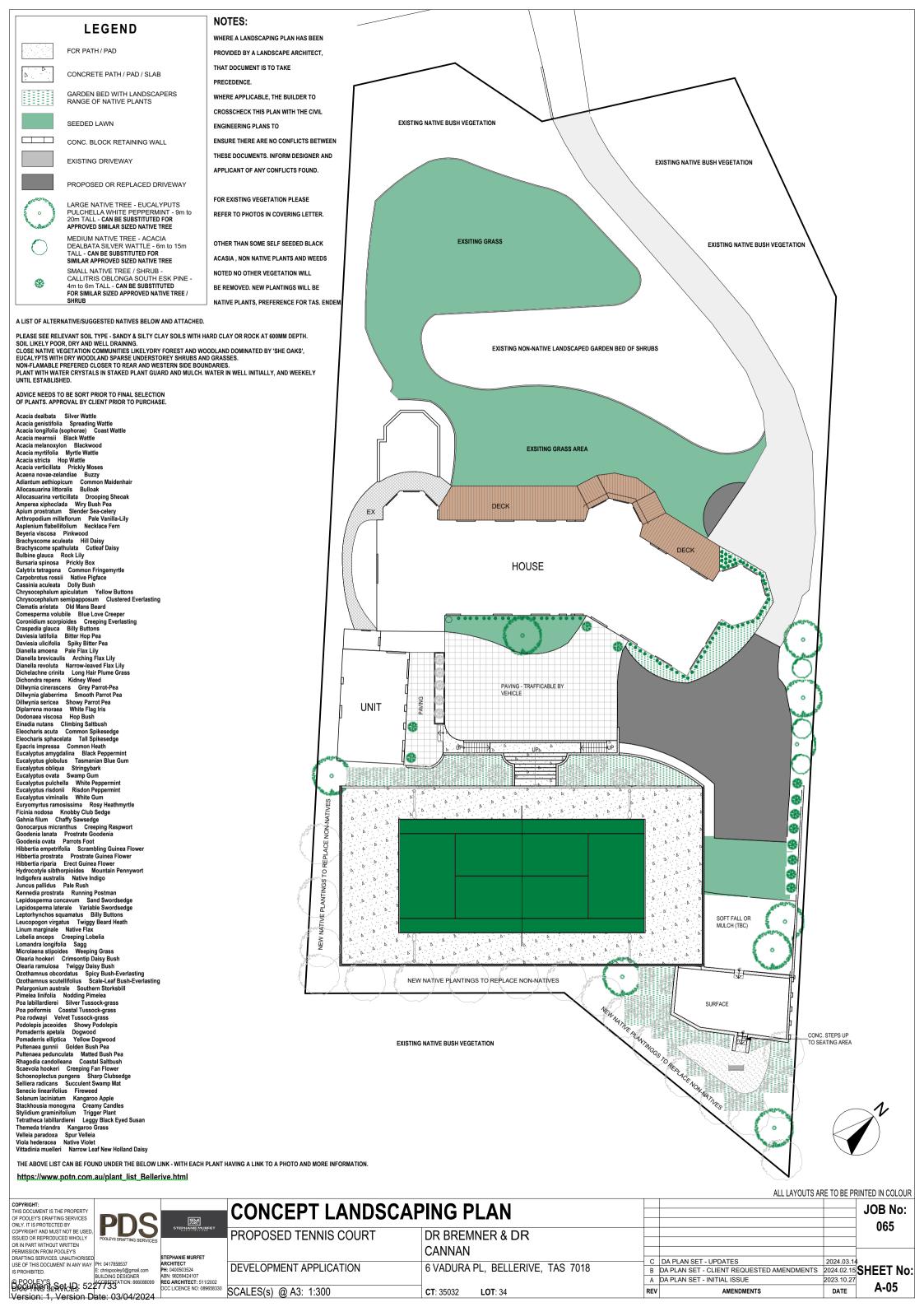


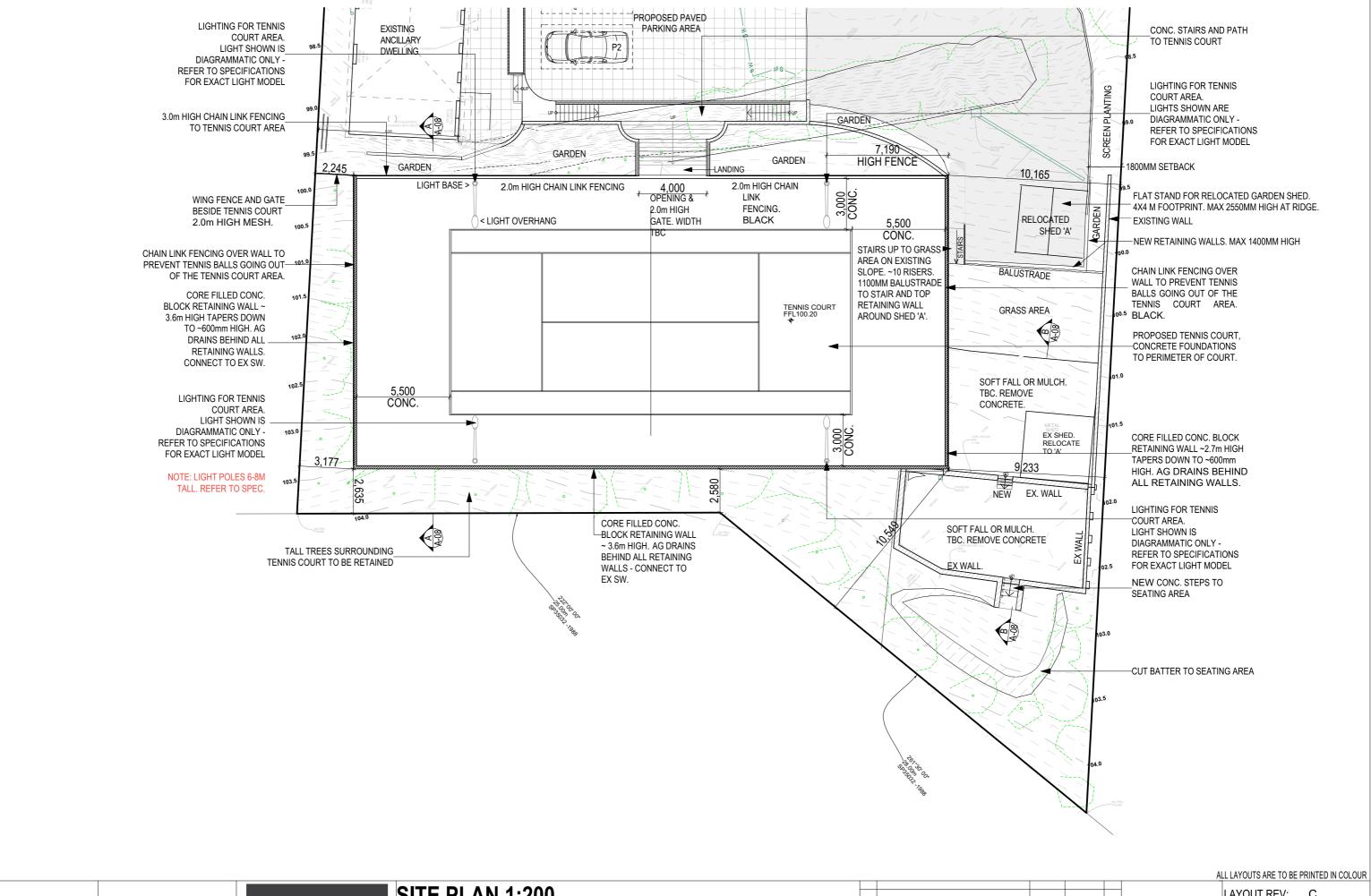
THIS DWELLING IS BEING CONSTRUCTED IN A BAL-TBA RATED AREA











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Version: 1, Version Date: 03/04/2024

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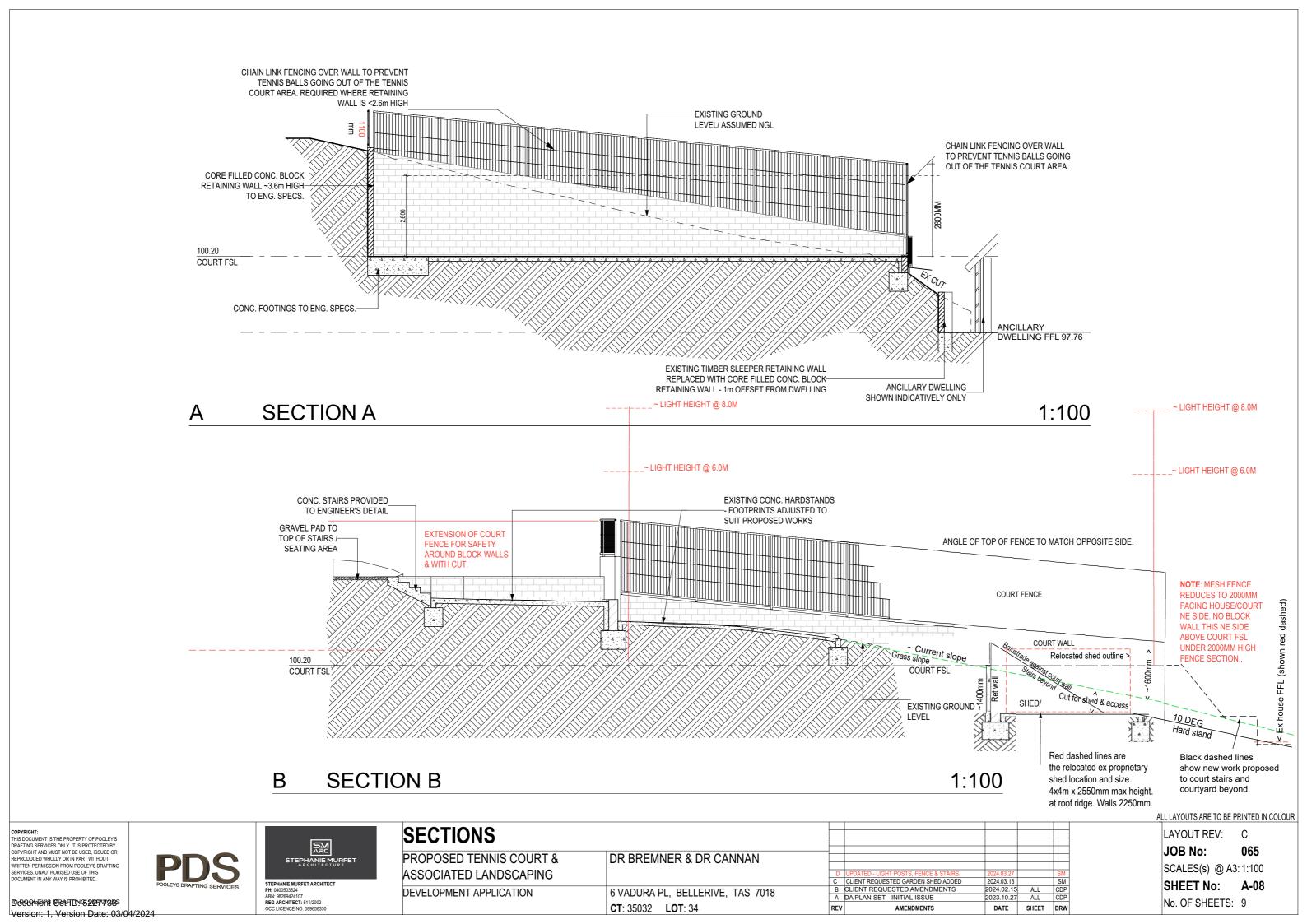
STEPHANIE MURFET ARCHITECT
PH: 0400503524
ABN: 98269424107
REG ARCHITECT: 511/2002
OCC LICENCE NO: 089658330

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SITE PLAN 1:200		-				+
						+
PROPOSED TENNIS COURT	DR BREMNER & DR					
						_
	CANNAN		DA PLAN SET - UPDATES	2024.03.14		SN
DEVELOPMENT APPLICATION	CANDIDADI DELLEDIVE TAC 7010		CLIENT REQUESTED AMENDMENTS	2024.02.15	ALL	CDI
DEVELOPMENT APPLICATION	6 VADURA PL, BELLERIVE, TAS 7018	A	DA PLAN SET - INITIAL ISSUE	2023.10.27	ALL	CD
	CT: 35032 LOT: 34	REV	AMENDMENTS	DATE	SHEET	DR

LAYOUT REV: С JOB No: 065

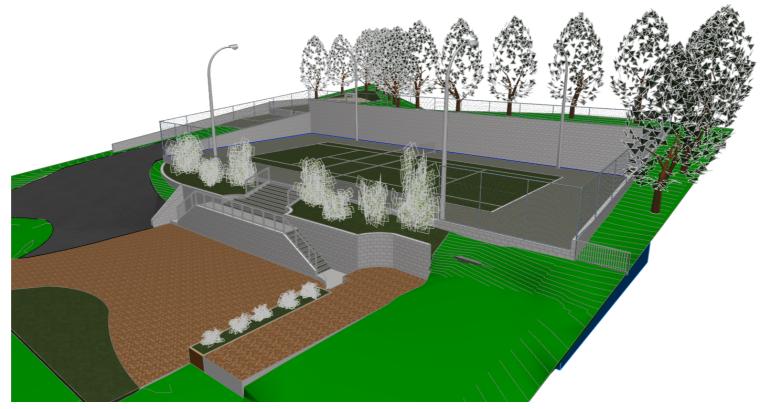
SCALES(s) @ A3: 1:200 A-07

SHEET No: No. OF SHEETS: 9





PERSPECTIVE 1 NTS



# PERSPECTIVE 2 NTS

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3D PERSPECTIVES	INDICATIVE ONLY					
PROPOSED TENNIS COURT	DR BREMNER & DR CANNAN					
DEVELOPMENT APPLICATION	6 VADURA PL, BELLERIVE, TAS 7018	_	CLIENT REQUESTED AMENDMENTS DA PLAN SET - INITIAL ISSUE	2024.02.15 2023.10.27		CDP
	CT: 35032 LOT: 34	RE\	/ AMENDMENTS	DATE	SHEET	DRW

## ALL LAYOUTS ARE TO BE PRINTED IN COLOUR

LAYOUT REV: B

JOB No: 065 SCALES(s) @ A3:

SHEET No: A-09 No. OF SHEETS: 9



## STEPHANIE MURFET ARCHITECT

6 Sunways Ave Seven Mile Beach Tasmania 7170 Tel: 0400503524

ABN 98269424107

Planning Department Clarence City Council 38 Blight Street Rosny Park TAS

14th March 2024

Re: DA lodgement [PDPLIMPLN-2023/035567] 6 Vadura Place, Bellerive TAS

On behalf of Dr Paul Bremner and Dr Caitlin Cannan I would like to lodge the attached Development application for a proposed tennis court and associated landscaping

Works at the above address.

A Preliminary DA was lodged and a response received on the 22<sup>nd</sup> May 2023 with reference as per above.

Please find attached a set of drawings, a soil report, a land title, and a list of recommended plants. The application is for a tennis court and retaining walls, the demolition/removal of a large garage, relocation of a 4x4m garden shed, and associated groundworks. There is no change proposed to the house or ancillary dwelling.

We understand that the property is zoned **Rural Living** under the Tasmanian Planning Scheme, Clarence, and is also subject to **Parking and Sustainable Transport Code**, the **Bushfire Prone Area Code**, **Natural Assets Code**, and the **Safeguarding of Airports Code**.

The site currently has a large house, an ancillary dwelling, a large garage (garage to be removed), and an area behind/above the dwelling that has a hotmix surface that may have served as parking in the past. There are also some other hard surfaces that have small garden sheds on them, one to be repositioned, and a part basketball court.

The total of **impervious surfaces** currently is around 1705m2. The site area is 4239m2. In adding the tennis court we would be removing the upper hotmix parking area and as such adding 490m2 of new impervious surfaces. This includes the properties driveway. It will still be able to accommodate the parking of at least three cars easily with ample mamaneuvering space. The property is connected to street services. The elevation is 104m2. Please see the aerial image [A] below/over page that shows the current area to the SE of the dwelling (above and behind the house) that is currently a mixture of gravel and hotmix surfaces with a few self-sown weeds and a few small black wattle saplings.



Image A

The notes 'A,B,C' above reference where the below photos were taken from.

The below images [B] & [C] show a close up of the above mentioned area and its Existing vegetation. This area and its vegetation do not have any value as natural assets.



Image B



Image C

This image below [D] shows the existing surfaces and small sheds at the highest eastern point of the site. The smaller shed will be removed, the larger shed (4x4m) is proposed to be relocated, the walls will remain, and the concrete surface replaced with either soft fall, mulch or grass for child play. As the final surface finish is unknown Ive counted it in the calculations as impermeable. Ive also counted any new decking as impermeable.



Image D

The below image [E] shows the **current vegetation** of the site with that closest to the dwelling *highlighted*. The tall trees along the upper rear boundary are conifers. These are likely a tree that is flammable, very large growing and not a native species to Tasmania. These are proposed to be removed and replaced with native plants. The shrubs between the higher hotmix area and the dwelling are not natives/native to Tasmania. The property to the right/west is privately owned. The vegetation on the lower area of number 6 Vadura Place is largely native bush vegetation down to the road.



Image E

We propose that the existing vegetation on the site is visibly such that the site does not require a Natural Vegetation Assessment (NVA) be done. We do not believe that under

the **Natural Assets Code** - C7.6.2 Clearance within a priority vegetation area P1.1 and P1.2 that any of the work we are doing raises any issues under the code. Nick Creese from Larke Creese also arranges our NVA's and gives us this initial advice.

Behind the property is a bush reserve. The site is a **Bushfire Prone Area** but the BAL rating will be established by a Consultant on lodgment of a subsequent Building Permit Application with a Certificate of Likely Compliance. Our adviser on this is Nick Creese from Larke Creese. We do believe that the proposed tennis court offers an increased fire break between the reserve and the dwelling. None of the proposed structures are of a flammable nature – in fact the opposite.

With respect to the standard under the **Planning Scheme for this zone** we address the **Performance Criteria** on the following items under clause 11.4.2 for built structure height, setback and siting P3 as the tennis court/retaining wall are within 10m of the side and rear boundaries. We propose that the proposed do not cause an unreasonable loss of amenity to adjoining properties, having regard to:

#### (a) the topography of the site;

The site is sloped and has a fall of 15.5 metres over its length from top to bottom; and as such structures require areas to be levelled or raised. We are proposing some of each, cut and fill, to achieve the lowest profile as possible for the court level.

#### (b) the size, shape and orientation of the site;

Though the site is large at 4239m2 the rear of the site above the dwelling narrows. The site falls to the Vadura Place below. It faces NW. The structures on the site are not visible from the street, but can be seen from further away, though downhill. This is one of the larger sites that border the reserve above to the top of the hill.

#### (c) the setbacks of surrounding buildings;

As the houses on this site and the block to the north are orientated long ways to the sun and view they span across their respective blocks. As such the setbacks of both ends of the dwelling at 6 Vadura Place and their neighbours to the NE are less than 10 metres from the respective side boundaries. There is a lot of screen planting between the dwelling and the neighbour, and this is proposed to be maintained. There is no neighbour to the rear as this is reserve, and no dwelling on the large site to the west, which is a double block. There is currently no overlooking from or to properties, and this is proposed to remain the case.

The 4x4m garden shed currently against the NE side boundary is proposed to be relocated further down this boundary, with a larger setback of between 1500mm and 1800mm along its length. There will be screen planting between the shed and the side boundary. The aluminium proprietary garden shed is 2550mm at its roof ridge and highest point with walls height closest to side boundary of 2250mm. It is proposed to be cut into the ground by up to 1400mm at the highest cut, so its height above natural

ground level is notably reduced. It is likely to be hidden by a 1500mm high standard paling fence on the boundary. The neighbours house on the NE is cut into the ground and does not look back to this area. The proposed tennis court and walls are outside of the 10m setback to the NE side boundary in the area of their closest neighbour's dwelling. This NE setback reduces to just under 10m towards the top of the site.

The below aerial photo [F] shows the NE neighbour to the right and 6 Vadura Place dwelling to the left. The approximate location of the boundary is marked, but hidden by vegetation screening; also the closest corner of the proposed court to the neighbour is drawn on, as is the location of the relocated 4x4m garden shed.



NORTH >

#### (d) the height bulk and form of existing and proposed buildings;

The tennis court will have a **max** 2800mm high black non reflective highly transparent cyclone mesh fence to part of the sides of the court area, which reduces in height to reflect the base wall height and ground levels - REFER TO SECTIONS A-A & B-B ON SHEET A-08. As the court is being cut into the land at the rear/top there is no fence required there, though we will add a 1100mm high balustrade for safety - this sets the start height of the top of the mesh fencing. There are retaining walls proposed, though these are sunken to reduce visibility from outside the property. Where retaining walls come out of the ground we proposed to step them and create garden beds between the walls. The court will have four 6000mm high downward facing task specialised lighting illuminating the play surface. We have done several 3D perspective models to help visualise the cuts, walls and overall appearance. The current dwelling is a high single story house that will largely hide the tennis court behind it – see image below/over page [G] – despite this image being taken from above and not eye level. It does however, allow you to see the current cleared area and the proposed tennis court site behind the building.



Image G

#### (e) the character of the development existing on established properties in the area;

This property is consistent with development fabric of the immediate area for the larger lots that border the hilltop reserve. The larger blocks accommodate swimming pool, large garages and parking areas and tennis court.



(f) any overshadowing of adjoining properties or public places.

We do not believe there will be any overshadowing of other properties or the current dwelling.

Thank you for your consideration. Please contact me directly with any queries, clarification or if you require further information.

Regards

Stephanie Murfet Architect

**SMArc** 

stephanie.murfet31@gmail.com m

0400503524

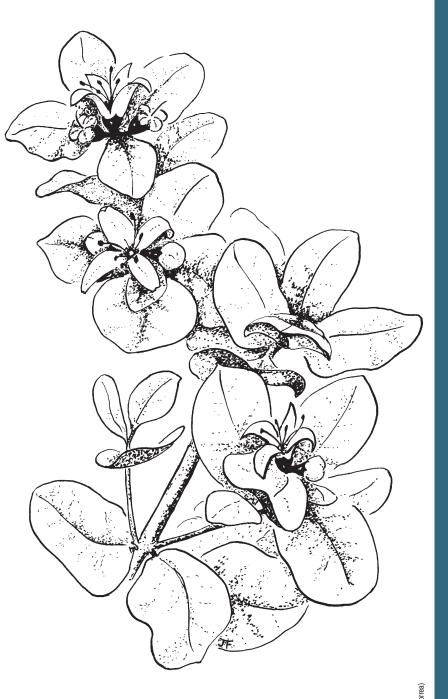






# Clarence

# Plant Species List



This plant species list is a sample of species that occur in your municipality and are relatively easy to grow or to purchase from a native plant nursery.

Some of the more common plants are listed, as well as uncommon species that have a limited distribution and only occur in your area.

However, many more species could be included on the list. Observing your local bush is a good way to get an idea of what else may be grown in your area and is suited to your property. To help choose your plants, each species is scored against soil type, vegetation community and uses.

An extensive listing of suitable species can be found on the NRM South and Understorey Network websites.

# Clarence Plant Species List

Standard Name

Common Name

Dry Eucalypt Forest and Woodland Wet Eucalypt Forest Coastal Vegetation

Vegetation Community

Poorly drained soil Well drained soil

Soil Type

Bush tucker Uses

Fertile soil

Grow from

Easy to propagate from cuttings Easy to propagate by division

Easy to propagate from seed

Trees																								
Acacia mearnsii	black wattle				•	•				•	•		•		•	•			•	•	•		•	
Acacia verticillata	prickly mimosa		•	•	•		•			•	•	•	•	•	•	•			•				•	
Allocasuarina littoralis	black sheoak		•		•					•		•	•		•				•		•		•	
Allocasuarina verticillata	drooping sheoak		•		•					•		•	•		•	•			•		•		•	
Banksia marginata	silver banksia		•	•	•		•			•	•	•	•	•	•								•	
Bursaria spinosa	prickly box				•					•		•	•	•	•	•					•		•	
Eucalyptus amygdalina	black peppermint	•	•		•	•	•			•		•	•	•	•						•		•	
Eucalyptus globulus	tasmanian blue gum			•	•					•		•	•		•	•							•	
Eucalyptus pulchella	white peppermint	•			•					•			•	•		•					•		•	
Eucalyptus tenuiramis	silver peppermint	•			•					•			•		•						•		•	
Eucalyptus viminalis	white gum			•	•				•	•		•	•	•	•	•					•		•	
Shrubs  Acacia genistifolia	spreading wattle						•			•			•		•	•					•		•	
Acacia gunnii	ploughshare wattle						•			•			•		•	•					•		•	
Acacia sophorae	coast wattle		•							•		•			•						•		•	
Acacia suaveolens	sweet wattle		•				•			•		•			•				•				•	
Atriplex cinerea	grey saltbush		•							•							•	•				•	•	•
Bossiaea cordigera	wiry bossia				•																		•	
Cassinia aculeata	dollybush			•	•				•	•			•	•	•				•				•	
Correa alba	white correa		•				•			•		•	•		•		•							•
Dodonaea viscosa	hopbush		•		•					•		•			•				•		•		•	
Leptospermum glaucescens	smoky teatree	•					•	•		•	•	•	•	•	•								•	
Leptospermum scoparium	manuka		•		•		•				•	•			•				•		•		•	
Melaleuca gibbosa	slender honeymyrtle		•				•			•	•	•	•		•				•		•		•	
Myoporum insulare	common boobialla		•									•					•						•	•
Olearia ramulosa	twiggy daisybush		•				•			•		•	•			•							•	
Ozothamnus obcordatus	yellow everlastingbush				•					•											•		•	
UZULIIAIIIIUS UDCUIUALUS	yeneri erendemigaden																							

			Coastal Vegetation	Rainforest	Wet Eucalypt Forest	Dry Eucalypt Forest and Woodland	Grassy Vegetation	Heath	Sedgeland and Wetland	Riparian	Montane Vegetation	Well drained soil	Poorly drained soil	Sandy soil	Loamy soil	Clay soil	Poor soil	Fertile soil	Low flammablity	Erosion control	Shelter belts	Bush tucker	Water Wise	Salinity control	Easy to propagate from seed	Easy to propagate from cuttings	Easy to propagate by division
Standard Name	Common Name	Endemic	,	Veg	eta	tior	n C	om	mu	nity	7			Soi	1 Ty	ype					U	ses				Grov	
Ozothamnus purpurascens	columnar everlastingbush					•						•													•		
Platylobium obtusangulum	common flatpea					•						•			•	•	•	•							•		
Pomaderris elliptica	yellow dogwood					•						•			•			•					•		•	•	
Pultenaea daphnoides	heartleaf bushpea		•			•						•			•								•		•		
Herbs and Gi	oundcovers																										
Acaena novae-zelandiae	common buzzy						•	•	•		•	•	•		•		•	•							•		•
Brachyscome angustifolia	narrowleaf daisy						•																		•		
Convolvulus angustissimus	blushing bindweed						•					•											•		•	•	
Dichondra repens	kidneyweed					•	•					•		•	•	•									•		•
Disphyma crassifolium	round-leaved pigface		•									•	•	•	•		•	•	•	•			•	•	•	•	
Einadia nutans	climbing saltbush		•									•								•			•	•			
Kennedia prostrata	running postman		•			•								•	•		•	•		•			•		•		
Pelargonium australe	southern storksbill					•						•											•		•	•	
Ptilotus spathulatus	pussytails						•					•			•			•					•				
Grasses, Lilli	es, Sedges																										
Austrodanthonia caespitosa	common wallaby-grass					•	•					•			•	•	•			•			•		•		
Carex iynx	tussock sedge						•					•	•												•		
Dianella brevicaulis	shortstem flaxlily		•									•													•		
Diplarrena moraea	white flag-iris		•			•		•				•		•	•	•	•	•					•		•		
Lomandra longifolia	sagg		•			•	•	•				•		•	•		•	•					•		•		
Poa labillardierei	tussock grass				•			•	•	•	•	•		•	•	•	•			•			•		•		•
Themeda triandra	kangaroo grass						•				•	•			•	•	•			•			•		•		•
Climbers																											
Clematis microphylla	small-leaf clematis		•					•				•		•	•	•	•								•		
Tetragonia implexicoma	bower spinach		•											•					•	•		•		•		•	

Note: However well intended, planting threatened species is potentially problematic. Due to risks of genetic contamination, limited availability of provenance plants and to discourage collection from native occurrences without a permit, threatened species were deliberately not included in these plant lists.

# For more information contact:

NRM South 03 6208 6111 www.nrmsouth.org.au

or

The Understorey Network 03 6234 4286 www.understorey-network.org.au

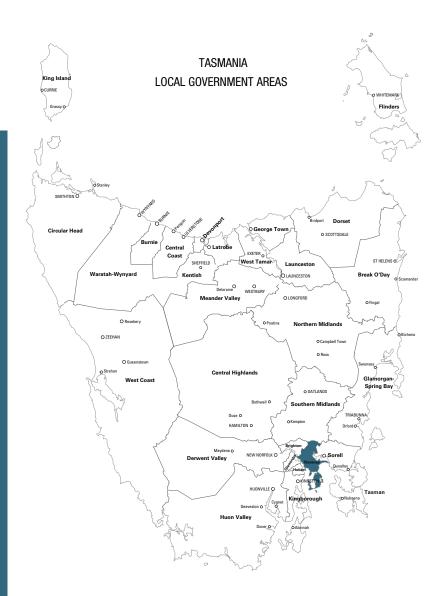


Native plants occurring naturally in an area are adapted to survive and thrive in local environmental conditions, so you are more likely to have a successful planting site by choosing local species. By planting locally sourced species, you are helping to preserve any natural variability within that species. Planting local species also assists with providing habitat for birds, insects and mammals in your area.

Plants can be obtained from a native plant nursery or you may like to collect your own seed and to grow them yourself. The Understorey Network can assist you with advice on how to propagate native seeds. It's cheap (no hothouses or shadehouses are required) and surprisingly easy!













# AS2870:2011 SITE ASSESSMENT

6 Vadura Place
Bellerive
November 2023



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Geo-Environmental Solutions Pty Ltd

www.geosolutions.net.au



# **Investigation Details**

Client: Stephanie Murfet Architecture

Site Address: 6 Vadura Place, Bellerive

**Date of Inspection:** 15/11/2023

Proposed Works: Alterations/Additions

**Investigation Method:** Geoprobe 540UD - Direct Push

Inspected by: M. Campbell

# **Site Details**

Certificate of Title (CT): 35032/34

Title Area: Approx. 4226 m<sup>2</sup>

Applicable Planning Overlays:

Bushfire-prone Areas, Priority Vegetation, Airport

obstacle limitation area

Slope & Aspect: 6° NW facing slope

Vegetation: Mixed Flora Fill

# **Background Information**

Geology Map: MRT

Geological Unit: Jurassic

Climate: Annual rainfall 600mm

Water Connection: Mains

Sewer Connection: Serviced-Mains

**Testing and Classification:** AS2870:2011, AS1726:2017 & AS4055:2021



# **Investigation**

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

## Soil Profile Summary

BH 1 Depth (m)	BH 2 Depth (m)	uscs	Description
0.00-0.10		GW	FILL: Sandy GRAVEL: grey, dry dense
0.10-0.30	0.00-0.30	SM	<b>Silty SAND</b> : trace gravels, brown, slightly moist, loose,
0.30-0.60	0.30-0.40	CI	Silty CLAY: with gravel, medium plasticity, grey, yellow, brown, slightly moist, stiff, refusal.

# **Site Notes**

Soils on the site are developing from Jurassic dolerite the clay fraction is likely to show moderate ground surface movement with moisture fluctuations.

# **Site Classification**

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

The site has been classified as:

## Class M

Y's range: **20-40mm** 

Notes: that is a moderately reactive clay.



# **Wind Loading Classification**

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

Wind Classification:N3Region:ATerrain Category:2.5Shielding Classification:PSTopographic Classification:T2Wind Classification:N3Design Wind Gust Speed – m/s (Vh,u):50

# **Construction Notes & Recommendations**

The site has been classified as **Class M** - Moderately reactive clay or silt site, which may experience moderate ground movement from moisture changes.

All foundations must penetrate through any fill material & topsoil and into the residual soil/gravel below with bearing capacities >100kPa.

All earthworks on site must comply with AS3798:2012, and I further recommend that consideration be given to drainage and sediment control on site during and after construction. Care should also be taken to ensure there is adequate drainage in the construction area to avoid the potential for weak bearing and foundation settlement associated with excessive soil moisture.

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

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

Director



# **Explanatory Notes**

#### 1 Scope of Works

The methods of description and classification of soils used in this report are based largely on Australian Standard 1726 – Geotechnical Site Investigations (AS1726:2017), with reference to Australian Standard 1289 – Methods for testing soils for engineering purposes (AS1289), for eventual Site Classification according to Australian Standard 2870 (AS2870:2011) – Residential Slabs and Footings and Australian Standard 1547 (AS1547:2012) On-site domestic wastewater management.

#### 1.1 Site Classification AS2870:2011

Site classification with reference to the above Australian Standards are based on site reactivity.

Class	Foundation Conditions	Characteristic Surface Movement
Α	Most sand and rock sites with little or no ground movement from moisture changes.	0mm
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes.	0 – 20mm
М	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes.	20 – 40mm
H-1	Highly reactive clay sites, which may experience high ground movement from moisture changes.	40 – 60mm
H-2	Highly reactive clay sites, which may experience very high ground movement from moisture changes.	60 – 75mm
Е	Extremely reactive sites, which may experience extreme ground movement from moisture changes.	>75mm

Note: Soils where foundation performance may be significantly affected by factors other than reactive soil movement are classified as **Class P**.

A site is classified as Class P when:

- The bearing capacity of the soil profile in the foundation zone is generally less than 100kpa
- If excessive foundation settlement may occur due to loading on the foundation.
- The site contains uncontrolled fill greater than 0.8m in depth for sandy sites and 0.4m in depth for other soil materials.
- The site is subject to mine subsistence, landslip, collapse activity or coastal erosion.
- The site is underlain by highly dispersive soils with significant potential for erosion
- If the site is subject to abnormal moisture conditions which can affect foundation performance



#### 1.2 Soil Characterisation

This information explains the terms of phrase used within the soil description area of the report.

It includes terminology for cohesive and non-cohesive soils and includes information on how the Unified Soil Classification Scheme (USCS) codes are determined.

NON COHESIVE - SAND 8	& GRAVEL	
Consistency Description	Field Test	Dynamic Cone Penetrometer blows/100 mm
Very loose (VL)	Easily penetrated with 13 mm reinforcing rod pushed by hand.	0 - 1
Loose (L)	Easily penetrated with 13 mm reinforcing rod pushed by hand. Can be excavated with a spade; 50 mm wooden peg can be easily driven.	1 - 3
Medium dense (MD)	Penetrated 300 mm with 13 mm reinforcing rod driven with 2 kg hammer, - hard shovelling.	3 - 8
Dense (D)	Penetrated 300 mm with 13 mm reinforcing rod driven with 2 kg hammer, requires pick for excavation: 50 mm wooden peg hard to drive.	8 - 15
Very dense (VD)	Penetrated only 25 - 50 mm with 13 mm reinforcing rod driven with 2 kg hammer.	>15

COHESIVE - SILT & CLAY		
Consistency Description	Field Test	Indicative undrained shear strength kPa
Very soft	Easily penetrated >40 mm by thumb. Exudes between thumb and fingers when squeezed in hand.	<12
Soft	Easily penetrated 10 mm by thumb. Moulded by light finger pressure	>12 and <25
Firm	Impression by thumb with moderate effort. Moulded by strong finger pressure	>25 and <50
Stiff	Slight impression by thumb cannot be moulded with finger.	>50 and <100
Very Stiff	Very tough. Readily indented by thumbnail.	>100 and <200
Hard	Brittle. Indented with difficulty by thumbnail.	>200







## 1.3 USCS Material Descriptions

Soils for engineering purposes are the unconsolidated materials above bedrock, they can be residual, alluvial, colluvial or aeolian in origin.

Major Divisions		Particle size mm	USCS Group Symbol	Typical Names	Laboratory Classification								
COARSE GRAINED SOILS (more than half of material less than 63 mm is larger than 0.075 mm)	BOULDERS 200					0.075 mm (2)	Plasticity of fine fraction	$C_{ii} = \frac{D_{ao}}{D_{io}} C_{ii} = \frac{(D_{io})^2}{(D_{io})(D_{io})}$		NOTES			
	COBBLES												
	GRAVELS (more than half of coarse fraction is larger than 2.36 mm)	63 coarse20 medium6 fine2.36	GW	Well graded gravels and gravel-sand mixtures, little or no fines	'sux	0-5	-	>4	Between 1 and 3	(1) Identify fines by the method give			
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels		0-5	y <del>an</del> e	Fails to comply with above		for fine-grained soils.			
			GM	Silty gravels, gravel-sand-silt mixtures (1)	in 'Major I	12-50	Below 'A' line or PI<4	9 <del>23</del>					
			GC	Clayey gravels, gravel-sand- clay mixtures (1)	gven	12-50	Above 'A' line and PI>7	223	<del></del>	(2) Borderline			
	SANDS (more than half of coarse fraction is smaller than 2.36 mm)		SW	Well graded sands and gravelly sands, little or no fines	fractions according to the criteria	0-5	S=33	>6	Between 1 and 3	classifications occur when the percentage of fines (fraction			
			SP	Poorly graded sands and gravelly sands, little or no fines	ording to	0-5	12 <del>1 - 1</del> 24		comply with bove	smaller than 0.075 mm size) is greater than 5% and less			
			SM	Silty sands, sand silt mixtures (1)	MB acc	12-50	Below 'A' line or PI<4	=		than 12%. Borderline			
			SC	Clayey sands, sand-clay mixtures (1)	8	12-50	Above 'A' line and PI>7	-	1	classifications require the use of SP-SM, GW GC.			
FINE GRANED SOILS more than half of material less than 63 mm is smaller than 0.075 mm	SILTS & CLAYS (Liquid Limit ≤50%)		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Plasticity Chart For classification of fine grained soils					lined soils			
			CL CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	and fine fraction of coarse grained soils.								
			OL	Organic silts and clays of low plasticity	passing	2 (9			/	10.20			
			МН	Inorganic silts, mic- aceous or diato-maceous fine sands or silts, elastic silts	gradation curve of material	Plastic Index (%)				Traffic Parket			
	SILTS & CLAYS (Liquid Limit >50%)		СН	Inorganic clays of high plasticity, fat clays	curve		5.00	0	MHEC	DR .			
			ОН	Organic silts and clays of high plasticity	adation	10	Zen.	"	8 OL				
	HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils	6. 0 10 20 30 40 50 60 70 80 90				70 80 90 10				



Grain size analysis is performed by two processes depending on particle size. Sand silt and clay particles are assessed using a standardised hydrometer test, and coarse sand and larger is assessed through sieving by USCS certified sieves. For more detail see the following section.

Soil Classification	Particle Size
Clay	Less than 0.002mm
Silt	0.002 – 0.06mm
Fine/Medium Sand	0.06 – 2.0mm
Coarse Sand	2.0mm – 4.75mm
Gravel	4.75mm – 60.00mm

#### 1.4 Bearing Capacities and DCP testing.

DCP and PSP weighted penetrometer tests – Dynamic Cone Penetrometer (DCP) and Perth Sand Penetrometer (PSP) tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 100mm increments of penetration. Normally, there is a depth limitation of 1.2m but this may be extended in certain conditions by the use of extension rods. The methods for the two tests are quite similar.

- Dynamic Cone Penetrometer a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS 1289, Test 6.3.2).
- Perth Sand Penetrometer a 16mm diameter flat-ended rod is driven with a 9kg hammer, dropping 600mm (AS 1289 Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.

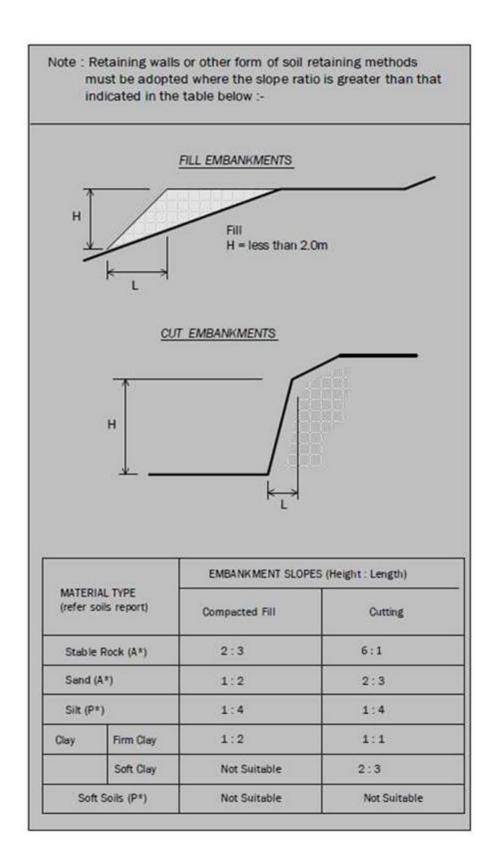
Site Anomalies – During construction GES will need to be notified of any major variation to the foundation conditions as predicted in this report.







# 1.5 Batter Angles for Embankments (Guide Only)





# **Glossary of Terms**

**Bearing Capacity** – Maximum bearing pressure that can be sustained by the foundation from the proposed footing system under service loads which should avoid failure or excessive settlement.

**Clay** – (Mineral particles less than 0.002mm in diameter). Fine grained cohesive soil with plastic properties when wet. Also includes sandy clays, silty clays, and gravelly clays.

**Dynamic Cone Penetrometer (DCP)** – Field equipment used to determine underlying soil strength and therefore bearing capacity (kPa) by measuring the penetration of the device into the soil after each hammer blow.

**Dispersive soil** – A soil that has the ability to pass rapidly into suspension in water.

**Footing** – Construction which transfers the load from the building to the foundation.

Foundation – Ground which supports the building

**Landslip** – Foundation condition on a sloping site where downhill foundation movement or failure is a design consideration.

**Qualified Engineer** – A professional engineer with academic qualifications in geotechnical or structural engineering who also has extensive experience in the design of the footing systems for houses or similar structures.

**Reactive Site** – Site consisting of clay soil which swells on wetting and shrinks on drying by an amount that can damage buildings on light strip footings or unstiffened slabs. Includes sites classified as S, M, H-1, H-2 & E in accordance with AS2870-2011.

**Sand** – (Mineral particles greater than 0.02mm in diameter). Granular non-cohesive, non-plastic soil that may contain fines including silt or clay up to 15%.

**Services** – Means all underground services to the site including but not limited to power, telephone, sewerage, water & storm water.

Silt - (Mineral particles 0.002 - 0.02mm in diameter). Fine grained non-cohesive soil, non-plastic when wet. Often confers a silky smoothness of field texture, regularly includes clay and sand to form clayey silts, sandy silts and gravelly silts.

**Site** – The site title, as denoted by address, lot number, or Certificate of Title (CT) number, or Property Identification Number (PID).

**Surface Movement (Ys)** – Design movement (mm) at the surface of a reactive site caused by moisture changes.



#### **Disclaimer**

This Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and the Client. 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 discussed 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 geotechnical parameter or the soil conditions over the whole area of the site. Soil and rock samples collected from the investigation area are assumed to be representative of the areas from where they were collected and not indicative of the entire site. The conclusions discussed within this report are based on observations and/or testing at these investigation points.

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 a party.

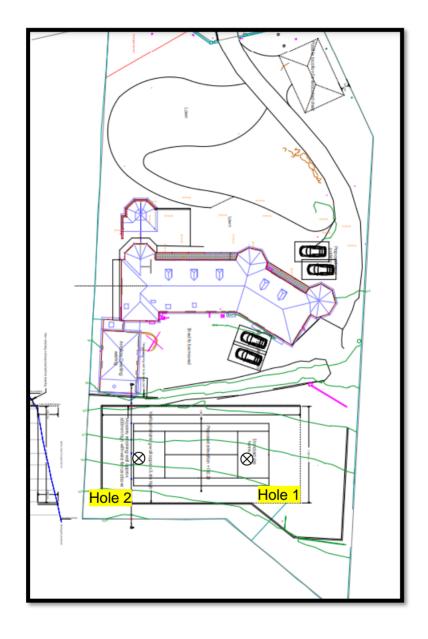






# Site Plan





# CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To:	Stephanie Murfet Architecture		Owner /Agent		E E	-			
	6 Sunways Avenue		Address	Form	55				
	Seven Mile Beach 7170								
Qualified perso	on details:								
Qualified person:	John-Paul Cumming								
Address:	29 Kirksway Place		Phone No:	03	6223 18	339			
	Battery Point 7004			Fax No:					
Licence No:	AO999 Email address:	@geosolutio	ns.net	au					
Qualifications and Insurance details:	o details:				cription from Column 3 of the ctor's Determination - Certificates qualified Persons for Assessable s				
Speciality area of expertise:	Direct			ription from Column 4 of the tor's Determination - Certificates ualified Persons for Assessable )					
Details of work	:								
Address:	ss: 6 Vadura Place				Lot No:				
	Bellerive 701			Certificate of title No: 35032/			34		
The assessable item related to this certificate:	Classification of foundation Cor 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 deta	ils:								
Certificate type: F	Sche Dete Qua	(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,	•							
	building work, plumbing work or or	plumbir	ng ins	stallation or der	nolition	work 🛚			
	a building, tem	nporary :	struct	ure or plumbin	g install	ation: 🔲			

In issuing this certificate the following matters are relevant –

Documents: The attached soil report for the address detailed above in 'details of

Work'

Relevant

calculations: Reference the above report.

References: AS2870:2011 residential slabs and footings

AS1726:2017 Geotechnical site investigations

CSIRO Building technology file - 18.

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

Site Classification consistent with AS2870-2011.

## Scope and/or Limitations

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

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

Qualified person:

Signed:

Certificate No:

Date:

J9730

20/11/2023



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