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PA2021.0041	6 Sunset Court, Devonport	2 lot subdivision and Residential (single dwelling)	14/01/2022
PA2021.0068	39A North Fenton Street, Devonport	11 lot subdivision	20/12/2021
PA2021.0085	15 Waverley Road, Don	Community Meeting and Entertainment (Art and Craft Centre)	28/10/2021
PA2021.0091	8 Linden Heights, Don	Residential (single dwelling and shed)	25/10/2021
PA2021.0132	103 Winspears Road, East Devonport	Residential (single dwelling and secondary residence) and Sports and Recreation (alterations to equestrian facility)	22/11/2021
PA2021.0136	10 Madden Crescent, Devonport	Residential (outbuilding)	28/10/2021
PA2021.0138	40 Don Road, Devonport	General Retail and Hire	2/11/2021
PA2021.0139	15 Squibbs Road, Spreyton	Residential (dwelling additions)	4/11/2021
PA2021.0140	29 Bay Drive, Quoiba	Storage	22/11/2021
PA2021.0141	112a Tasman Street, Devonport	Residential (multiple dwellings x 2)	8/11/2021
PA2021.0142	1/9 Wright Street, East Devonport	Residential (addition to existing multiple development)	9/11/2021
PA2021.0143	17 Fenton Way, Devonport	Signage	27/10/2021
PA2021.0144	784 Melrose Road, Melrose	Residential (staged single dwelling and demolition)	7/12/2021
PA2021.0145	47 Fleetwood Drive, Spreyton	Residential (outbuilding)	15/11/2021
PA2021.0146	70A Murray Street, East Devonport	Residential (multiple units x 2)	8/11/2021
PA2021.0147	66 William Street, Devonport	Residential (unit)	15/11/2021
PA2021.0148	1/130 North Fenton Street, Devonport	Visitor Accommodation	2/11/2021
PA2021.0150	45 Devonport Road, Quoiba	Storage (contractors yard)	16/12/2021
PA2021.0152	34-44 Lovett Street, Devonport	Sports and recreation - alterations and additions	12/11/2021
PA2021.0153	31-49 Mersey Main Road, Spreyton	Signage	4/11/2021
PA2021.0154	1/88 Stewart Street, Devonport	2 lot subdivision	17/11/2021
PA2021.0155	39-41 Rooke Street, Devonport	Signage	24/11/2021
PA2021.0156	134 Don Heads Road, Don	Subdivision - one additional lot	30/11/2021
PA2021.0157	2 Aikman Place, Devonport	Residential (single dwelling)	22/12/2021
PA2021.0158	39 Richardson Road, Tugrah	2 lot subdivision	1/12/2021
PA2021.0159	68 Morris Avenue, Devonport	10 lot subdivision	25/01/2022
PA2021.0160	206 Melrose Road, Aberdeen	Residential (outbuilding addition)	30/11/2021
PA2021.0161	137 Sheffield Road, Spreyton	Demolition of existing buildings	19/11/2021
PA2021.0162	2/39 North Street, Devonport	Covered Patio - multiple dwelling	18/11/2021
PA2021.0163	1-2 Rundle Road, Stony Rise	Roof Canopy - development to an existing non-conforming use	8/12/2021

Application No.	Location	Development	Approval Date
PA2021.0164	10 Valkyrie Close, Devonport	Residential (multiple dwellings x 2)	25/01/2022
PA2021.0165	49 Gunn Street, Devonport	Visitor Accommodation	24/11/2021
PA2021.0167	58 Madden Street, Devonport	Residential (dwelling addition and outbuilding)	21/12/2021
PA2021.0168	7B Tatiana Close, Devonport	Residential (single dwelling)	15/12/2021
PA2021.0169	74 Caroline Street, East Devonport	Residential (Home Business)	1/12/2021
PA2021.0170	17 Ellice Hill Drive, Spreyton	Residential (single dwelling and shed)	14/12/2021
PA2021.0171	6 Wright Street, East Devonport	Visitor Accommodation (addition)	2/12/2021
PA2021.0172	7 Sandwood Place, East Devonport	Residential (multiple dwellings x 2)	17/12/2021
PA2021.0173	71 North Fenton Street, Devonport	Visitor Accommodation	2/12/2021
PA2021.0174	97 Madden Street, Devonport	Residential (assisted housing)	8/12/2021
PA2021.0175	257 Melrose Road, Aberdeen	Retail and general hire use (plant sales)	8/12/2021
PA2021.0176	9 Robertson Close, Tugrah	Residential (outbuilding)	14/12/2021
PA2021.0177	73 Lawrence Drive, Devonport	Residential (multiple dwellings x 2)	9/12/2021
PA2021.0178	2 Best Street, Devonport	Signage (illuminated)	20/12/2021
PA2021.0179	33a Gunn Street, Devonport	Residential (outbuilding)	9/12/2021
PA2021.0180	33 Fleetwood Drive, Spreyton	Residential (retaining walls for single dwelling)	17/12/2021
PA2021.0181	291 Tugrah Road, Tugrah	Residential (outbuilding)	22/12/2021
PA2021.0182	14-16 Fenton Street, Devonport	Signage (Mural)	6/12/2021
PA2021.0183	70 Tugrah Road, Tugrah	Boundary Adjustment	7/01/2022
PA2021.0184	11 Marconi Court, Stony Rise	Storage (storage sheds)	21/12/2021
PA2021.0185	54 Macfie Street, Devonport	Residential (alterations and additions) - Local Historic Heritage Code	21/12/2021
PA2021.0186	116-122 Stony Rise Road, Stony Rise	7 lot subdivision	2/03/2022
PA2021.0187	38 Ashburner Street, Devonport	Residential (home-based business - hairdresser and beauty therapy)	22/12/2021
PA2021.0188	18 Stony Rise Road, Quoiba	Transport Depot and Distribution	11/01/2022
PA2021.0189	148 Don Road, Devonport	Storage (contractors yard)	22/12/2021
PA2021.0190	57 Kelcey Tier Road, Spreyton	Storage	12/01/2022
PA2021.0191	2 Bishops Road, Spreyton	Storage	23/12/2021
PA2021.0192	65 Lawrence Drive, Devonport	4 lot subdivision	31/01/2022
PA2021.0194	101 Oldaker Street, Devonport	Business and Professional Services (parking)	18/01/2022
PA2021.0196	80 Fleetwood Drive, Spreyton	Residential (outbuilding)	31/01/2022
PA2021.0197	1/145-149 Tarleton Street, East Devonport	Demolition - carports	5/01/2022

Application No.	Location	Development	Approval Date
PA2021.0198	228 Sheffield Road, Spreyton	Residential (outbuilding)	20/01/2022
PA2021.0199	63 Oldaker Street, Devonport	Demolition of dwelling and outbuildings	11/01/2022
PA2021.0200	16 Ellice Hill Drive, Spreyton	Residential (outbuilding)	20/01/2022
PA2021.0201	18 Coles Beach Road, Devonport	Residential (single dwelling)	22/02/2022
PA2021.0202	44-46 Oldaker Street, Devonport	Bulky Goods Sales (covered area)	24/01/2022
PA2021.0203	12 Bobwhite Drive, Aberdeen	Residential (single dwelling and outbuilding)	25/01/2022
PA2021.0204	59-61 Stewart Street, Devonport	Education and Occasional Care (new roof and signage)	29/03/2022
PA2021.0205	10 Howell Lane, Don	Residential (retrospective dwelling additions)	25/01/2022
PA2021.0206	7 Parker Street, Devonport	Indoor Sport and Recreation (change of use)	24/01/2022
PA2021.0207	7 Elanora Place, East Devonport	Residential (dwelling addition)	27/01/2022
PA2021.0208	260 Steele Street, Devonport	Community meeting and entertainment (Men's Shed - alterations and additions)	21/02/2022
PA2021.0209	86-96 Best Street, Devonport	Signage	8/02/2022
PA2021.0211	64 Best Street, Devonport	Signage for Tenancy 3	17/01/2022
PA2021.0212	76 North Street, Devonport	Retaining Wall	16/02/2022
PA2021.0213	24 Archer Street, Devonport	Residential - alterations and additions to single dwelling, shed and front fence	25/03/2022
PA2022.0001	42-44 Devonport Road, Quoiba	Demolition (industrial buildings)	2/02/2022
PA2022.0002	119 Percy Street, Devonport	Residential (multiple dwellings - one additional unit)	21/03/2022
PA2022.0003	9 Sumberg Street, Devonport	Residential (outbuildings)	25/03/2022
PA2022.0004	67 Oldaker Street, Devonport	Demolition	21/01/2022
PA2022.0008	349 Tugrah Road, Tugrah	Residential (single dwelling and outbuilding)	4/03/2022
PA2022.0009	152 David Street, East Devonport	Visitor Accommodation	22/02/2022
PA2022.0010	58 North Fenton Street, Devonport	Demolition of existing dwelling and construction of assisted housing	8/03/2022
PA2022.0011	26-28 Hiller Street, Devonport	Residential (dwelling additions)	16/03/2022
PA2022.0012	107 George Street, Devonport	Residential (outbuilding)	14/03/2022
PA2022.0013	45 Fleetwood Drive, Spreyton	Residential (outbuilding)	29/03/2022
PA2022.0014	8 Payton Place, Devonport	Residential (outbuilding)	23/03/2022
PA2022.0015	2/55 Penambul Drive, Mianetta	Residential (multiple dwelling)	24/03/2022
PA2022.0016	14 Collins Way, Tugrah	Residential (single dwelling and outbuilding)	22/03/2022
PA2022.0017	47 Devonport Road, Quoiba	Change of Use - Food Services (retail bakery)	20/03/2022

Application No.	Location	Development	Approval Date
PA2022.0018	74 Brooke Street, East Devonport	Residential (outbuilding and fence)	4/03/2022
PA2022.0019	10188 Bass Highway, Don	Residential (dwelling addition)	4/03/2022
PA2022.0020	2/34 Georgiana Street, Devonport	Residential (existing addition to multiple dwelling)	22/03/2022
PA2022.0021	125 Sheffield Road, Spreyton	Residential (outbuilding)	10/03/2022
PA2022.0022	3 Sandwood Place, East Devonport	Residential (multiple dwellings x 2)	11/03/2022
PA2022.0023	29 Macfie Street, Devonport	Residential (dwelling extension)	10/03/2022
PA2022.0025	10 Beachrock View, East Devonport	Residential (dwelling extension - carport)	1/04/2022
PA2022.0033	81 Gunn Street, Devonport	Business and Professional Services	1/04/2022

Office use
Application no. _____
Date received: _____
Fee: _____
Permitted/Discretionary

Devonport City Council

Land Use Planning and Approvals Act 1993 (LUPAA)

Tasmanian Planning Scheme - Devonport

Application for Planning Permit

Use or Development Site

Street Address: 49 Wenvoe Street, Devonport

Certificate of Title Reference No.: PID6352605, VOLUME 18398, FOLIO 1

Applicant's Details

Full Name/Company Name: Nicholas Brandsema

n+b design

Postal Address: 8 Brandsema Street Turners Beach, 7315

Telephone: 0417 134 369

Email: nick@nplusb.com.au

Owner's Details (if more than one owner, all names must be provided)

Full Name/Company Name: Anthony Smith & Sandra Edwards

Postal Address: 53 Wenvoe Street, Devonport

Telephone: _____

Email: edwardsfashions58@gmail.com



ABN: 47 611 446 016

PO Box 604

137 Rooke Street

Devonport TAS 7310

Telephone 03 6424 0511

www.devonport.tas.gov.au

council@devonport.tas.gov.au

Sufficient information must be provided to enable assessment against the requirements of the planning scheme.

Please provide one copy of all plans with your application.

Assessment of an application for a Use or Development

What is proposed?: Residential Dwelling

Description of how the use will operate: **General Residential**

Use Class (Office use only):

Applications may be lodged by email to Council - council@devonport.tas.gov.au
The following information and plans must be provided as part of an application unless the planning authority is satisfied that the information or plan is not relevant to the assessment of the application:

Application fee	
Completed Council application form	
Copy of the current certificate of title, including title plan and schedule of easements	
Any written permission and declaration of notification required under s.52 of LUPAA	
A site analysis and site plan at an acceptable scale on A3 or A4 paper (1 copy) showing:	
• The existing and proposed use(s) on the site	
• The boundaries and dimensions of the site	
• Topography including contours showing AHD levels and major site features	
• Natural drainage lines, watercourses and wetlands on or adjacent to the site	
• Soil type	
• Vegetation types and distribution including any known threatened species, and trees and vegetation to be removed	
• The location, capacity and connection point of any existing services and proposed services	
• The location of easements on the site or connected to the site	
• Existing pedestrian and vehicle access to the site	
• The location of existing and proposed buildings on the site	
• The location of existing adjoining properties, adjacent buildings and their uses	
• Any natural hazards that may affect use or development on the site	
• Proposed roads, driveways, parking areas and footpaths within the site	
• Any proposed open space, common space, or facilities on the site	
• Proposed subdivision lot boundaries (where applicable)	
• Details of any proposed fencing	
Where it is proposed to erect buildings, a detailed layout plan of the proposed buildings with dimensions at a scale of 1:100 or 1:200 on A3 or A4 paper (1 copy) showing:	
• Setbacks of buildings to property (title) boundaries	
• The internal layout of each building on the site	
• The private open space for each dwelling	
• External storage spaces	
• Parking space location and layout	
• Major elevations of every building to be erected	
• The relationship of the elevations to existing ground level, showing any proposed cut or fill	
• Shadow diagrams of the proposed buildings and adjacent structures demonstrating the extent of shading of adjacent private open spaces and external windows of buildings on adjacent sites	
• Materials and colours to be used on roofs and external walls	
Details of any signage proposed	

Value of use and/or development\$ 600,000

Notification of Landowner/s (s.52 *Land Use Planning and Approvals Act 1993*)**If land is not in applicant's ownership**

I, Nicholas John Brandsema declare that the owner/s of the land has/have been notified of my intention to make this application.

Applicant's signature:  Date: 19/10/2021

If the application involves land owned or administered by the Devonport City Council

Devonport City Council consents to the making of this permit application.

General Manager's signature: _____ Date: _____

If the application involves land owned or administered by the Crown

Crown consent must be included with the application.

Signature

I apply for consent to carry out the use and development described in this application. I declare that all the information given is true and correct. I also understand that:

- if incomplete, the application may be delayed or rejected; and
- more information may be requested in accordance with s.54 (1) of LUPAA.

PUBLIC ACCESS TO PLANNING DOCUMENTS - DISCRETIONARY PLANNING APPLICATIONS (s.57 of LUPAA)

I understand that all documentation included with a discretionary application will be made available for inspection by the public.

Applicant's signature:  Date: 19/10/2021

PRIVACY ACT

The personal information requested on this form is being collected by Council for processing applications under the *Land Use Planning and Approvals Act 1993* and will only be used in connection with the requirements of this legislation. Council is to be regarded as the agency that holds the information.

Fee & payment options**DD**

Pay by Direct Deposit – BSB: 067-402 Account No. 000 000 13 – Please quote your application number.



Pay in Person at Service Tasmania – Present this notice to any Service Tasmania Centre, together with your payment. See www.service.tas.gov.au for opening hours.



Pay by Phone – Please contact the Devonport City Council offices on 64240511 during office hours, Monday to Friday.



Pay by Post – Cheques should be made payable to Devonport City Council and posted to PO Box 604, Devonport, Tasmania, 7310.

**RESULT OF SEARCH**

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

SEARCH OF TORRENS TITLE

VOLUME 18398	FOLIO 1
EDITION 4	DATE OF ISSUE 18-Oct-2016

SEARCH DATE : 12-Sep-2019

SEARCH TIME : 02.20 PM

DESCRIPTION OF LAND

City of DEVONPORT

Lot 1 on Diagram 18398

Being the land described in Conveyance No. 57/3737

Derivation : Part of 460 Acres Gtd. to R. Stewart.

Prior CT 3966/87

SCHEDULE 1

M594118 TRANSFER to ANTHONY LEWIS SMITH and SANDRA JOY
EDWARDS Registered 18-Oct-2016 at 12.01 PM

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
BENEFITING EASEMENT: Right to go pass and repass over Right of
Way 4.57 wide and the Right of Way to Wenvoe Street
on Diagram No. 18398

BENEFITING EASEMENT: Right of Drainage over the said Rights of
Way and Drainage Easement on Diagram No. 18398

BENEFITING EASEMENT: Right to go pass and repass over the
southern most Right of Way on Diagram No. 18398

E69083 MORTGAGE to B & E LTD Registered 18-Oct-2016 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



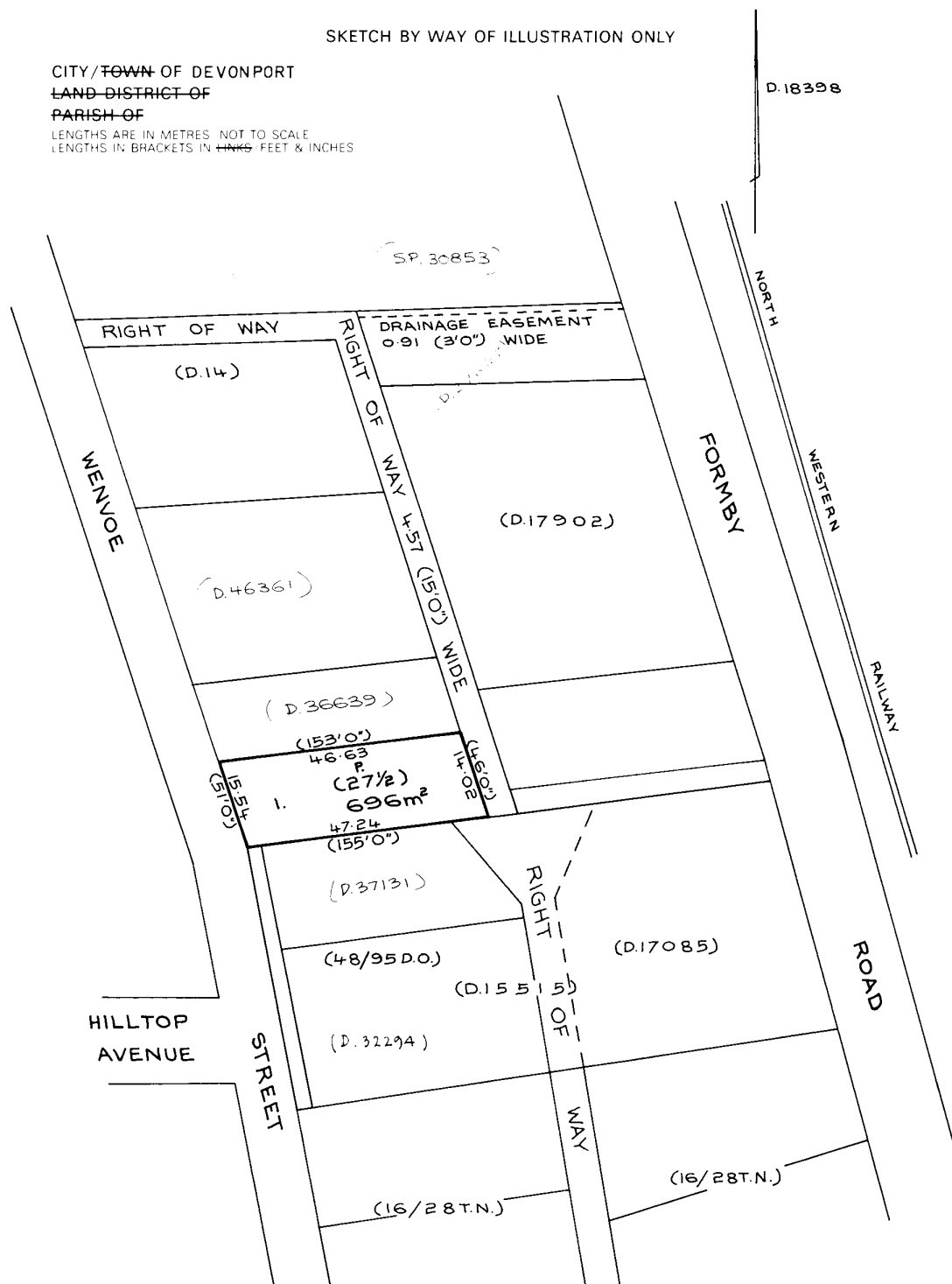
APPROVED FROM RECORDER OF TITLES	CONVERSION PLAN	REGISTERED NUMBER D.18398
FILE NUMBER Y.184	GRANTEE PART OF LOT 282 (500-0-0) CHARLES STANHOPE THOMAS.	B. HILL. 11-6-82

SKETCH BY WAY OF ILLUSTRATION ONLY

CITY/TOWN OF DEVONPORT

LAND DISTRICT OF

PARISH OF

LENGTHS ARE IN METRES NOT TO SCALE
LENGTHS IN BRACKETS IN FEET & INCHES

GEOTON Pty Ltd
Geotechnical Consultants

Geoton Pty Ltd ABN 81 129 764 629
PO Box 522 Prospect TAS 7250
Unit 24, 16-18 Goodman Court
Invermay TAS 7248
Tel (+61) (3) 6326 5001
www.geoton.com.au

04 October 2021

Reference No. GL21554Ab

n + b
22 Fieldings Way
ULVERSTONE TAS 7315

Attention: Mr Nick Brandsema

Dear Sir

**RE: Residential Site Classification & On-site Stormwater Detention Design
49 Wenvoe Street, Devonport**

We have pleasure in submitting herein our report detailing the results of the geotechnical investigation conducted at the above site.

Should you require clarification of any aspect of this report, please contact Sean Shahandeh or the undersigned on 03 6326 5001.

For and on behalf of

Geoton Pty Ltd



Tony Barraera

Director – Principal Geotechnical Engineer

Residential Site Classification & On-site Stormwater Detention Design

1 INTRODUCTION

A limited scope investigation has been conducted for n + b at the site of a proposed residential development at 49 Wenvoe Street, Devonport.

The investigation has been conducted to provide the following:

- An assessment of the general subsurface conditions at the site and consequently assigning a Site Classification in accordance with AS 2870 – 2011 “Residential Slabs and Footings”;
- An assessment of the surrounding topography and provide a Wind Classification in accordance with AS 4055:2012 “Wind Loads for Housing”; and
- The suitability of the site for disposal of stormwater and the design of an on-site stormwater disposal system in accordance with AS/NZS 3500.3 “Stormwater Drainage”.

Site plans of the proposed development were provided, prepared by n + b, Project No. P18084, Drawing Nos. A100 – A105, dated 10/09/2021.

2 FIELD INVESTIGATION

The field investigation was carried out on 21 September 2021 and involved the drilling of 3 boreholes by 4WD mounted auger rig to the auger refusal depths of 1.9m to 2.4m.

Insitu vane shear strength tests were conducted in the clay layers encountered in the investigation, with samples of these soils being obtained for subsequent laboratory testing.

The results of the field and laboratory tests are shown on the borehole logs.

The GPS coordinates of the boreholes are shown on the borehole logs.

The logs of the boreholes are included in Appendix A with their locations shown on Figure 1 attached.

3 SITE CONDITIONS

The site is currently undeveloped with the ground surface from the front boundary having a moderate slope of between 12° to 13° down towards the east, becoming steeper with slopes of 28° to 30° within the eastern portion of the site. The site vegetation comprised a low cover of grass and weeds and small trees on the steeper downhill slopes to the east.

Photographs of the site are attached as Plates 1 and 2.

The MRT Digital Geological Atlas 1:25,000 Series indicates that the site is mapped on Cretaceous – Neogene Period predominantly deeply-weathered basalt, with this being generally confirmed by our field investigation.

Examination of the Land Information System Tasmania (LIST) Landslide Planning Map – Hazard Bands Overlay, indicates that the majority of the site is within a mapped low landslide hazard band.

Residential Site Classification & On-site Stormwater Detention Design

The investigation indicated that the soil profile is relatively uniform across the site.

The boreholes encountered clayey silt topsoil to depths of 0.15m to 0.2m, underlain by low to medium plasticity clayey silt to the refusal depths of 1.9m to 2.4m.

Auger refusal within all the boreholes was inferred to be on highly weathered basalt rock.

The boreholes did not encounter any signs of groundwater seepage over the investigated depths.

Full details of soil conditions encountered are presented on the borehole logs.

An assessment of the plasticity characteristics of the materials encountered indicates that the clay soils at this site possess a moderate shrink/swell potential.

4 SITE CLASSIFICATION

After allowing due consideration of the site geology, drainage and soil conditions, the site has been classified as follows:

CLASS M (AS 2870)

Foundation designs in accordance with this classification are to be subject to the overriding conditions of the Foundations section below.

This Classification is applicable only for ground conditions encountered at the time of this investigation. If cut or fill earthworks are carried out, then the Site Classification will need to be re-assessed, and possibly changed.

5 FOUNDATIONS

Particular attention should be paid to the design of footings as required by AS 2870 – 2011.

In addition to normal founding requirements arising from the above classification, particular conditions at this site dictate that the founding medium for all footings would be as follows:

Clayey SILT (ML) – low to medium plasticity, brown/red encountered below 0.15m and 0.20m from the existing ground surface

An allowable bearing pressure of **100kPa** is available for edge beams, strips, pads and bored piers founded as above.

The site classification presented assumes that the current natural drainage and infiltration conditions at the site will not be markedly affected by the proposed site development work. Care should therefore be taken to ensure that surface water is not permitted to collect adjacent to the structure and that significant changes to seasonal soil moisture equilibria do not develop as a result of service trench construction or tree root action.

Residential Site Classification & On-site Stormwater Detention Design

Attention is drawn to Appendix B of AS 2870 and CSIRO Building Technical File BTF18 “Foundation Maintenance and Footing Performance: A Homeowner’s Guide” as a guide to maintenance requirements for the proposed structure.

Although the borehole data provides an indication of subsurface conditions at the site, variations in soil conditions may occur in areas of the site not specifically covered by the field investigation. The base of all footing or beam excavations should therefore be inspected to ensure that the founding medium meets the requirements referenced herein with respect to type and strength of founding material.

The boreholes were backfilled shortly after being drilled, not allowing time for groundwater seepage flows to develop. Groundwater seepages or higher groundwater levels can occur during and/or after a prolonged period of wet weather or a heavy rainfall event.

6 WIND CLASSIFICATION

After allowing due consideration of the region, terrain, shielding and topography, the site has been classified as follows:

WIND CLASSIFICATION N2 (AS 4055)

REGION	TERRAIN CATEGORY	SHIELDING	TOPOGRAPHY
A	TC2	PS	T1

7 ON-SITE STORMWATER DETENTION DESIGN

7.1 General

On-site detention storage must be provided to limit the peak rate of piped stormwater discharge and overland flows from the site to that generated by a 5% Annual Exceedance Probabilities (AEP) storm event.

7.2 Rainfall and Runoff

The Intensity-Frequency-Design (IFD) rainfall curve and table for the site was generated from the Bureau of Meteorology IFD data website (BOM 2016).

In accordance with AS/NZS 3500.3 – Stormwater Drainage, Section 3.3.5, the design rainfall depth/intensity for anywhere in Australia shall be for a five-minute duration.

The five-minute duration design rainfall depth for the design AEP event is as follows:

- **5% AEP = 9.87 mm**

The storage quantity is calculated using the following formula:

$$Q = CDA$$

Where Q is quantity in m³;

Residential Site Classification & On-site Stormwater Detention Design

C is coefficient of runoff (taken as unity 1.0);

D is depth of the Storm in m; and

A is the area of the catchment (roof area) that rainfall will runoff in m².

The proposed dwelling and deck has a roof area of approximately **363m²** (inclusive of a 10% safety factor). Therefore, the stormwater quantity and flowrate for a design event are calculated as follows:

The storage quantity:

$$Q = 1.0 \times (9.87) / 1000 \times (363.0) = \mathbf{3.58 \text{ m}^3}.$$

The event flowrate (q_5) is calculated by dividing storage quantity by the storm duration of 5 minutes, i.e. 300 seconds, and thus

$$q_5 = (3.58) / 300 = 0.0119 \text{ m}^3/\text{s} = \mathbf{11.9 \text{ L/s}}$$

7.3 Detention Method

Suitable on-site detention will be provided through a gravel-filled detention bed with the capacity to hold a 5% AEP event before overflowing via sheet flow across the property.

The stormwater quantity for a 5% AEP event from the roof area is calculated as (Q) 3.58m³. Therefore, the detention bed will require a volume of approximately 14.24 m³ to store a 5% AEP event taking into consideration a porosity of 0.25 for the 20mm to 40mm nominal size gravel.

- Bed length = 7.1m x 2
- Bed width = 1.0m
- Bed depth = 1.0m

It is recommended that a 2 m buffer be provided around the stormwater disposal area.

The trenches are to be constructed as per the cross-section provided on Figure 2 attached.

The dimensions and location of the detention bed and disposal trenches may be modified to fit the site conditions provided the total detention storage volume is maintained.

References:

AS 1726 - 2017 Geotechnical Site Investigation

AS 2870 - 2011 Residential Slabs and Footings Construction

AS 4055 - 2012 Wind Loads for Housing

AS/NZS 3500.3 – Stormwater Drainage

IFD Data System

<http://www.bom.gov.au/water/designRainfalls/ifd/>

Residential Site Classification & On-site Stormwater Detention Design

Land Information System Tasmania (LIST).

<https://maps.thelist.tas.gov.au/listmap/app/list/map>

ELVIS - Elevation and Depth - Foundation Spatial Data

<http://elevation.fsdf.org.au/>

Attachments:

Limitations of report

Figure 1: Site Plan

Figure 2: Stormwater Detention Bed Cross Section

Site photographs

Appendix A: Borehole Logs & Explanation Sheets

Appendix B: Certificate Forms



Geotechnical Consultants - Limitations of report

These notes have been prepared to assist in the interpretation and understanding of the limitations of this report.

Project specific criteria

The report has been developed on the basis of unique project specific requirements as understood by Geoton and applies only to the site investigated. Project criteria are typically identified in the Client brief and the associated proposal prepared by Geoton and may include risk factors arising from limitations on scope imposed by the Client. The report should not be used without further consultation if significant changes to the project occur. No responsibility for problems that might occur due to changed factors will be accepted without consultation.

Subsurface variations with time

Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. In the event of significant delays in the commencement of a project, further advice should be sought.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and at the time they are taken. All available data is interpreted by professionals to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, as it is virtually impossible to provide a definitive subsurface profile which includes all the possible variabilities inherent in soil and rock masses.

Report Recommendations

The report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until earthworks and/or foundation construction is almost complete and therefore the report recommendations can only be regarded as preliminary. Where variations in conditions are encountered, further advice should be sought.

Specific purposes

This report should not be applied to any project other than that originally specified at the time the report was issued.

Interpretation by others

Geoton will not be responsible for interpretations of site data or the report findings by others involved in the design and construction process. Where any confusion exists, clarification should be sought from Geoton.

Report integrity

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

Geoenvironmental issues

This report does not cover issues of site contamination unless specifically required to do so by the client. In the absence of such a request, Geoton take no responsibility for such issues.

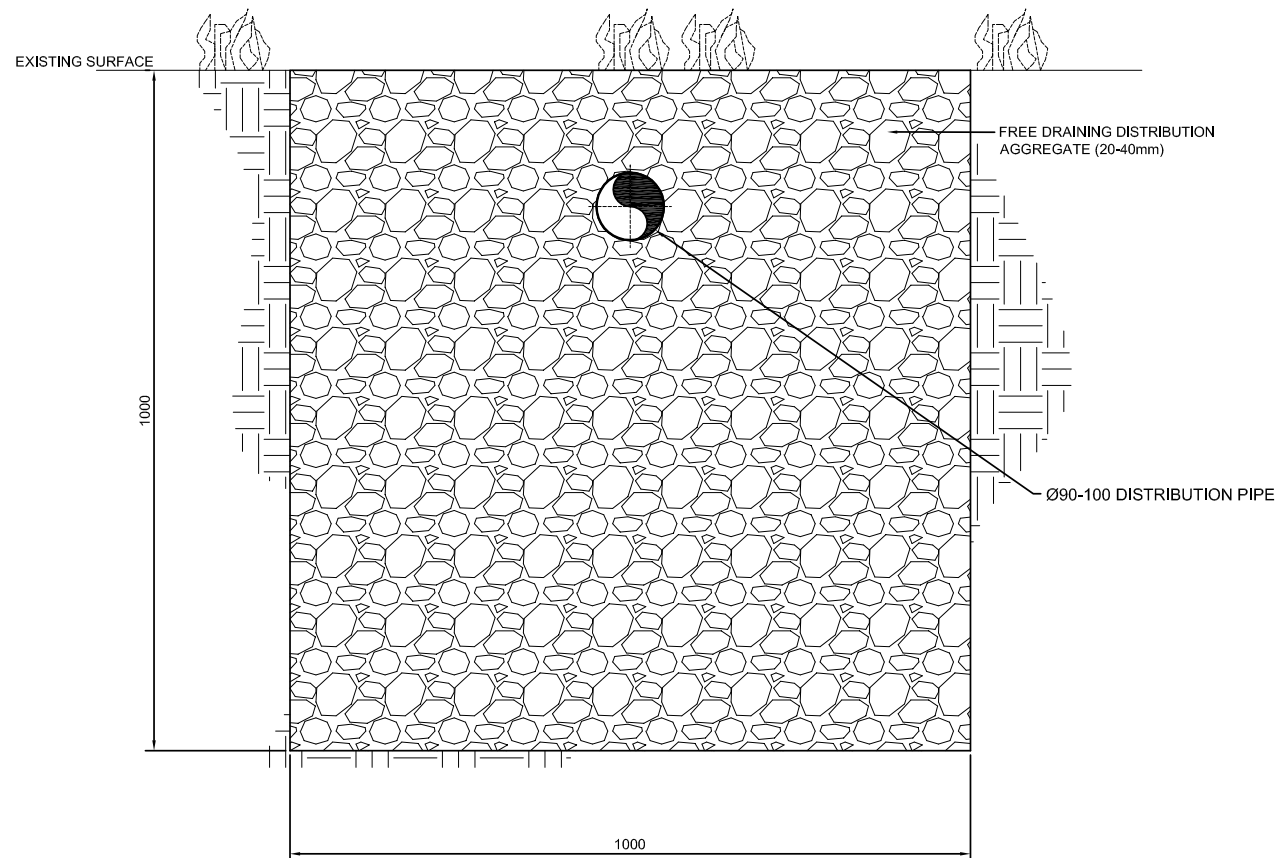


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GEOTON PTY LTD GEOTECHNICAL CONSULTANTS

- GEOTECHNICAL INVESTIGATIONS
- SITE CLASSIFICATION
- WASTEWATER ASSESSMENT
- ROADWORKS
- LANDSLIDE RISK ASSESSMENT
- DAMS
- FOUNDATION INVESTIGATION

PO Box 522 Prospect Vale TAS 7250
Unit 24, 16-18 Goodman Court
Invermay, TAS
T- (03) 6326 5001
www.geoton.com.au



STORM WATER DISCHARGE TRENCH

SCALE 1:10

SCALE

0mm 125mm 250mm 325mm 500mm

Agenda - PLANNING AUTHORITY COMMITTEE - 11 APRIL 2022 ATTACHMENTS

FIGURE:	2
DATE:	18/06/19
REVISION:	A
SCALE:	@ A4
DRAWN:	B.STREET
DESIGNED:	T.BARRIERA
APPROVED:	T.BARRIERA



PLATE 1 - View of the site looking to the west



PLATE 2 - View of the site looking to the east

GEO TON Pty Ltd				client:	N + B	
				project:	49 WENVOE STREET DEVONPORT	
title: PHOTOGRAPH				project no:	GL21554A	figure no. PLATES 1 & 2
date:	21/09/2021	original size	A4			

Appendix A

Borehole Logs

GEOTON Pty Ltd**Geotechnical Consultants**

PO Box 522 Prospect TAS 7250

Unit 24, 16-18 Goodman Court, Invermay TAS

Tel (03) 6326 5001

**ENGINEERING
BOREHOLE LOG**

Borehole no. BH1

Sheet no. 1 of 1

Job no. GL21554A

Client :		n + b		Date : 21/09/2021	
Project :		49 Wenvoe Street, Devonport		Logged By : SS	
Location :		Residential Site Classification & On-site Stormwater Detention Design			
Drill model :		DrillTech		Easting: 446411 Slope: 90°	
Hole diameter : 150mm		Northing: 5440400		Bearing: - Datum :	
Method		Support		Penetration	
Water		Notes Samples Tests		Depth (m)	
Graphic log		Classification Symbol		Material Description	
Moisture condition		Consistency density, index		Structure, additional observations	
ADV		N			
				TOPSOIL - Clayey SILT, dark brown	
				0.25	
				ML	
				Clayey SILT - low to medium plasticity brown/red, trace coarse grained sand trace fine to medium gravel	
				M	
				ST	
				W < PL	
				0.50	
				V = Refusal	
				0.75	
				1.00	
				M	
				St	
				V = Refusal W > PL	
				1.25	
				1.50	
				With fine to medium gravel	
				M	
				VSt	
				W < PL	
				1.75	
				2.00	
				Borehole BH1 auger refusal @ 2.0m on inferred highly weatherd rock	
				2.25	

GEOTON Pty Ltd**Geotechnical Consultants**

PO Box 522 Prospect TAS 7250

Unit 24, 16-18 Goodman Court, Invermay TAS

Tel (03) 6326 5001

**ENGINEERING
BOREHOLE LOG**

Borehole no. BH2

Sheet no. 1 of 1

Job no. GL21554A

Client :		n + b		Date : 21/09/2021	
Project :		49 Wenvoe Street, Devonport		Logged By : SS	
Location :		Residential Site Classification & On-site Stormwater Detention Design			
Drill model :		DrillTech		Easting: 446419 Slope: 90° RL Surface :	
Hole diameter :		150mm		Northing: 5440392 Bearing: - Datum :	

Method	Support	Penetration	Water	Notes Samples Tests	Depth (m)	Graphic log Classification Symbol	Material Description	Moisture condition	Consistency density, index	Structure, additional observations
ADV	N			D LL=48% PL=27% PI=21% LS=11.5%			TOPSOIL - Clayey SILT, dark brown			
					0.25	ML	Clayey SILT - low to medium plasticity brown/red, trace coarse grained sand trace fine to medium gravel	M	St	W < PL
					0.50					V = Refusal
					0.75					
					1.00			M	St	W > PL
					1.25					V = Refusal
					1.50					
					1.75					
					2.00					
					2.25			M	VSt	W < PL
Borehole BH2 auger refusal @ 2.3m on inferred highly weathered rock										

GEOTON Pty Ltd**Geotechnical Consultants**

PO Box 522 Prospect TAS 7250

Unit 24, 16-18 Goodman Court, Invermay TAS

Tel (03) 6326 5001

**ENGINEERING
BOREHOLE LOG**

Borehole no. BH3

Sheet no. 1 of 1

Job no. GL21554A

Client :		n + b		Date : 21/09/2021	
Project :		49 Wenvoe Street, Devonport		Logged By : SS	
Location :		Residential Site Classification & On-site Stormwater Detention Design			
Drill model :		DrillTech		Easting: 446437 Slope: 90° RL Surface :	
Hole diameter :		150mm		Northing: 5440395 Bearing: - Datum :	

Method	Support	Penetration	Water	Notes Samples Tests	Depth (m)	Graphic log Classification Symbol	Material Description	Moisture condition Consistency density, index	Structure, additional observations	
ADV	N						TOPSOIL - Clayey SILT, dark brown			
					0.25	ML	Clayey SILT - low to medium plasticity brown/red, trace coarse grained sand trace fine gravel	M	St	W > PL
					0.50					
					0.75					
					1.00					
					1.25					
					1.50					
					1.75					
					2.00					
					2.25			Borehole BH3 auger refusal @ 2.4m on inferred highly weathered rock		



Investigation Log Explanation Sheet

METHOD – BOREHOLE

TERM	Description
AS	Auger Screwing*
AD	Auger Drilling*
RR	Roller / Tricone
W	Washbore
CT	Cable Tool
HA	Hand Auger
DT	Diatube
B	Blank Bit
V	V Bit
T	TC Bit

* Bit shown by suffix e.g. ADT

METHOD – EXCAVATION

TERM	Description
N	Natural exposure
X	Existing excavation
H	Backhoe bucket
B	Bulldozer blade
R	Ripper
E	Excavator

SUPPORT

TERM	Description
M	Mud
N	Nil
C	Casing
S	Shoring

PENETRATION

1	2	3	4	
				No resistance ranging to Refusal

WATER

Symbol	Description
	Water inflow
	Water outflow
	17/3/08 water on date shown

NOTES, SAMPLES, TESTS

TERM	Description
U ₅₀	Undisturbed sample 50 mm diameter
U ₆₃	Undisturbed sample 63 mm diameter
D	Disturbed sample
N	Standard Penetration Test (SPT)
N*	SPT – sample recovered
N _c	SPT with solid cone
V	Vane Shear
PP	Pocket Penetrometer
P	Pressumeter
B _s	Bulk sample
E	Environmental Sample
R	Refusal
DCP	Dynamic Cone Penetrometer (blows/100mm)
PL	Plastic Limit
LL	Liquid Limit
LS	Linear Shrinkage

CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION

Based on AS 1726:2017

MOISTURE

TERM	Description
D	Dry
M	Moist
W	Wet

CONSISTENCY/DENSITY INDEX

TERM	Description
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fr	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	Very dense



Soil Description Explanation Sheet (1 of 2)

DEFINITION

In engineering terms, soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL AND SOIL NAME

Soils are described in accordance with the AS 1726: 2017 as shown in the table on Sheet 2.

PARTICLE SIZE DEFINITIONS

NAME	SUBDIVISION	SIZE (mm)
BOULDERS		>200
COBBLES		63 to 200
GRAVEL	Coarse	19 to 63
	Medium	6.7 to 19
	Fine	2.36 to 6.7
SAND	Coarse	0.6 to 2.36
	Medium	0.21 to 0.6
	Fine	0.075 to 0.21
SILT		0.002 to 0.075
CLAY		<0.002

MOISTURE CONDITION

Coarse Grained Soils

Dry Non-cohesive and free running.

Moist Soil feels cool, darkened in colour.
Soil tends to stick together.

Wet As for moist but with free water forming when handling.

Fine Grained Soils

Moist, dry of Plastic Limit – $w < PL$

Hard and friable or powdery.

Moist, near Plastic Limit – $w \approx PL$

Soils can be moulded at a moisture content approximately equal to the plastic limit.

Moist, wet of Plastic Limit – $w > PL$

Soils usually weakened and free water forms on hands when handling.

Wet, near Liquid Limit – $w \approx LL$

Wet, wet of Liquid Limit – $w > LL$

CONSISTENCY TERMS FOR COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	≤ 12	Exudes between the fingers when squeezed in hand
Soft	12 to 25	Can be moulded by light finger pressure
Firm	25 to 50	Can be moulded by strong finger pressure
Stiff	50 to 100	Cannot be moulded by fingers
Very Stiff	100 to 200	Can be indented by thumb nail
Hard	>200	Can be indented with difficulty by thumb nail
Friable	–	Can be easily crumbled or broken into small pieces by hand

RELATIVE DENSITY OF NON-COHESIVE SOILS

TERM	DENSITY INDEX (%)
Very Loose	≤ 15
Loose	15 to 35
Medium Dense	35 to 65
Dense	65 to 85
Very Dense	> 85

DESCRIPTIVE TERMS FOR ACCESSORY SOIL COMPONENTS

DESIGNATION OF COMPONENT	IN COARSE GRAINED SOILS		IN FINE GRAINED SOILS	TERM
	% Fines	% Accessory coarse fraction	% Sand/ gravel	
Minor	≤ 5	≤ 15	≤ 15	Trace
	>5, ≤ 12	>15, ≤ 30	>15, ≤ 30	With
Secondary	>12	>30	>30	Prefix

SOIL STRUCTURE

ZONING		CEMENTING	
Layer	Continuous across the exposure or sample.	Weakly cemented	Easily disaggregated by hand in air or water.
Lens	Discontinuous layer of different material, with lenticular shape.	Moderately cemented	Effort is required to disaggregate the soil by hand in air or water.
Pocket	An irregular inclusion of different material.		

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely weathered material	Structure and/or fabric of parent rock material retained and visible.
Residual soil	Structure and/or fabric of parent rock material not retained and visible.

TRANSPORTED SOILS

Aeolian soil	Carried and deposited by wind.
Alluvial soil	Deposited by streams and rivers.
Colluvial soil	Soil and rock debris transported downslope by gravity.
Estuarine soil	Deposited in coastal estuaries, and including sediments carried by inflowing rivers and streams, and tidal currents.
Fill	Man-made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.
Lacustrine soil	Deposited in freshwater lakes.
Marine soil	Deposited in a marine environment.

Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 63 mm and basing fractions on estimated mass)					GROUP SYMBOL	PRIMARY NAME	
COARSE GRAINED SOIL More than 65% of soil excluding oversize fraction is larger than 0.075 mm	(A 0.075 mm particle is about the smallest particle visible to naked eyes)	GRAVEL More than half of coarse fraction is larger than 2.36 mm	CLEAN GRAVEL (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	GW	GRAVEL	
				Predominantly one size or a range of sizes with some intermediate sizes missing	GP	GRAVEL	
			GRAVEL WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML and MH below)	GM	Silty GRAVEL	
				Plastic fines (for identification procedures see CL, CI and CH below)	GC	Clayey GRAVEL	
		SAND More than half of coarse fraction is smaller than 2.36 mm	CLEAN SAND (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate sizes	SW	SAND	
				Predominantly one size or a range of sizes with some intermediate sizes missing	SP	SAND	
			SAND WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML and MH below)	SM	Silty SAND	
				Plastic fines (for identification procedures see CL, CI and CH below)	SC	Clayey SAND	
FINE GRAINED SOIL More than 35% of soil excluding oversize fraction is smaller than 0.075 mm		IDENTIFICATION PROCEDURES ON FRACTIONS <0.075 mm					
		SILT & CLAY (low to medium plasticity, LL ≤ 50)	DRY STRENGTH	DILATANCY	TOUGHNESS		
			None to Low	Slow to Rapid	Low	ML	SILT
			Medium to High	None to Slow	Medium	CL, CI	CLAY
		SILT & CLAY (high plasticity, LL > 50)	Low to Medium	Slow	Low	OL	ORGANIC SILT
			Low to Medium	None to Slow	Low to Medium	MH	SILT
			High to Very High	None	High	CH	CLAY
		Medium to High	None to Very Slow	Low to Medium	OH	ORGANIC CLAY	
	Highly Organic Soil	Readily identified by colour, odour, spongy feel and frequently by fibrous texture.			Pt	PEAT	
	● LL – Liquid Limit.						

• LL – Liquid Limit.

COMMON DEFECTS IN SOILS

TERM	DEFINITION	DIAGRAM	TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (e.g. bedding). May be open or closed.		SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
FISSURE	A surface or crack across which the soil has little or no tensile strength, but which is not parallel or sub parallel to layering. May be open or closed. May include desiccation cracks.		TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter.	
SHEARED SEAM	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting fissures which divide the mass into lenticular or wedge-shaped blocks.		TUBE CAST	An infilled tube. The infill may be uncemented or weakly cemented soil or have rock properties.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.		INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open defects.	

Appendix B

Certificate Forms

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM**Section 321**

To: Owner /Agent
 Address
 Suburb/postcode

Form **55****Qualified person details:**

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

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

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

Details of work:

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

Certificate details:

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

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

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

or

a building, temporary structure or plumbing installation: ☒

In issuing this certificate the following matters are relevant –

Documents:

Geoton Pty Ltd, Report Reference No. GL21554Ab,
dated 04/10/2021

Relevant
calculations:

Refer to report

References:

AS 2870 – 2011 Residential Slabs and Footings Construction
AS 4055 – 2012 Wind Loads for Housing
CSIRO Building Technical File 18

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

Site Classification in accordance to AS2870 - 2011
Wind Loading in accordance to AS 4055 - 2012
Findings and recommendations of report

Scope and/or Limitations

The classification applies to the site as investigated at the time and does not account for any future alteration to foundation conditions resulting from earthworks, drainage condition changes or site maintenance variations.

I certify the matters described in this certificate.

Signed:

Qualified person:



Certificate No:

GL21554Ab

Date:

04/10/2021

PLANNING APPLICATION FOR 49 WENVOE STREET DEVONPORT

We refer to your reply, in regard to our application for our planning application, of 49 Wenvoe Street Devonport.

Our house has been designed to have access onto Wenvoe Street. Due to the topographic constraints the property we have lowered the house as much as possible, while still being able have vehicle access from Wenvoe Street. We believe it is important to have 2 vehicle parking spaces available (as required under the planning scheme) to avoid congestion on Wenvoe Street.

It has been designed, to have a single level living area, open plan, wider doorways, walk in showers, basically anything, to future proof our home as we age, also to take advantage of the Mersey River, Bass strait views and surrounds. We have kept the design of the house, within the perimeter boundary and screening requirements.

We however acknowledge, we are outside the envelope, due to the slope of the block. Many of the homes along Wenvoe Street are consistent with our proposed design, elevated, fair and reasonable and all the living areas are on the North/Eastern Side, of most of these homes. Many of the homes, would also be above the envelope.

Presently at 47 Wenvoe Street, situates, a 3 storey house, which is directly on our boundary. This house already shadows our blocks 49 and 51. This house would be above the envelope. Please find attached shadow diagrams, showing the affect this dwelling, is having on both blocks. This is before any future dwelling is built.

The shadow diagrams are two-dimensional and show the extent of overshadowing on the ground surface. The proposed house will extend over the ground surface, which will mitigate the overshadowing caused by 47 Wenvoe Street. Similarly, it is expected that, taking account of the predominant housing form on the lower side of Wenvoe Street (i.e. floor levels extending over the slope), it is highly likely that any future dwelling at No. 51 is capable of being designed to mitigate the overshadowing from the proposed dwelling whilst also mitigating its impact on No. 53.

Our intention is to downsize, from our 1225sm block, to something with less maintenance. By combining 49 and 51 we will not be achieving this.

Our blocks are of prime Real Estate, close to town with views of the Mersey River, Bass Straight and surrounds. By consolidating 2 blocks into 1, we would be losing considerable prime Real Estate.

We have no intention of selling 51 Wenvoe street, within the foreseeable future. Should council require written confirmation of this, we are prepared to have this documented.

We would appreciate it, if you would reconsider our original application.

Anthony and Sandra Smith
53 Wenvoe Street
Devonport Tas 7310
0455501144/ 0438448882

ANTHONY LEWIS SMITH & SANDRA JOY EDWARDS

PROPOSED RESIDENCE

49 WENVOE STREET, DEVONPORT

DRAWING SCHEDULE

SHEET	DESCRIPTION	REV	ISSUE DATE
A100	COVER PAGE	A	19/10/21
A101	SITE PLAN	A	19/10/21
A102	ELEVATIONS 1 OF 2	A	19/10/21
A103	ELEVATIONS 2 OF 2	A	19/10/21
A104	FIRST FLOOR PLAN	A	19/10/21
A105	GROUND FLOOR PLAN	A	19/10/21
A106	DRAINAGE PLAN	A	19/10/21
A107	FRAMING PLAN	A	19/10/21
A108	ELECTRICAL PLAN	A	19/10/21
A109	REFLECTED CEILING PLAN	A	19/10/21
A110	ROOF FRAMING PLAN	A	19/10/21
A111	TRUSS LAYOUT PLAN	A	19/10/21
A112	ROOF PLAN	A	19/10/21
A113	SECTION A-A	A	19/10/21
A114	SECTION B-B	A	19/10/21
A115	DETAILS	A	19/10/21
A116	STANDARD DETAILS	A	19/10/21
A117	WALL TYPES	A	19/10/21
A118	WATERPROOFING 1 OF 2	A	19/10/21
A119	WATERPROOFING 2 OF 2	A	19/10/21
A120	WINDOW & DOOR SCHEDULE	A	19/10/21
A121	LIGHTING CALCULATOR	A	19/10/21
A122	GENERAL NOTES	A	19/10/21
A123	3D REPRESENTATIONS	A	19/10/21
A124	SHADOW DIAGRAMS 1 OF 3	A	19/10/21
A125	SHADOW DIAGRAM 2 OF 3	A	19/10/21
GENERAL INFORMATION DIAGRAM 3 OF 3		A	19/10/21

ACCREDITED DESIGNER:
ACCREDITATION NUMBER:
LAND TITLE REFERENCE NUMBER:
ENERGY ASSESSMENT:
COUNCIL ZONE:
COUNCIL:

NICHOLAS BRANDSEMA
047538582
PID6352605, VOLUME 18398, FOLIO 1
TBA
GENERAL RESIDENTIAL
DEVONPORT CITY COUNCIL

FLOOR AREAS

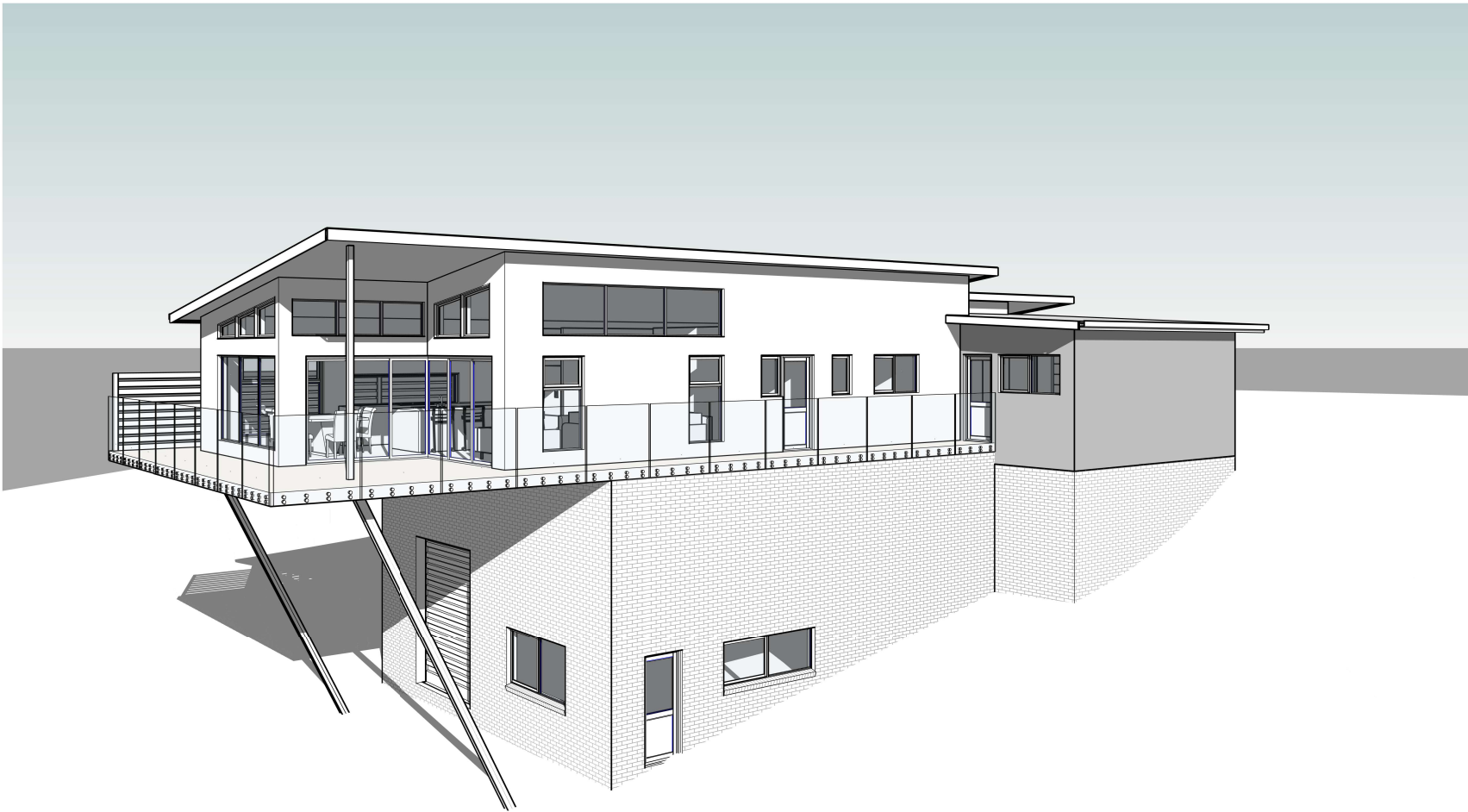
GROUND FLOOR AREA:
FIRST FLOOR AREA:
TOTAL FLOOR AREA:
DECK AREA:

70m2 (8 SQUARES)
197m2 (21 SQUARES)
267m2 (29 SQUARES)
63m2 (7 SQUARES)

SITE INFORMATION

SITE AREA:
DESIGN WIND SPEED:
SOIL CLASSIFICATION:
ALPINE AREA:
CORROSION ENVIRONMENT:
BUSHFIRE ATTACK LEVEL:
CLIMATE ZONE:

664m2
TBC
TBC
NO
N/A
TBC
7



n+b

22 Fieldings Way
Ulverstone, Tasmania
Australia
7315

m 0417 134 369 e nick@nplusb.com.au
License No. 047538582 ABN 946 222 219 16

Issued As

Scale A3

PLANNING

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ABN 946 222 219 16

Revision

No. Date Description

A 19/10/21 Issued as PLANNING

DO NOT SCALE OFF PLANS
ALL DIMENSIONS ARE IN MILLIMETERS
CONFIRM ALL DIMENSIONS ONSITE
ALL WORK RELEVANT NCC & AS

Project

PROPOSED RESIDENCE

Location

49 WENVOE STREET, DEVONPORT

Client

ANTHONY SMITH & SANDRA EDWARDS

Sheet Title

COVER PAGE

Drawn Issue Date Project No. Revision

NJB 19/10/21 P18084 A

Sheet Number

A100

/ A123



SITE PLAN

PRIMARY CONTOUR LINES SHOWN AT 1000mm INTERVALS
SECONDARY CONTOURS SHOWN AT 500mm INTERVALS

DRIVEWAY

EXPOSED AGGREGATE 120mm THICK 25MPa CONCRETE
WITH SAW CUTS AT 4000mm CRS, 24 HOURS AFTER POURING.
AGGREGATE STYLE AND FINISH TO BE CONFIRMED BY OWNER.

GENERAL NOTES:

DURING CONSTRUCTION SOIL AND WATER IS TO BE APPROPRIATELY MANAGED. THIS INCLUDES THE PROVISION OF SILT FENCING, FILTER SCREENS OR DEDICATED SILT TRAPS TO PREVENT THE DISCHARGE OF GRAVEL, SOIL OR OTHER DEBRIS TO ANY EXISTING WATER COURSE OR ADJOINING PROPERTY DURING THE CONSTRUCTION PROCESS.

EXCAVATION:

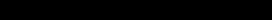
ALLOW FOR BULK EXCAVATION WHERE REQUIRED
AND ALL EXCAVATION, FILLING, BACK FILLING
AND CONSOLIDATION REQUIRED FOR THE
FOOTINGS AND SLAB. RETAIN ALL ACCESSES
AND SERVICES AS INDICATED. MAKE GOOD.

SETTING OUT:

THE BUILDER SHALL ACCURATLEY SET-OUT THE WORKS AND VERIFY ALL DIMENSIONS AND LEVELS BEFORE COMENCING ANY WORKS, AND SHALL MAKE GOOD AT HIS OWN EXPENSE ANY ERRORS ARISING FROM INACCURACIES OF THE SETOUT.

PROTECTION WORK (SECTION 121 OF THE BUILDING ACT)

IF EXCAVATION IS TO A LEVEL BELOW THAT OF THE ADJOINING OWNER'S FOOTINGS, ALONG THE TITLE BOUNDARY OR WITHIN 3 METRES OF A BUILDING BELONGING TO AN ADJOINING OWNER THE BUILDER MUST (AS A MINIMUM) PROVIDE AND MAINTAIN A SUPPORT. ADJOINING OWNER TO BE NOTIFIED USING FORM 6 (BUILDING AND PROTECTION WORK NOTICE).



22 Fieldings Way
Ulverstone, Tasmania
Australia
7315

m 0417 134 369 e nick@nplusb.com.au
License No. 047538582 ABN 946 222 219 16

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Revision

No.	Date	Description
A	19/10/21	Issued as PLANNING

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ALL DIMENSIONS ARE IN MILLIMETERS
CONFIRM ALL DIMENSIONS ON SITE
ALL WORK RELEVANT NCC & AS

Project
PROPOSED RESIDENCE

Location
49 WENVOE STREET, DEVONPORT

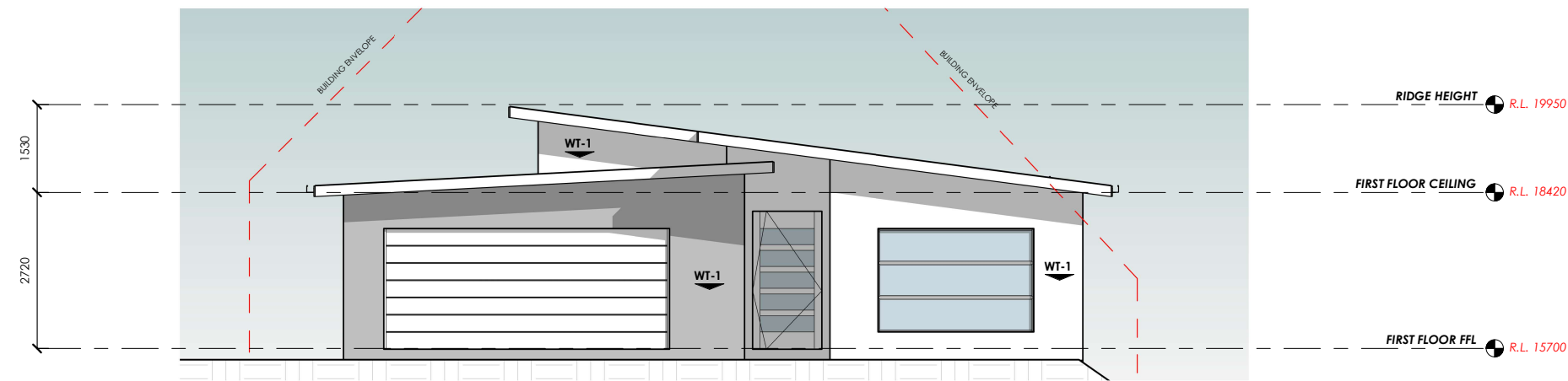
Client
ANTHONY SMITH & SANDRA EDWARDS

Sheet Title
SITE PLAN

Drawn	Issue Date	Project No.	Revision
NJB	19/10/21	P18084	A

Sheet Number
A101

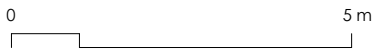
/ A123



WEST ELEVATION
Scale 1 : 100

WALL | FACADE MATERIALS & FINISHES

- WT-1** 75mm MASTER WALL CLADDING, RENDER TO FINISH.
WT-2 SELECTED BRICK VENEER, COLOUR & STYLE BY OWNER.



EAVE CONSTRUCTION NCC VOLUME 2 PART 3.5.3.5
EAVE WIDTH OVERHANG - 600mm

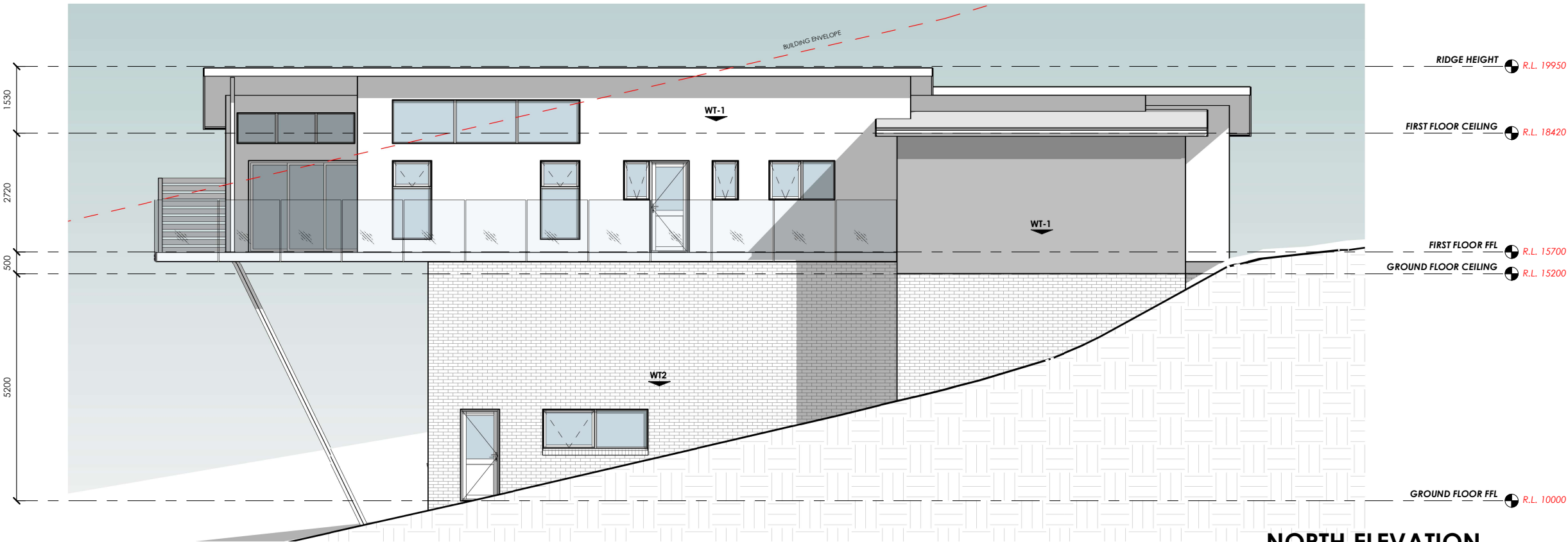
EAVES LINED WITH 'HARDIFLEX' CEMENT SHEET TRIMMERS LOCATED WITHIN 1200mm OF EXTERNAL CORNERS TO BE SPACED @ 500mm CENTERS, REMAINDER OF SHEET - 700mm CENTERS

FASTENER / FIXINGS WITHIN 1200mm OF EXTERNAL CORNERS @ 200mm CENTERS, REMAINDER OF SHEET - 300mm CENTERS

COLORBOND CUSTOM ORB ROOF CLADDING - ROOF PITCH 22.5 DEG
INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS & AS1562

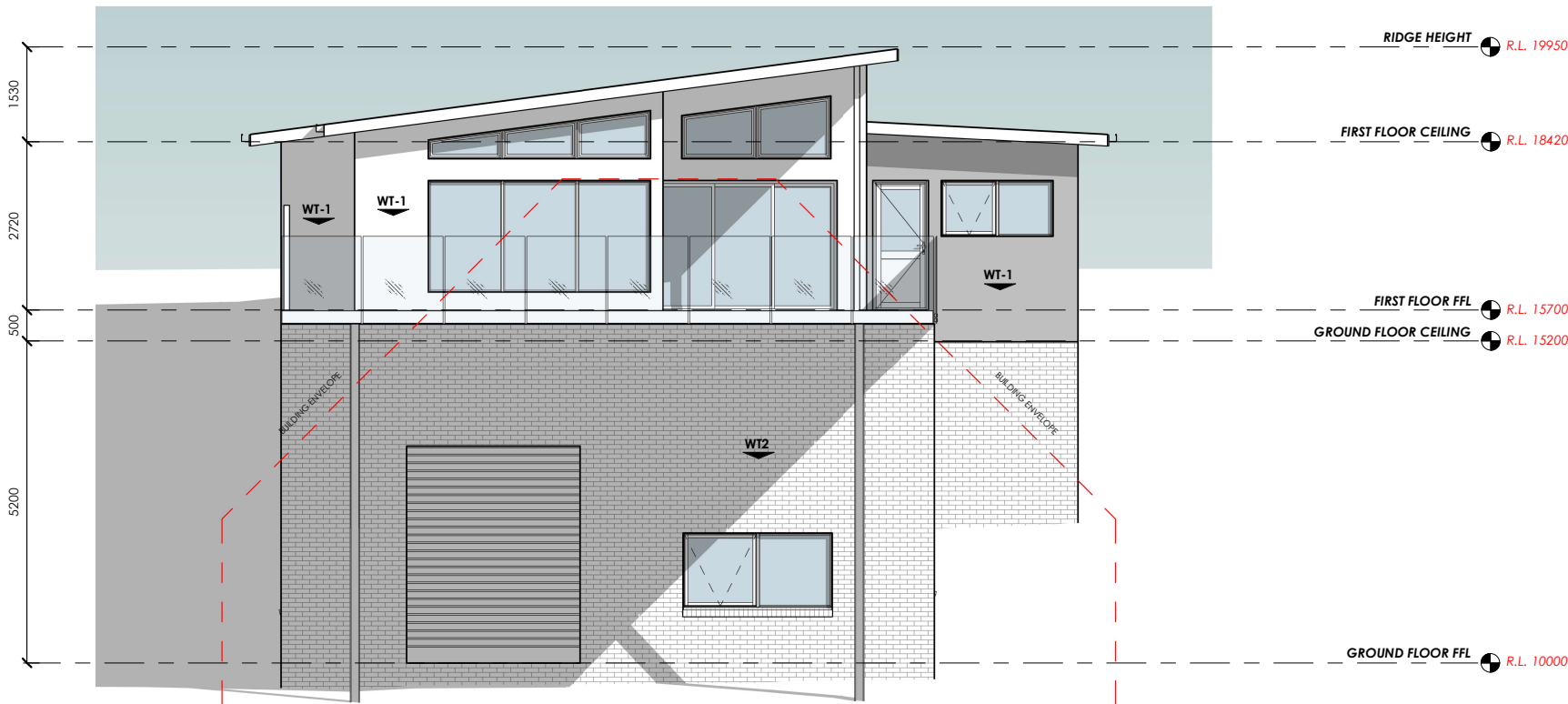
SELECTED ALUMINIUM FRAMED WINDOWS & DOORS
NCC VOLUME 2 PART 3.6 POWDER COATED ALUMINIUM WINDOW & DOOR FRAMES, UNLESS OTHERWISE NOTED. REVEALS AS SELECTED. ALL FLASHING & FIXINGS TO MANUFACTURERS SPECIFICATIONS

GLAZING & FRAME CONSTRUCTION TO AS2047 & AS1288
ALL FIXINGS & FLASHINGS TO MANUFACTURERS REQUIREMENTS

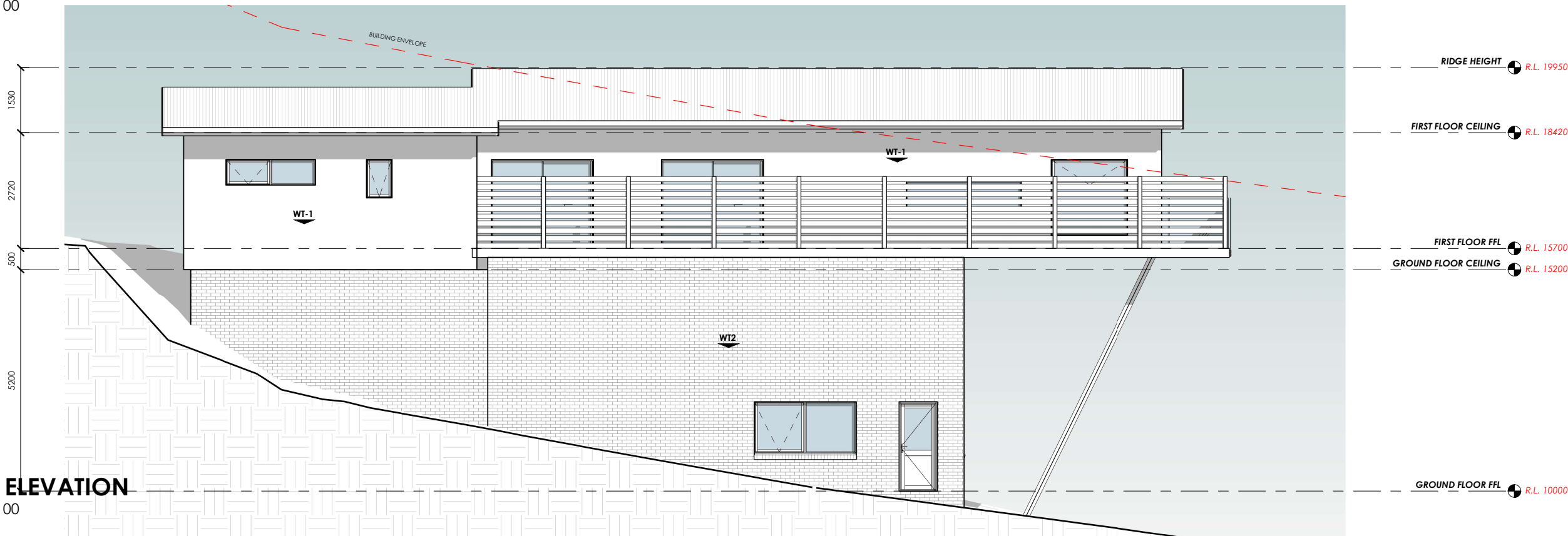


NORTH ELEVATION
Scale 1 : 100

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				Drawn NJB	Issue Date 19/10/21	Project No. P18084	Revision A	



EAST ELEVATION
Scale 1 : 100



SOUTH ELEVATION
Scale 1 : 100

WALL | FACADE MATERIALS & FINISHES

- WT-1** 75mm MASTER WALL CLADDING, RENDER TO FINISH.
WT-2 SELECTED BRICK VENEER, COLOUR & STYLE BY OWNER.

0 5 m

EAVE CONSTRUCTION NCC VOLUME 2 PART 3.5.3.5
EAVE WIDTH OVERHANG - 600mm

EAVES LINED WITH 'HARDIFLEX' CEMENT SHEET
TRIMMERS LOCATED WITHIN 1200mm of
EXTERNAL CORNERS TO BE SPACED @ 500mm
CENTERS. REMAINDER OF SHEET - 700mm CENTERS

FASTENER / FIXINGS WITHIN 1200mm OF
EXTERNAL CORNERS @ 200mm CENTERS,
REMAINDER OF SHEET - 300mm CENTERS

COLORBOND CUSTOM ORB ROOF CLADDING - ROOF PITCH 22.5 DEG
INSTALLED IN ACCORDANCE WITH MANUFACTURERS
SPECIFICATIONS & AS1562

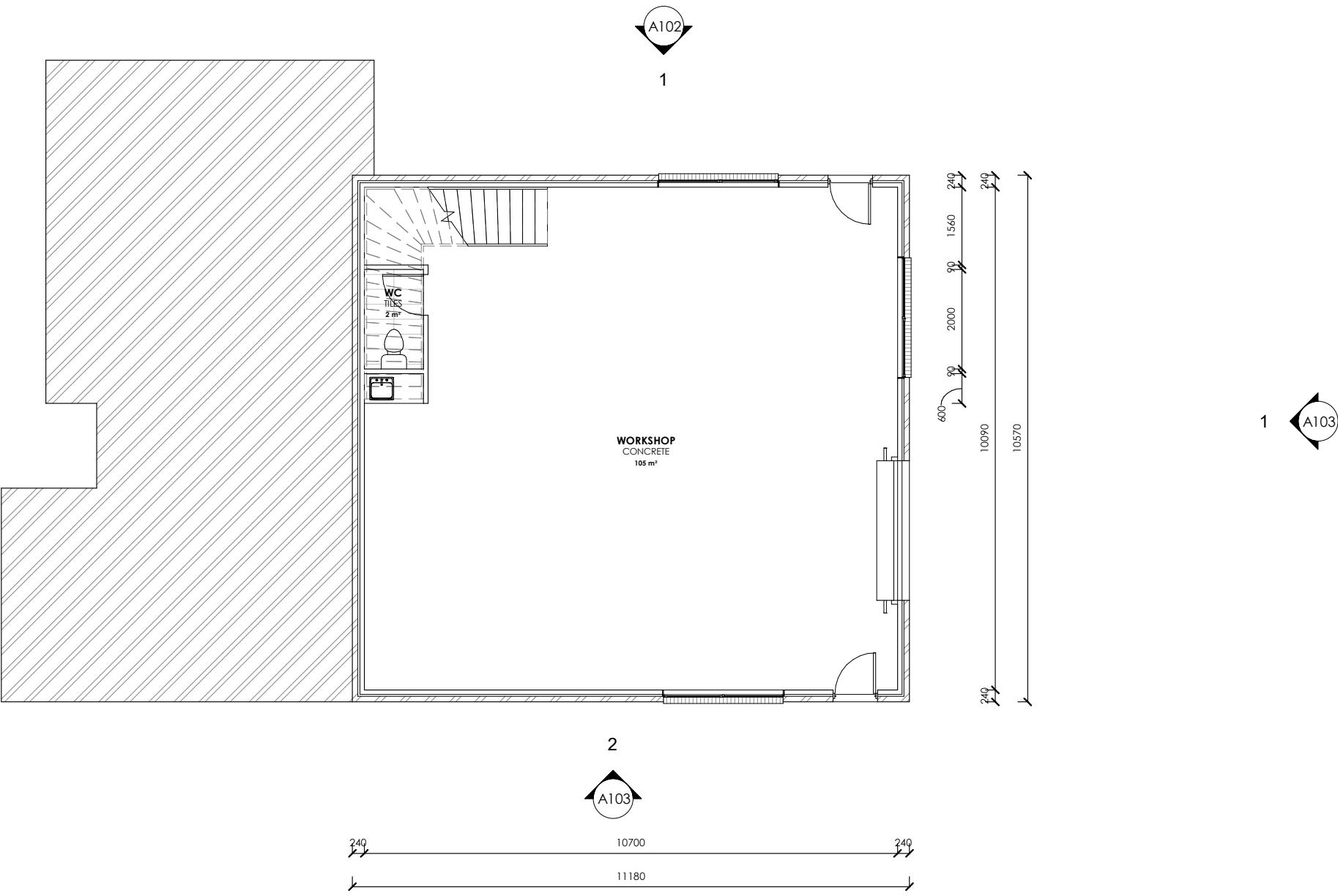
SELECTED ALUMINIUM FRAMED WINDOWS & DOORS
NCC VOLUME 2 PART 3.6 POWDER COATED ALUMINIUM WINDOW &
DOOR FRAMES, UNLESS OTHERWISE NOTED. REVEALS AS SELECTED.
ALL FLASHING & FIXINGS TO MANUFACTURERS SPECIFICATIONS

GLAZING & FRAME CONSTRUCTION TO AS2047 & AS1288
ALL FIXINGS & FLASHINGS TO MANUFACTURERS REQUIREMENTS

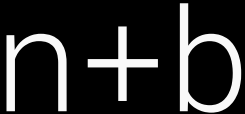
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						NJB	19/10/21	P18084	A	

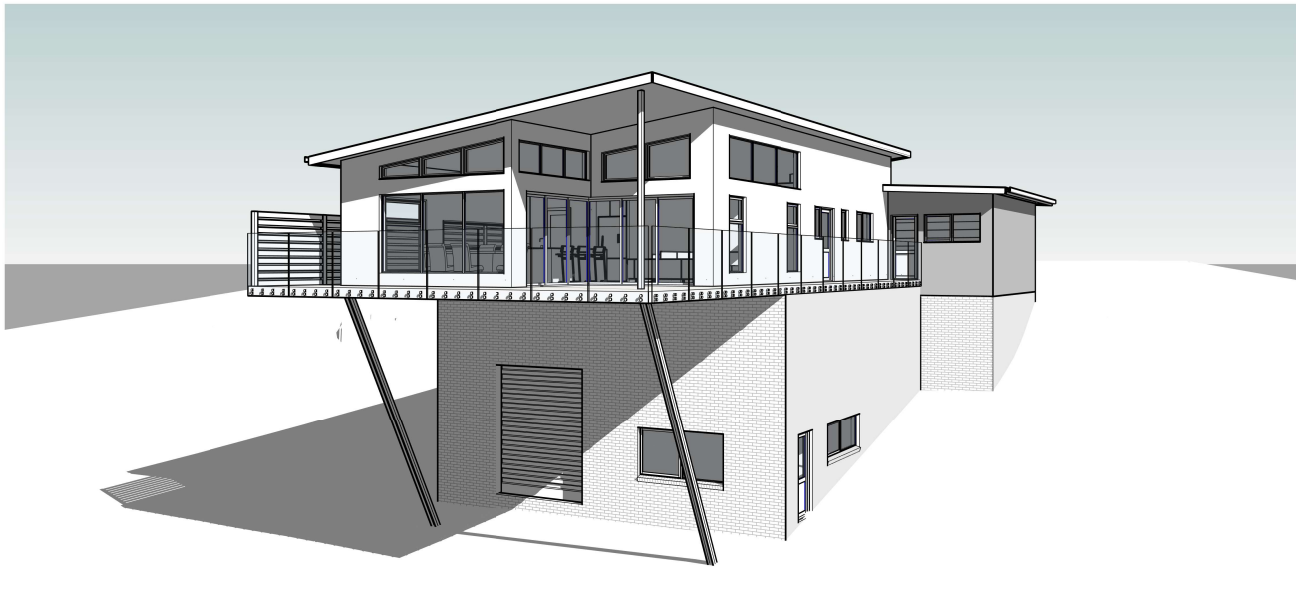


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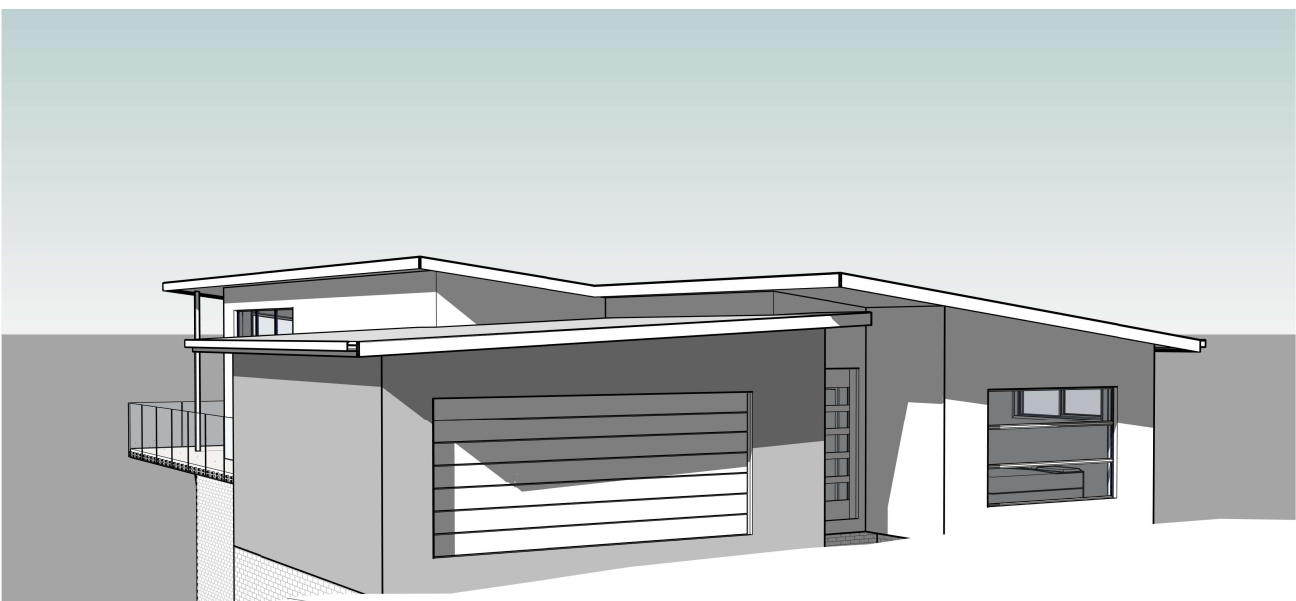


GROUND FLOOR PLAN
Scale 1 : 100

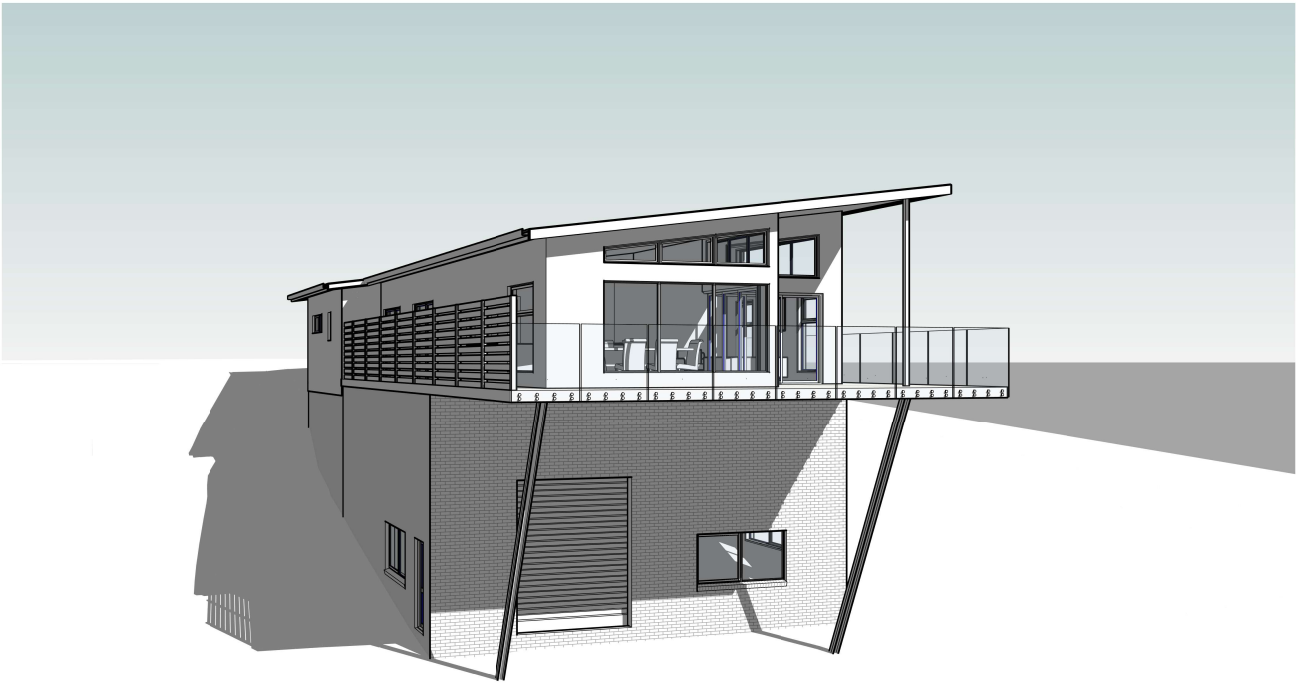
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						Drawn NJB	Issue Date 19/10/21	Project No. P18084	Revision A	



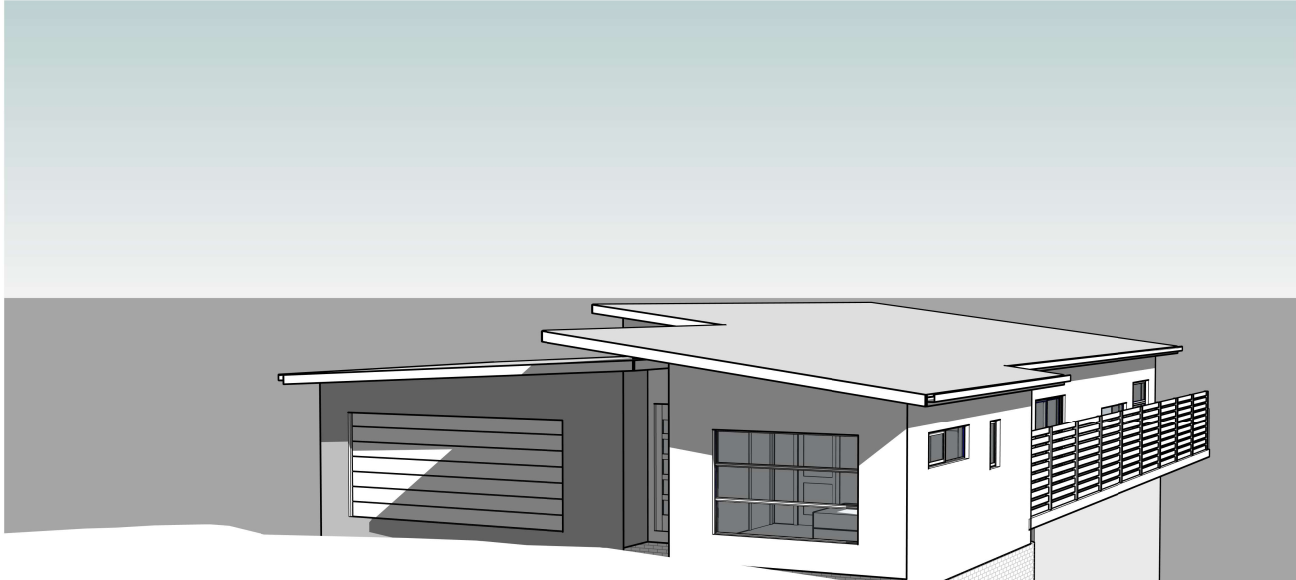
NORTH/EAST ELEVATION
Scale



NORTH/WEST ELEVATION
Scale

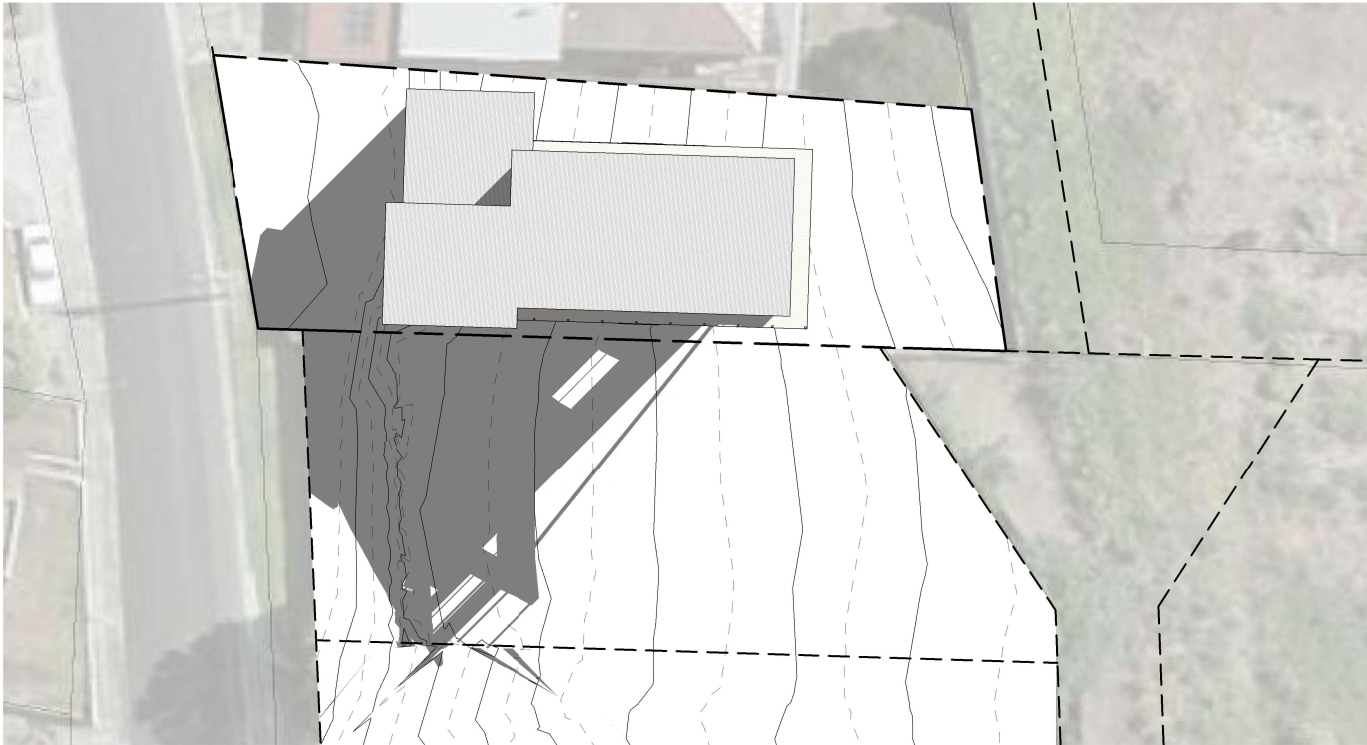


SOUTH/EAST ELEVATION
Scale



SOUTH/WEST ELEVATION
Scale

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						Drawn NJB	Issue Date 19/10/21	Project No. P18084	Revision A	



SHADOW DIAGRAM - JUNE 21st 9am
Scale 1 : 400



SHADOW DIAGRAM - JUNE 21st 11am
Scale 1 : 400



SHADOW DIAGRAM - JUNE 21st 1pm
Scale 1 : 400

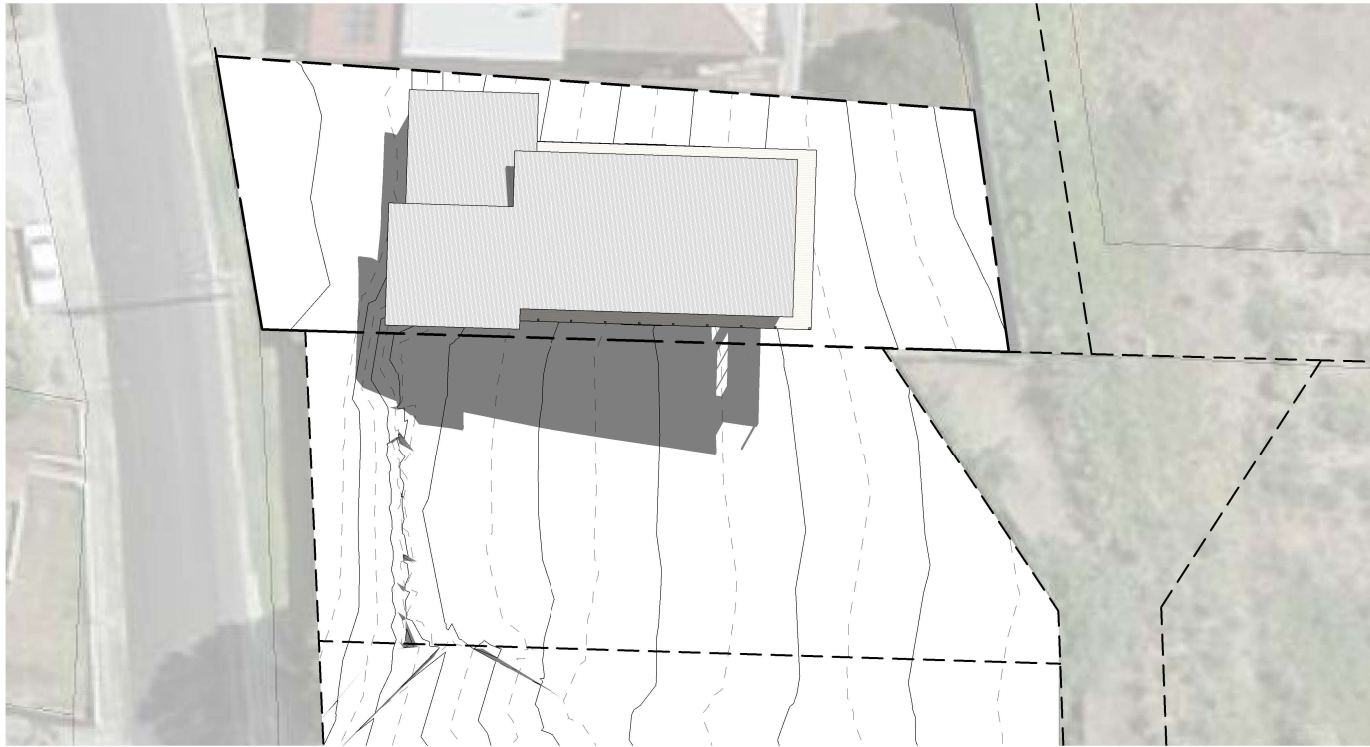


SHADOW DIAGRAM - JUNE 21st 3pm
Scale 1 : 400

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NJB	09/10/21	P18084	A																
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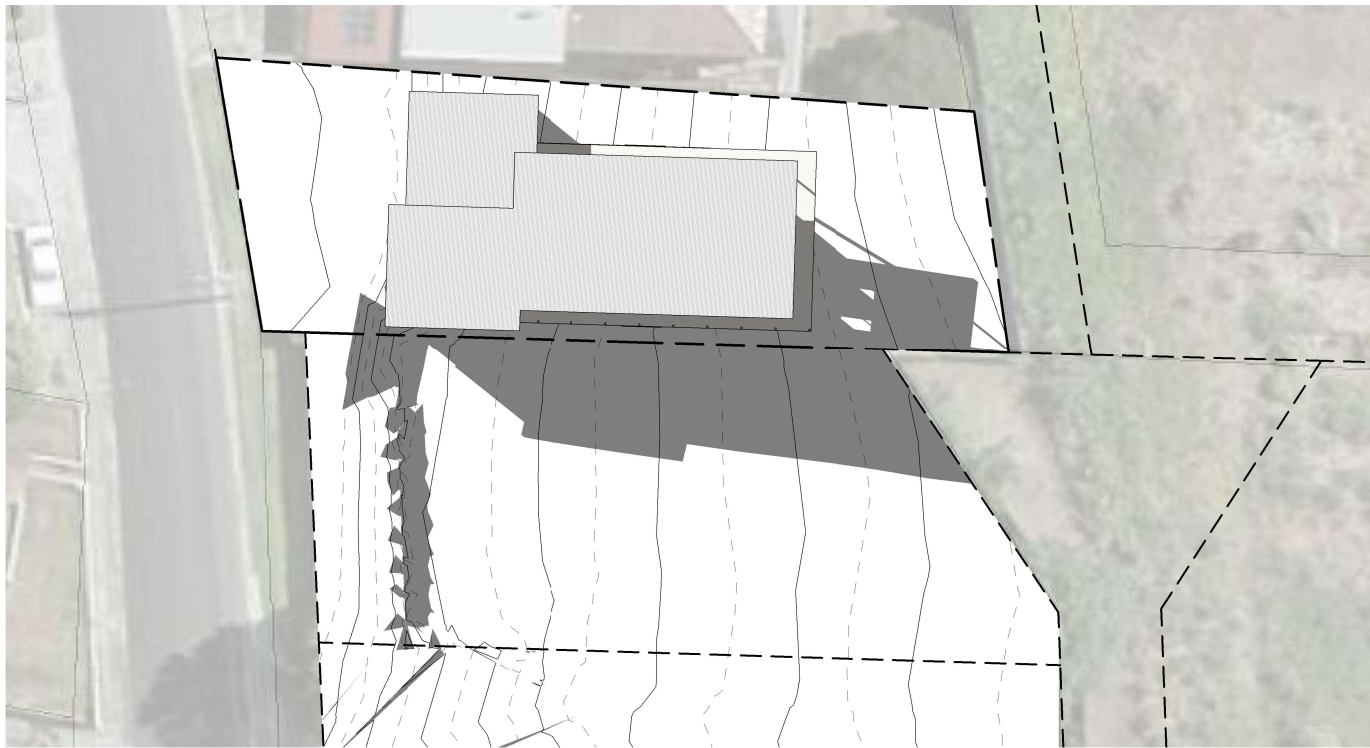
SHADOW DIAGRAM - MARCH 21st 9am
Scale 1 : 400



SHADOW DIAGRAM - MARCH 21st 11am
Scale 1 : 400

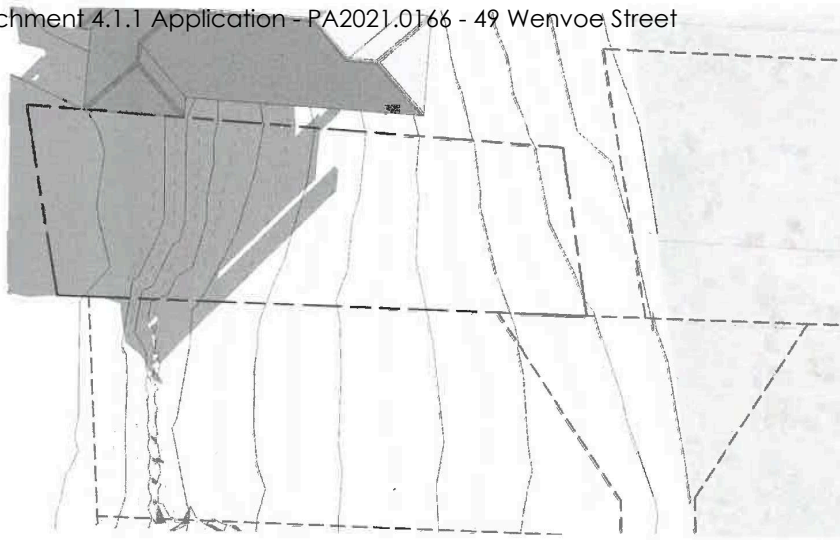


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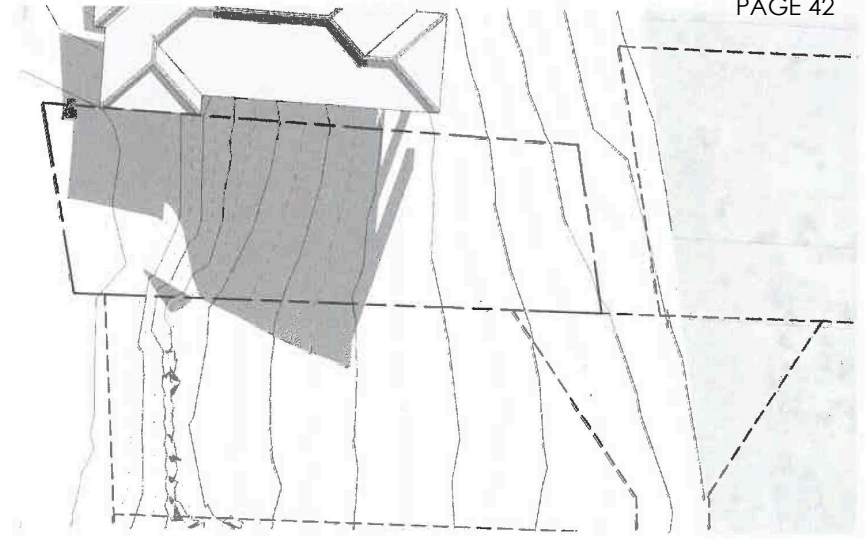


SHADOW DIAGRAM - MARCH 21st 3pm
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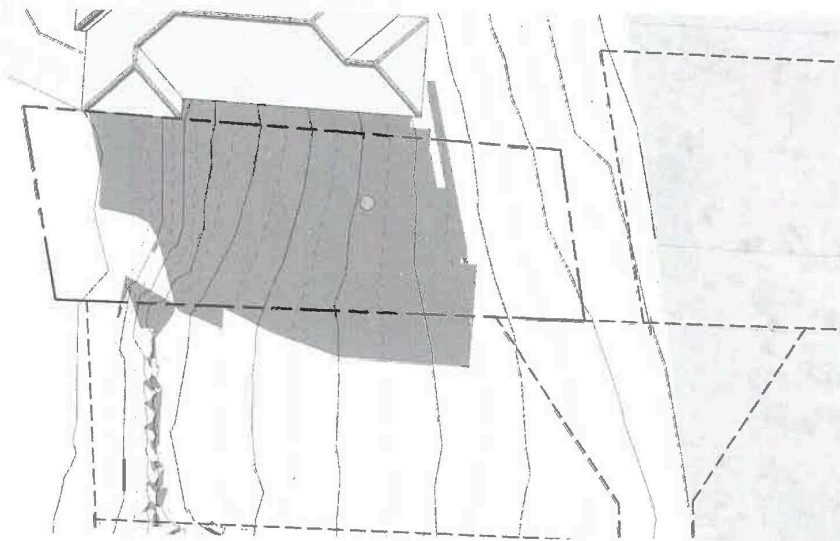
<div>n+b</div> <div>22 Fieldings Way Ulverstone, Tasmania Australia 7315</div> <div>m 0417 134 369 e nick@nplusb.com.au License No. 047538582 ABN 946 222 219 16</div>	<div>Issued As</div> <div>PLANNING</div>	<div>Scale A3</div> <div>1 : 400</div>	<div>Revision</div> <table><tr><th>No.</th><th>Date</th><th>Description</th></tr><tr><td></td><td></td><td>DO NOT SCALE OFF PLANS ALL DIMENSIONS ARE IN MILLIMETERS CONFIRM ALL DIMENSIONS ONSITE ALL WORK RELEVANT NCC & AS</td></tr></table>	No.	Date	Description			DO NOT SCALE OFF PLANS ALL DIMENSIONS ARE IN MILLIMETERS CONFIRM ALL DIMENSIONS ONSITE ALL WORK RELEVANT NCC & AS	<div>Project</div> <div>PROPOSED RESIDENCE</div> <div>Location</div> <div>49 WENVOE STREET, DEVONPORT</div> <div>Client</div> <div>ANTHONY SMITH & SANDRA EDWARDS</div>	<div>Sheet Title</div> <div>SHADOW DIAGRAM 2 OF 3</div> <div>Drawn</div> <div>Issue Date</div> <div>Project No.</div> <div>Revision</div> <div>Designer</div> <div>12/13/21</div> <div>P18084</div>	<div>Sheet Number</div> <div>A125</div> <div>/ A123</div>
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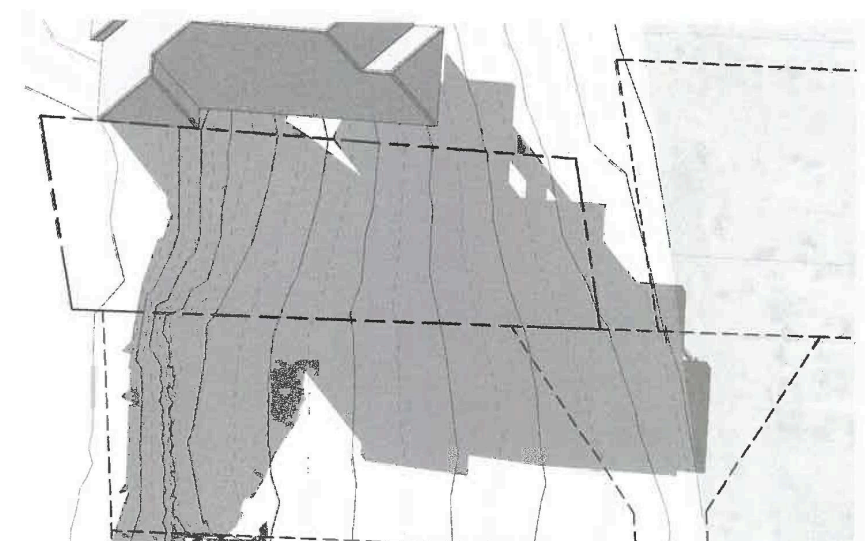
EXISTING SHADOW DIAGRAM - JUNE 21st 9am
Scale 1 : 400




EXISTING SHADOW DIAGRAM - JUNE 21st 11am
Scale 1 : 400

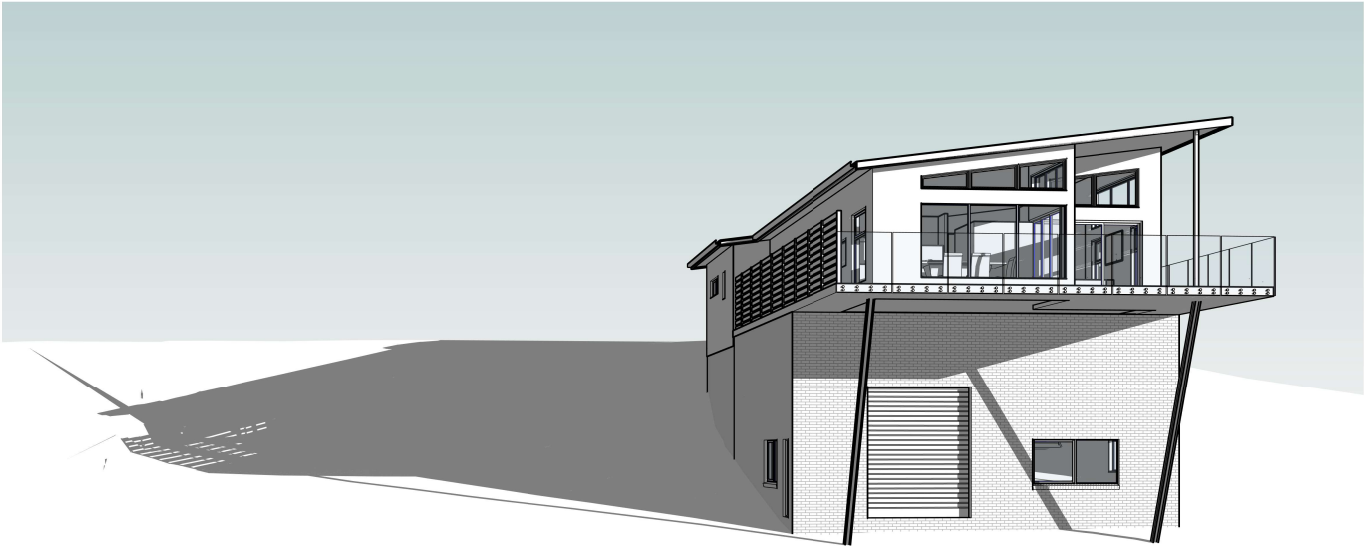


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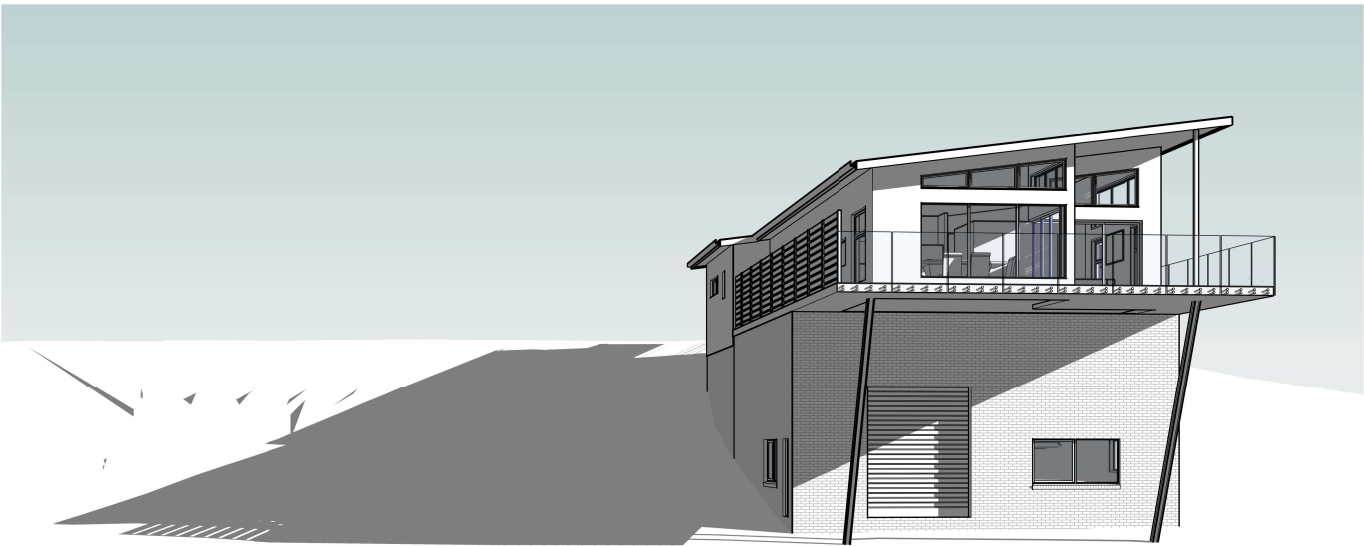


EXISTING SHADOW DIAGRAM - JUNE 21st 3pm
Scale 1 : 400

 <p>10 Fielders Bay Devonport, Tasmania 7316</p> <p>M 0471 122 388 or 0800 00 00 00 License No. 94708866 ABN 54 022 516 76</p>	<p>Issued As</p> <p>PLANNING</p>	<p>Scale AS</p> <p>1 : 400</p>	<p>Revision</p> <p>No. Date Description</p>	<p>Project</p> <p>PROPOSED RESIDENCE</p> <p>Location</p> <p>49 WENVOE STREET, DEVONPORT</p> <p>Client</p> <p>ANTHONY SMITH & SANDRA EDWARDS</p>	<p>Sheet Title</p> <p>SHADOW DIAGRAM 3 OF 3</p> <p>Drawn Issue Date Project No. Revision</p> <p>Designer 12/13/21 P18084</p>	<p>Sheet Number</p> <p>A126</p> <p>/A123</p>
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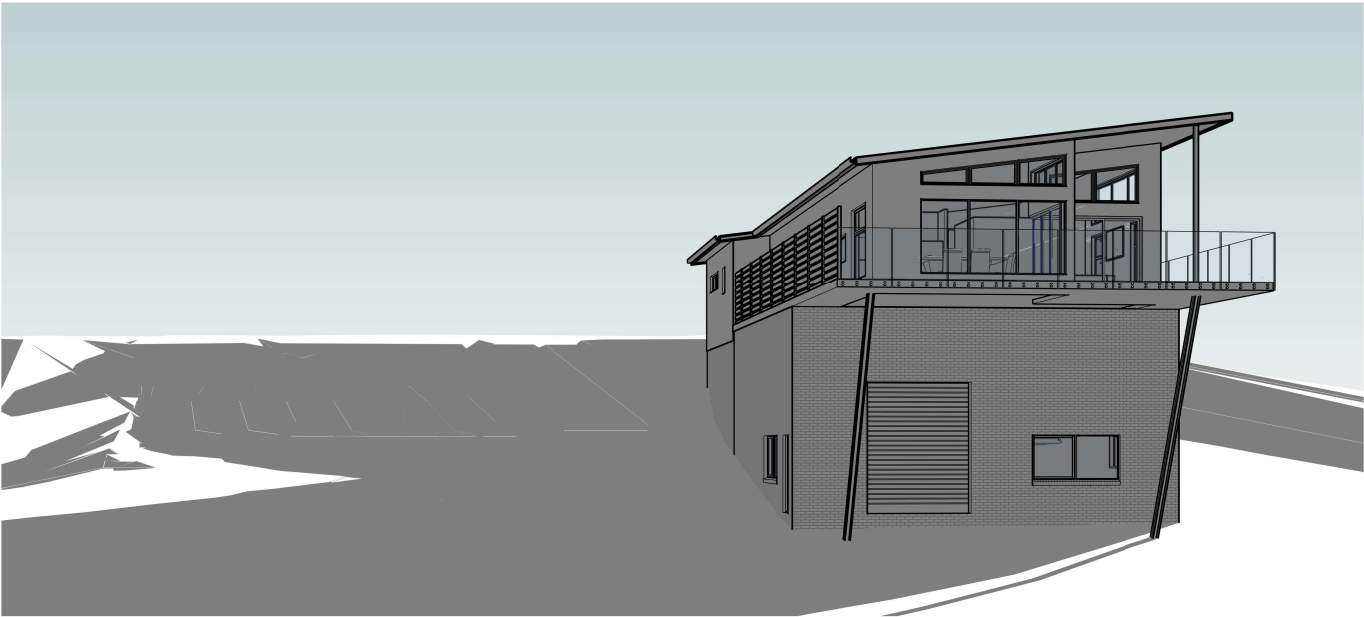
SHADOW DIAGRAM - JUNE 21st 9am
Scale



SHADOW DIAGRAM - JUNE 21st 11am
Scale



SHADOW DIAGRAM - JUNE 21st 1pm
Scale



SHADOW DIAGRAM - JUNE 21st 3pm
Scale

<div>n+b</div>	<div>22 Fieldings Way Ulverstone, Tasmania Australia 7315</div> <div>m 0417 134 369 e nick@nplusb.com.au License No. 047538582 ABN 946 222 219 16</div>	<div>Issued As</div> <div>PLANNING</div> <div>Scale A3</div> <div>©COPYRIGHT THESE DRAWINGS AND DESIGNS AND THE COPYRIGHT THERE OF ARE THE PROPERTY OF NPLUSB DESIGN AND MUST NOT BE USED, RETAINED OR COPIED WITHOUT THE WRITTEN PERMISSION OF NPLUSB DESIGN. ABN 946 222 219 16</div>	<div>Revision</div> <div>No. Date Description</div> <div>A 19/10/21 Issued as PLANNING</div> <div>DO NOT SCALE OFF PLANS ALL DIMENSIONS ARE IN MILLIMETERS CONFIRM ALL DIMENSIONS ONSITE ALL WORK RELEVANT NCC & AS</div>	<div>Project</div> <div>PROPOSED RESIDENCE</div> <div>Location</div> <div>49 WENVOE STREET, DEVONPORT</div> <div>Client</div> <div>ANTHONY SMITH & SANDRA EDWARDS</div>	<div>Sheet Title</div> <div>SHADOW DIAGRAM 3 OF 3</div>				<div>Sheet Number</div> <div>A127</div> <div>/ A123</div>
					<div>Drawn</div> <div>NJB</div>	<div>Issue Date</div> <div>19/10/21</div>	<div>Project No.</div> <div>P18084</div>	<div>Revision</div> <div>A</div>	

From: Steven Broadby <sabroadby@gmail.com>
Sent: Monday, 21 March 2022 8:14 PM
To: Devonport City Council
Subject: Attn General Manager re Representation PA2021.0166 Application for Planning Permit
Attachments: council letter PA2021.0166.docx

Good morning,

Please find attached for the attention of the Devonport City Council General Manager our representation in relation to Application for Planning Permit PA2021.0166

We appreciate the opportunity to lodge this representation and hope for a positive outcome.

Kind regards
Steven & Vanessa Broadby
47 Wenvoe Street
Devonport 7310

Tel 0418 125983

The General Manager
Devonport City Council
PO Box 604
Devonport 7310

21st March 2022

47 Wenvoe Street
Devonport 7310

Re PA2021.0166 - Application for Planning Permit

Dear General Manager

We make the following representation regarding the above mentioned planning application for 49 Wenvoe Street Devonport.

We own and have resided at 47 Wenvoe Street since 2004.

We note many references to our home in the application as justification for the non-compliant design at 49 Wenvoe Street with reference to height and shading.

We're sure our home which was built in the 1960's complied with all relevant regulations at the time. We expect council will require a home built in 2022 to also comply with current regulations, not be backdated to applicable regulations in the 1960's.

Also to note – our home is a 2 story house (not 3 as stated in their application). The top floor is 1600mm below the garage /street level. The foundation provides a space for garden tools only and we consider our home is well proportioned.

Our concerns regarding the new home proposed for 49 Wenvoe Street are;

- We don't believe the home design is consistent with the area where the majority of homes were likely built prior to the 1960's.
- The design on the Wenvoe St side is consistent with any new /modern home but the east side is extremely disproportionate. It has an "odd" mix of poles, abnormally high ceiling height (downstairs) with an oversized roller door, and the top floor will be significantly above all neighboring properties.
- Despite comments to the contrary, no effort has been made to limit the height of the top floor which protrudes directly from street level toward the east. Most other homes in Wenvoe Street are stepped with the topography which provides for normal design proportions.
- The current design will have substantial impact on our privacy, the planned location and intentional elevation of the living room and balcony will have clear views into our existing dining/living areas plus looking directly down into what is currently a very private back yard. It appears their floor height is approximately 1600mm above our top floor level exacerbating the impact on our privacy.
- We believe if this home is built as per the current plan it will have a significant negative impact on the value of our home.

We also request your consideration of the stability of the land since the illegal excavation that occurred previously (maybe 25 years ago) at 30 & 31 Formby Road (directly below 49 Wenvoe Street).

It was our understanding that some level of restriction had been placed on any future developments at 49 Wenvoe Street due to the undermining that occurred and has only ever been hastily stabilised with placement of large rocks. This information came from a previous owner of the block in 2005 who offered it to us at 50% of the value due to her belief/advice it couldn't be built on.

Thank you for the opportunity to lodge this representation.

Yours Sincerely

Steven and Vanessa Broadby

Office use
Application no. _____
Date received: _____
Fee: _____
Permitted/Discretionary

Devonport City Council

Land Use Planning and Approvals Act 1993 (LUPAA)

Tasmanian Planning Scheme - Devonport

Application for Planning Permit

Use or Development Site

Street Address: 547 FORTSIDE RD FORTSIDE TAS 7310

Certificate of Title Reference No.: 242032/1

Applicant's Details

Full Name/Company Name: KENTISH CONSTRUCTION & ENGINEERING CO PTY LTD

Postal Address: PO BOX 21
SHEFFIELD 7306

Telephone: 64911686 [contact is NIGEL BEEKE]

Email: admin@treloartransport.com.au

Owner's Details (if more than one owner, all names must be provided)

Full Name/Company Name: JR & AR TRELOAR SUPERANNUATION FUNDS.

Postal Address: PO BOX 21
SHEFFIELD 7306

Telephone: 64911686

Email: tpeck@treloartransport.com.au



ABN: 47 611 446 016

PO Box 604

137 Rooke Street

Devonport TAS 7310

Telephone 03 6424 0511

www.devonport.tas.gov.au

council@devonport.tas.gov.au

Sufficient information must be provided to enable assessment against the requirements of the planning scheme.

Please provide one copy of all plans with your application.

Assessment of an application for a Use or Development

What is proposed?: EXPANSION OF AREA OF MINING LEASE TO BE
ADDED TO EXISTING INERT LANDFILL. NOTE: THERE IS NO
INCREASE IN THE VOLUME OF THE ACTIVITY.

Description of how the use will operate: SEE ATTACHED ENVIRONMENTAL EFFECTS
REPORT.

Use Class (Office use only):

Value of use and/or development\$ 0

Notification of Landowner/s (s.52 Land Use Planning and Approvals Act 1993)

If land is not in applicant's ownership

I, NIGEL BEEKE [FOR KENTISH CONSTRUCTION & ENGINEERING (2 PTY LTD)] declare that the owner/s of the land has/have been notified of my intention to make this application.Applicant's signature: J BeekDate: 29/01/2021

If the application involves land owned or administered by the Devonport City Council

Devonport City Council consents to the making of this permit application.

N/A

General Manager's signature: _____

Date: _____

If the application involves land owned or administered by the Crown

Crown consent must be included with the application.

N/A

Signature

I apply for consent to carry out the use and development described in this application. I declare that all the information given is true and correct. I also understand that:

- if incomplete, the application may be delayed or rejected; and
- more information may be requested in accordance with s.54 (1) of LUPAA.

PUBLIC ACCESS TO PLANNING DOCUMENTS - DISCRETIONARY PLANNING APPLICATIONS (s.57 of LUPAA)

I understand that all documentation included with a discretionary application will be made available for inspection by the public.

Applicant's signature: J BeekDate: 29/01/2021

PRIVACY ACT

The personal information requested on this form is being collected by Council for processing applications under the Land Use Planning and Approvals Act 1993 and will only be used in connection with the requirements of this legislation. Council is to be regarded as the agency that holds the information.

Fee & payment options

DD**Pay by Direct Deposit** – BSB: 067-402 Account No. 000 000 13 – Please quote your application number.**Pay in Person at Service Tasmania** – Present this notice to any Service Tasmania Centre, together with your payment. See www.service.tas.gov.au for opening hours.**Pay by Phone** – Please contact the Devonport City Council offices on 64240511 during office hours, Monday to Friday.**Pay by Post** – Cheques should be made payable to Devonport City Council and posted to PO Box 604, Devonport, Tasmania, 7310.

**RESULT OF SEARCH**

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

SEARCH OF TORRENS TITLE

VOLUME 242032	FOLIO 1
EDITION 2	DATE OF ISSUE 13-Jan-2010

SEARCH DATE : 29-Nov-2021

SEARCH TIME : 03.07 PM

DESCRIPTION OF LAND

Parish of NORTHAM, Land District of DEVON

Lot 1 on Plan 242032

Derivation : Whole of Lot 38463 Gtd to W K Williams, M J
Williams & G H Ertler

Prior CT 3872/86

SCHEDULE 1M248514 TRANSFER to ANN LOUISE TRELOAR and JOHN ROLAND
TRELOAR Registered 13-Jan-2010 at noonSCHEDULE 2

Reservations and conditions in the Crown Grant if any

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

OS D 4.35

ANNEXURE TO CERTIFICATE OF TITLE

VOL.

3872

FOL.

86

Recorder of Titles



REGISTERED NUMBER

242032

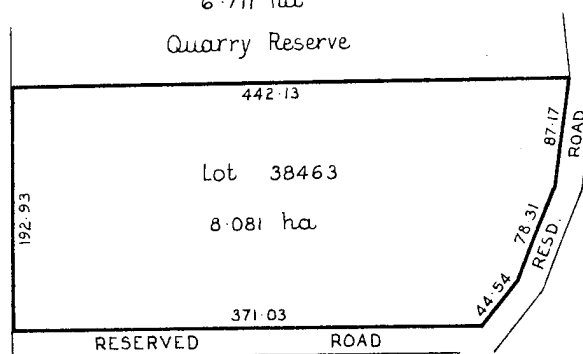
Lot 1 of this plan consists of all the
land comprised in the above-mentioned
cancelled folio of the Register

Whole of Lot 38463 Granted to
W.K. Williams, M.J. Williams & G.H. Ertler

Meas. in Metres

PH. NORTHAM

6.711 ha
Quarry Reserve





Forthside Inert Landfill

Environmental Effects Report

Issue	Date	Recipient	Organisation
Draft 1	6/6/20	JR, CT, NB	Treloar Transport
Draft 2	2/7/20	JR, CT, NB	Treloar Transport
Version 1	2/7/20	EPA Assessments	Environment Protection Authority

Treloar Transport

Forthside Inert Landfill

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Forthside Inert Landfill

PART A – PROPONENT DETAILS

1. Scope

This Environmental Effects Report (EER) provides information for the Regulator (EPA Tasmania) and other parties to assess the proponent's, Treloar Transport (TT), plans to expand their landfill operations at the Forthside Inert Landfill on lease 1704 P/M (there another lease on site, 8M/2015, but the landfill footprint will not be on this lease). TT plans to incorporate some reuse and recycling activities into their inert landfill operations at the Forthside site. This development application does not include an increase in the permitted waste receipt of 15,000 tonnes per year (12,000 tonnes deposition). This proposal seeks an expansion of the land size by around 50%.

The proposed operations include the following activities:

- Movement and placement of material by excavator or wheel loader
- Transport of material by trucks

2. Proponent

Table 1 - Proponent Details

Legal entity	
Trading name	KENTISH CONSTRUCTION & ENGINEERING CO. PTY. LTD
Registered address	26 Claude Road, Sheffield 7306
Postal address	PO Box 21, Sheffield 7306
ABN	83 009 541 986
ACN	009 541 986
Contact Name	John Treloar
Phone	03 6491 1686
Mobile	0428 140 466
Email	admin@treloartransport.com.au

PART B – PROJECT DESCRIPTION

1. Description of proposed activity

Sections of the lease have been used as a landfill site for construction, demolition and solid inert wastes since 2010. Typically, material will include excess spoil or excavated unsuitable material and will comply with the listing of materials suitable for a Category A Landfill in the *Landfill Sustainability Guide, 2004*.

The amount of space used to operate the landfill to accommodate recycling and reuse has been exhausted, with the need for a significantly larger portion of the lease required to be added to the land area.

1.1. Operating method

1.1.1. Prevention of unauthorised access

Forthside Road is the only access to the site, which is surrounded by steep, heavily forested terrain, precluding any other access. Note that traffic flows on this road are minimal as it is a "No Through Road" with only one residence past the Mining Lease.

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Forthside Inert Landfill

The entrance to the site off Forthside Road is secured out of hours by a substantial locked gate.

1.1.2. Screening of loads

Approximately 50% of the loads will be from TT civil construction projects. This material will be under the control of the company from source to disposal, with the originating project supervisor screening the material at generation.

The balance of the incoming materials will be from other civil contracting firms and building contractors (50%). The site is not manned at all times, non-Treloar waste is either inspected on site by the operator from the Hillcrest site by appointment or the contractor goes to the Hillcrest yard and collects the key where the load is inspected and docketed for disposal.

Most loads will be inspected by the operator (from Hillcrest) prior to dumping, with the customer's details obtained for future reference if a problem is found with the load later. TT commits to removing from site to an appropriate landfill any unsuitable loads dumped accidentally.

1.1.3. Load sorting

It is likely that around 20% of the waste (3000 tonnes) can be recycled for reuse, particularly concrete rubble. The cost to recycle concrete can be more expensive than selling virgin material, therefore concrete recycling is only undertaken when the client is happy to bear the cost of using recycled material. Treloar estimates that in any given year, 5% to 10% of the waste is reused, and maximum of 20%.

The seasonal variability depends on the job location, how much rain is received during winter. Based on past records, Treloar expects approximately 60% of disposal occurs during the summer months and the remainder during winter.

1.1.4. Operating hours

Operating hours will be as per the existing extractive operation, 0700 to 1700 Monday to Friday and 0800 to 1200 Saturday. The site will not be worked on Sundays or Public Holidays, unless an exceptional circumstance exists, and permission is obtained from the EPA to work on these days as a short-term measure only.

1.1.5. Waste types and quantities involved

The landfill typically receives material complying with the listing of materials suitable for a "Category A Landfill" in the *Landfill Sustainability Guide, 2004*.

Materials will include:

- Rock
- Earth
- Clay
- Soils
- Roadbases and gravels
- Inert demolition rubble – bricks, concrete

Based on historical deliveries at the Hillcrest Road landfill, it is anticipated deliveries at the Forthside Road landfill will amount to 10,000m³ (15,000 tonnes) per annum, with perhaps 20% of the material being reusable by Treloar Transport, leaving a net importation of 12,000 tonnes. The relative composition of the received materials is variable depending on projects under development.

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This results in a net delivered volume of 8,000m³ (12,000 tonnes) per annum. However, when this material is delivered it is at an average bulk density of 1.5t/m³, compaction from trucks and the loader working over it will increase its bulk density to 2.0t/m³, reducing the volume to 6,000m³. This proposal is for a 10-year project life (120,000 tonnes), although the site has a potentially longer life as a landfill.

Received material will be dumped in 2m deep lifts and compacted by a wheel loader and trucks driving over the dumped material. If some material is failing to compact successfully, then a TT roller can be transported onto site to compact the material further.

The likely composition of waste is:

- 70% soil, rock, earth, clay.
- 20% concrete, bricks (generally stored for reuse)
- 8% timber
- 2% steel, metal that goes to recycle.

1.1.6. Record keeping procedures

Each load is entered onto a manual docket, both TT operators and contactors use the manual dockets. The dockets are collated and returned to head office for entry into the TT electronic truck management system. The electronic truck management system allows for total waste quantities to be recorded for audit and billing purposes.

2. Project Area

2.1. Location Description

The site is on the crest of Porcupine Hill, which is 5.1km southeast of the township of Forth. The site is visible from Sprent Road on the western side of the quarry. The site slopes on all sides with drainage reporting to Goldie Creek either directly or via a series of unnamed tributaries. The headwaters of Goldie Creek are on the lease, with flows only occurring during periods of high rainfall. Goldie Creek reports to the Forth River.

There are no wetlands. Vegetation on the lease is *Eucalyptus amygdalina* coastal forest and woodland (Figure 2 of TASVEG layers), although 90% of the planned landfill area is cleared or disturbed.

2.2. Site Use

The site's mining history dates from the 1950's. There are a number of disused quarries in the region previously operated by Devonport City Council. The site has two quarries (now merged) which were operated by City Gravel and Graham Stubbs Pty Ltd concurrently. The Graham Stubbs quarry was on freehold land and the City Gravel lease was operated on Crown land. The combined leases 1704 P/M is now a combination of free hold and Crown land.

The site has been heavily modified by previous operations, with unsustainable landforms (steep, erodible slopes), erosion gullies, siltation of existing sediment control structures, and relatively large areas of unrehabilitated disturbed ground. TT has improved water management and planned progressive rehabilitation, which should lead to improved environmental outcomes.

The site is currently has two level 2 activities operated concurrently, the mining activity is operated on the western side of the lease. The level 2 landfill is currently operated on the south eastern part of the lease, the new proposed extension of the land for the landfill will extend the landfill to the north and reduce the current mining footprint. The areas are shown in Figure 5.

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2.3. Land Tenure

Land tenure for the leases is a mixture of private free hold owned by JR and AR Treloar Superannuation Fund and Crown Land. The proponent's super fund is the owner of the freehold portion of the lease. The land manager for the Crown Land is Sustainable Timber Tasmania (STT). The proposal is solely confined to the freehold portion of the lease.

The site plan shown in Figure 1, defines the land tenure and the mining lease boundaries.

2.4. Surrounding Land Use

The surrounding land use is Crown forest and farm land. There are several residences within one kilometre of the mining lease boundary, but all are over 500m from the mining lease boundary. Sensitive receptors in the vicinity of the lease boundary are shown in Figure 1.

2.5. Geology

The geology substrate for this area is Lts – Precambrian – Forth metamorphics - Dominantly Quartzite. Soil description is moderately well drained soils formed from Precambrian quartzite. A dark grey sapric sandy loam overlies a greyish brown loamy sand and a massive, bleached sand densipan. There are abundant quartzite stones throughout the profile. The area was mapped by Mineral Resources Tasmania (MRT) in the state geological survey before 1965. A plan showing regional geology is shown in Figure 3.

Erodibility is rated as Moderate to High.

3. Map and Site Plan

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Forthside Inert Landfill

3.1. Site Plans

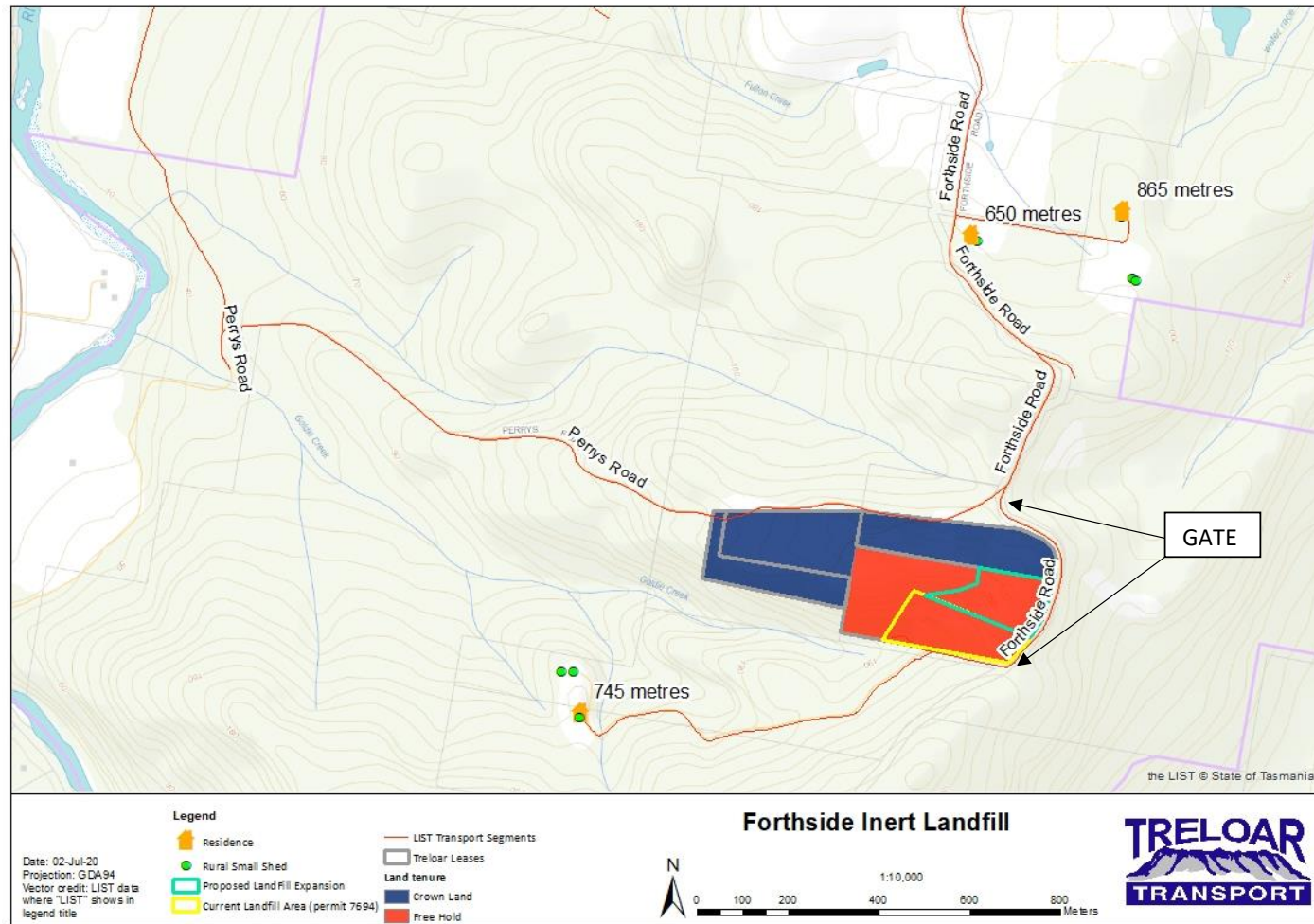


Figure 1 - Site Plan showing land tenure and surrounding features such as sensitive receptors

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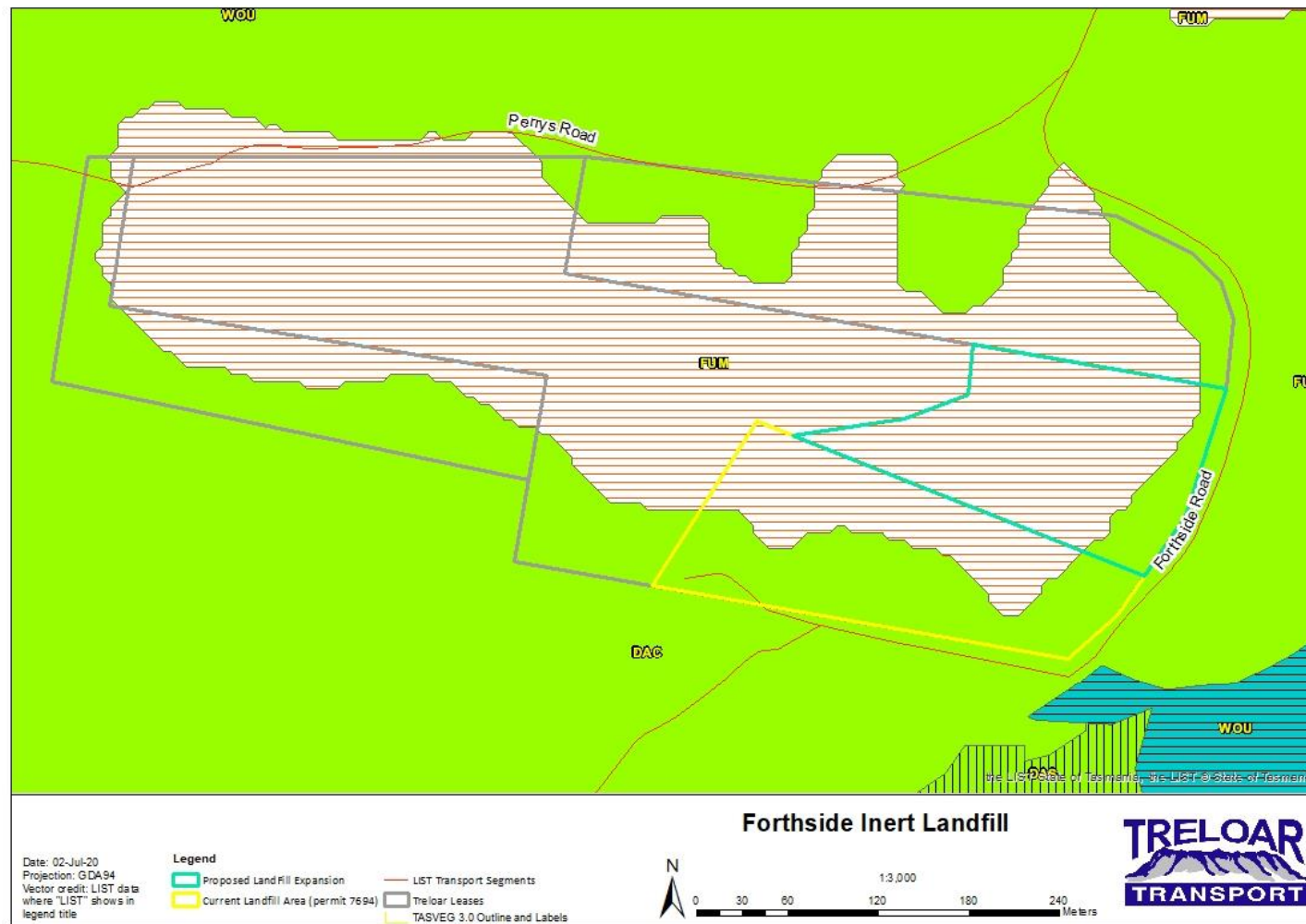


Figure 2 - Plan showing TASVEG 3.0 active layers showing FUM: the disturbed area and DAC: Eucalyptus amygdalina coastal forest and woodland

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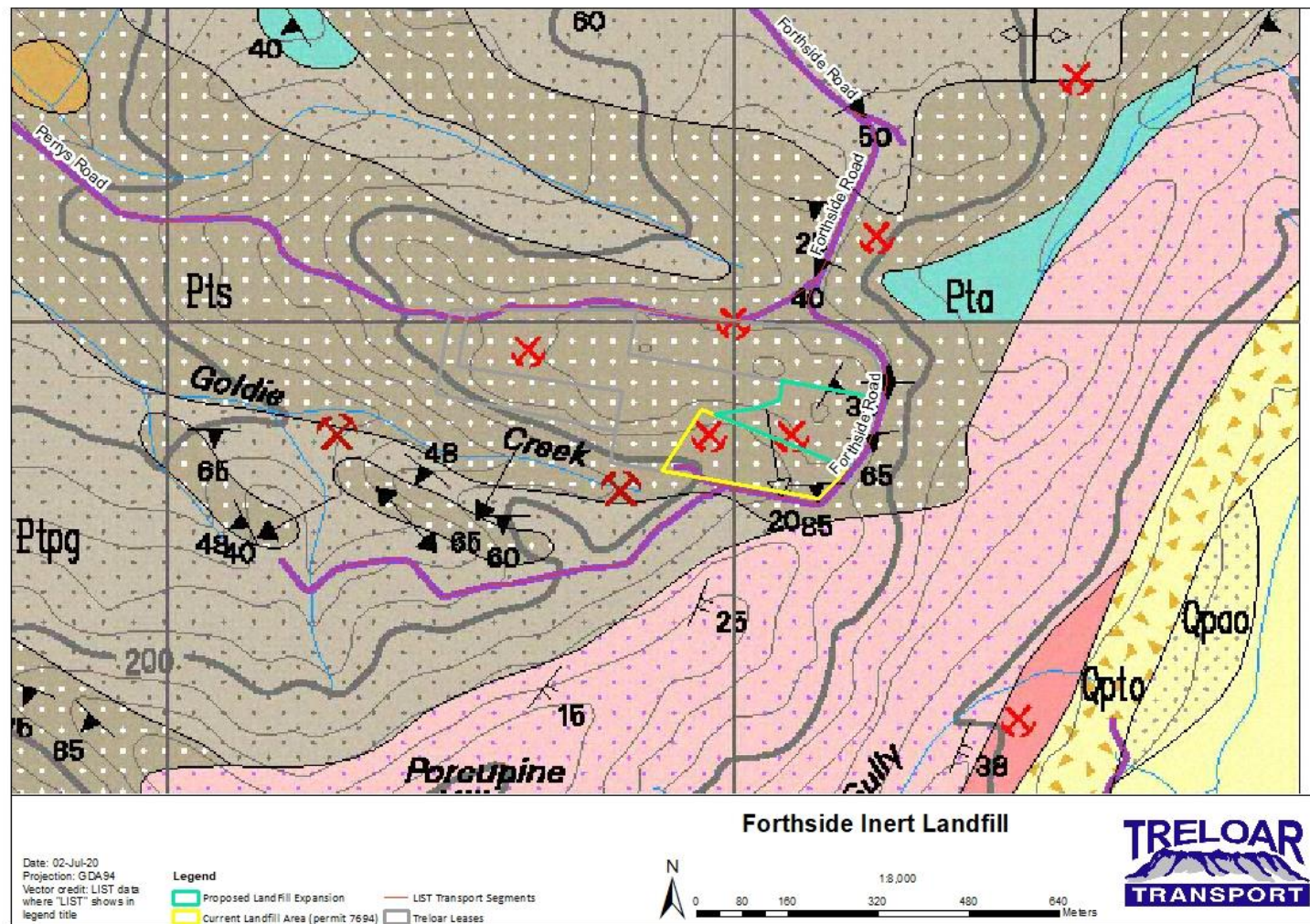


Figure 3 - Regional geology, showing the lease area is all Pts: Dominantly Quartzite

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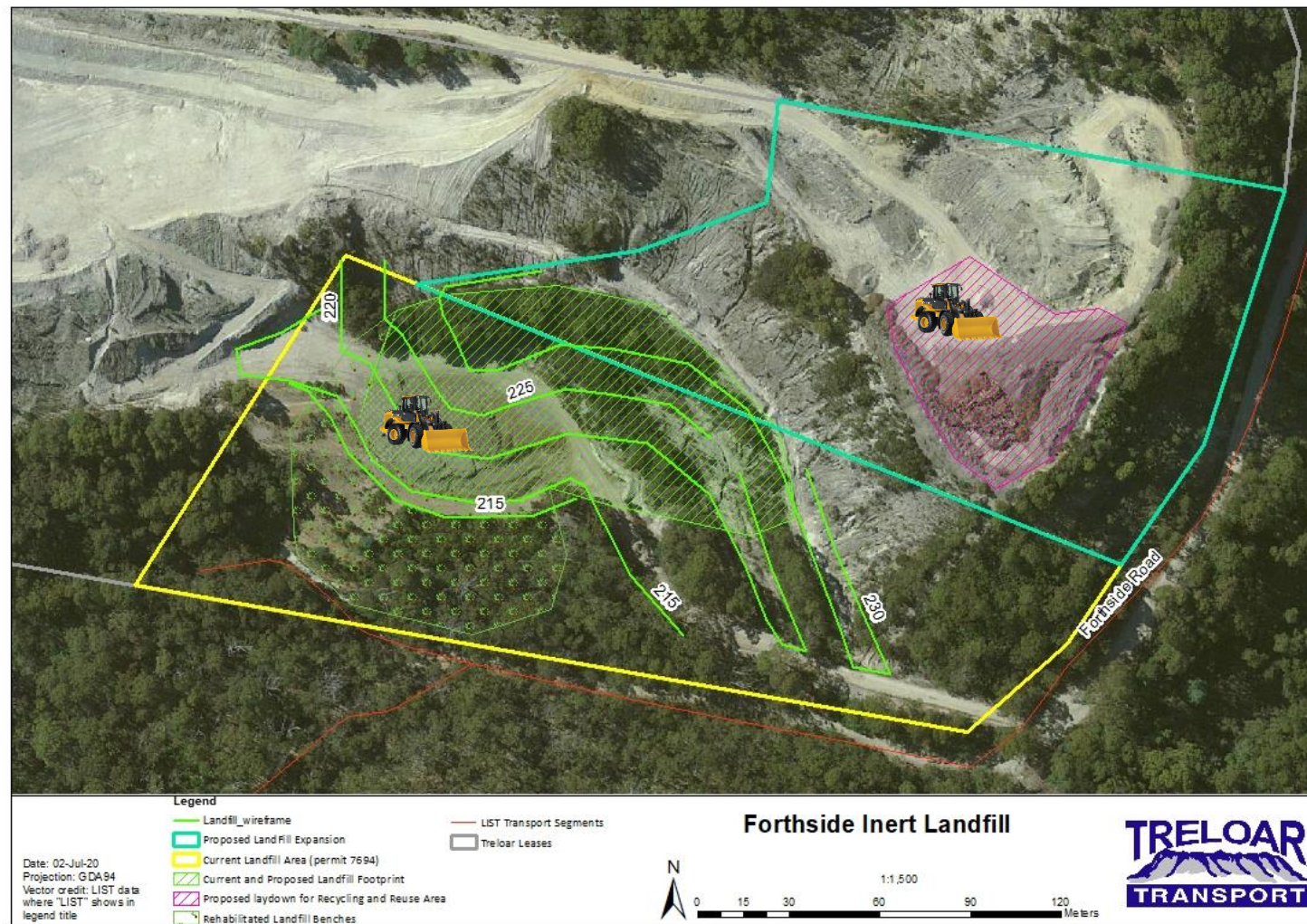


Figure 4 - Landfill Layout with rehabilitated section shown, landfill wireframe and reuse/recycling area on the upper level. Load image shows areas of machinery operation.

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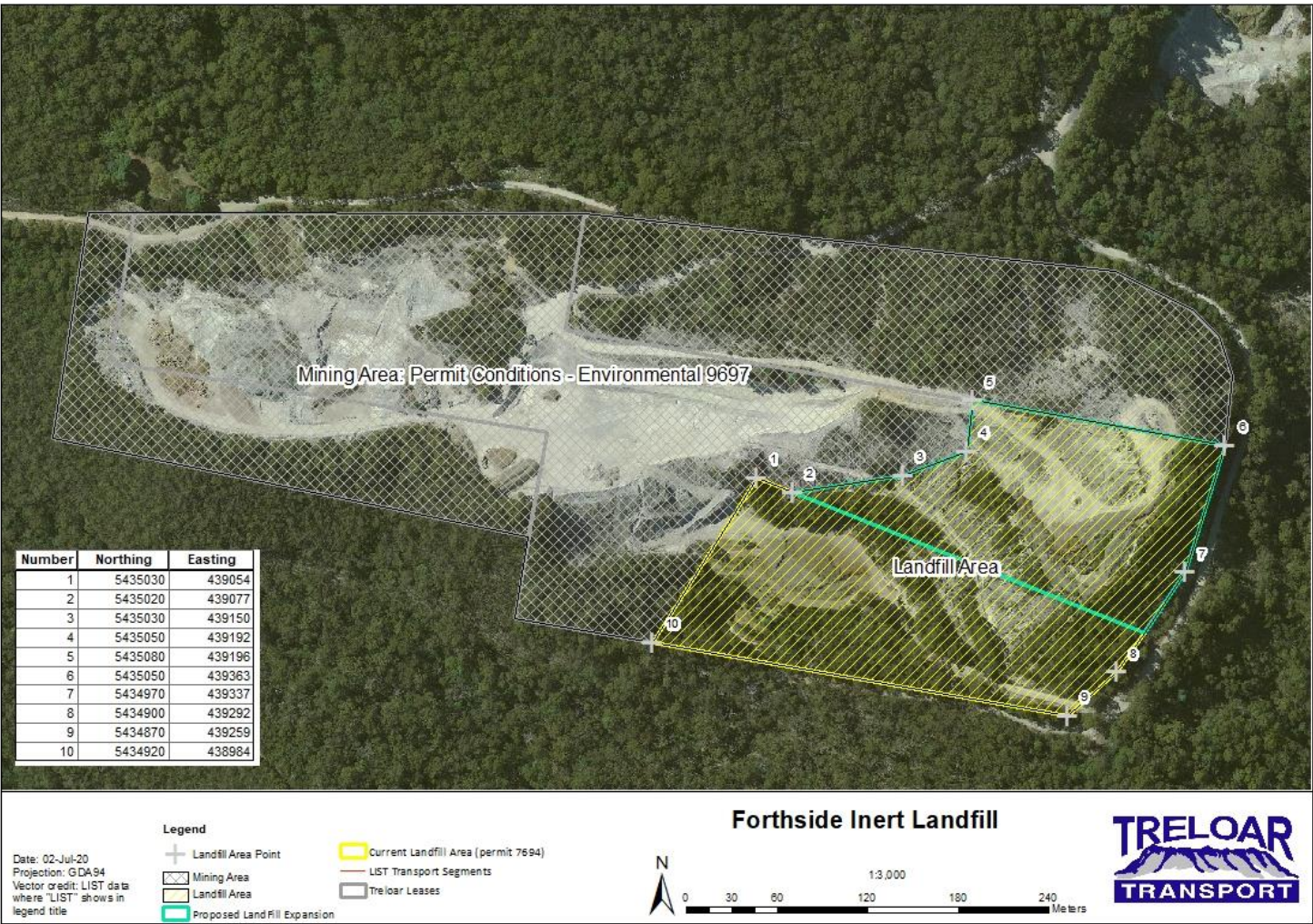


Figure 5 - Forthside mining and landfill areas. The landfill area shading is underlaid with the current (yellow) land area and proposed new land addition (blue outline)

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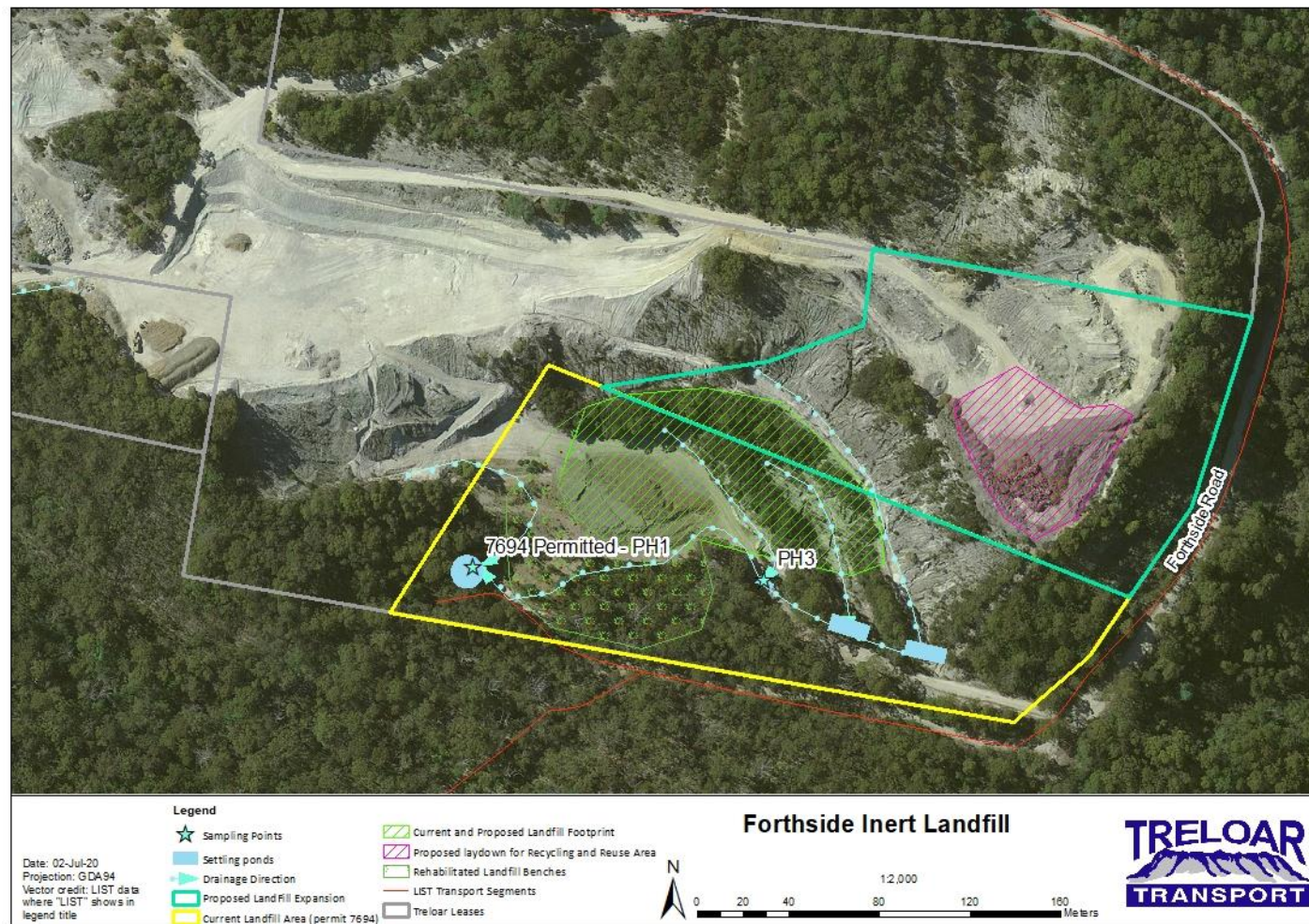


Figure 6 - Drainage plan showing both the quarrying and landfill sampling points. The quarrying point PH3 will have to be shifted to be above the landfill as it gains height

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4. Rationale and Alternatives

The site was chosen due to the existing landfill and adjacent quarrying activities. The proposed expansion of the land size does not sterilise any resource for the quarrying activity, as the additional area will be used as a recycling and sorting area. The lower part of the landfill does need this increase in land size, however the growth of the landfill is over area of the quarry which the marketable material has been removed from. The construction of the landfill against the steep and eroded bank will improve drainage and erosion outcomes for the site over the life of the quarry.

5. Planning information

The lease is within the Devonport City Council locality. The council has advised that TT will be required to submit a development application for the expansion of the land area required to conduct the landfill operations under the *Land Use Planning and Approvals Act 1993* (LUPAA).

The site is classified as a Rural Resource Zone under the *Devonport Interim Planning Scheme 2013*. The scheme classifies 'Recycling and waste disposal' as a discretionary use within the Rural Resource Zone.

6. Existing activity

The project is located on mining lease 1704 P/M, which is located at the end of Forthside Road, in the locality of Forthside, 5.3 km SSE of Forth. The lease contains an active Level 2 quarry, licensed for up to 20,000m³ of extraction per annum under permit conditions – environmental 9697. The landfill currently operates with permit conditions – environmental 7694.

There is a history of extractive industries in this locality dating back to perhaps the 1950s, and there are a number of disused quarries previously operated by Devonport City Council adjoining this site, some under rehabilitation.

The site itself is heavily impacted by previous operations, with unsustainable landforms (steep, erodible slopes), erosion gullies, siltation of existing sediment control structures, and relatively large areas of unrehabilitated disturbed ground. TT have significantly improved the drainage around the site and the landfill is further stabilising the slopes and placing material which is far more suitable for rehabilitation than what is currently present on site. The lower portion of the landfill already rehabilitated has returned nicely to self-sustaining native vegetation.

6.1. Summary of monitoring results

Table 2 shows the historic sampling results from the currently permitted sampling point PH1, location of this site is shown in Figure 6.

Table 2 - summary of monitoring results from the permitted sample point at PH1

LAB						ALS	ALS	ALS	ALS	ALS
Date	07-08-12	07-08-12	15-05-13	21-07-14	12-06-15	27-09-17	01-08-18	19-08-19	26-11-19	28-01-20
Time	7:45	9:45	11:15	9:30	9:00	14:30	16:15	12:00		
Field pH (litmus paper)									dry	
pH	4.2	4.5	5	7.7	8	6.15	6.65			7.09
Conductivity - (µS/cm)	246	75	120	877	1080	120.2	414.2			250
TEMP (°C)						8.2	8.1	5.3		

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Disolved Solids	196	81	100	576		229				
Turbidity (NTU)	36.2	22.4	48	8.8	18			17.4		39.9
Total Alkalinity as CaCO ₃ - (mg CaCO ₃ /L)	<5	<5	8	294	155	22	39	13		11
Hydroxide Alkalinity as CaCO ₃ (mg CaCO ₃ /L)						<1	<1	<1		<1
Carbonate Alkalinity as CaCO ₃ - (mg CaCO ₃ /L)						<1	<1	<1		<1
Bicarbonate Alkalinity as CaCO ₃ - (mg CaCO ₃ /L)						22	39	13		11
Acidity as CaCO ₃ - (mg CaCO ₃ /L)						10	5	8		15
Total Disolved Solids (TDS) - (mg/L)	133	51	125	560	570		286	220		210
Total Suspended Solids (NFR) - (mg/L)	24	<5	8		15	31	<5	5		<5
Sulfate as SO ₄ - Turbidimetric (mg/L)						16	95	30		
Total Nitrogen (TN)	2.42	0.51	1.84	1.32	1.2	0.9	0.9	0.2		1.4
Total Phosphorus (TP)	0.25	<0.05	<0.05	0.19	<0.1	0.05	0.38	0.01		0.05
Total Ammonia Nitrogen (TAN)	0.36	<0.05	0.07	<0.05		0.68				
Nitrite NO ₂	<0.005	<0.005	<0.005	<0.005	<0.1	0.01	<0.01	<0.01		<0.01
Nitrate NO ₃	1.55	0.094	1.32	<0.005	0.37	0.2	0.36			0.15
Chloride			19	82	79					
Bi Carbonate HCO ₃					190					
Carbonate CO ₃					<1					
Hydroxide OH					<1					
Ammonia (NH ₄)					<0.1		0.13	0.08		0.08
Nitrite + Nitrate as N						0.21	0.36	0.11		0.15

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Total Kjeldahl Nitrogen as N						0.7	0.5	0.1		1.2
------------------------------	--	--	--	--	--	-----	-----	-----	--	-----

6.2. Public complaints

Table 3 shows a list of complaints with respect to the landfill and quarrying activities at TT operated Forthside site.

Table 3 - shows public complaints for both quarrying and landfill operations at TT facility, Forthside

Location	Date	Details of Incident	Investigation	Action / Resolution	Reporting person and details
Forthside	01/03/2019	Complaint to EPA of activity in the quarry prior to 0700	Operators were moving concrete from quarry to landfill. Had started early on own initiative c. 0600 to complete works on this day, but did not give due recognition to Permit conditions	Operators counselled and reminded of importance of compliance with Permit conditions.	Richard Webster EPA
Forthside Road	27/06/2019	Dog run over by truck	John Treloar spoke to owner and apologised. Owner admitted driver could have done nothing to avoid dog. Truck drivers reminded to watch speed on Forthside Road. Requesting a 40kph truck speed limit officially from DCC	Devonport Council did not want to erect a sign, TT have advised all their drivers to pass this area at 40km/h and added it to their induction.	Andrea Griffiths 0418525 848

6.3. Breaches of regulatory approvals

TT have been reprimanded for not water sampling as their regulatory approvals, although there has been no official breach noted. TT understood if there was no water present during routine sampling that they did not need to undertake sampling. Sampling is now conducted per regulatory approvals.

6.4. Contraventions of law

There have been no contraventions of law.

PART C – POTENTIAL ENVIRONMENTAL EFFECTS

1. Flora and Fauna

There will be no requirement to strip vegetation as part of the proposal. Some young, poor quality regrowth maybe disturbed. TT engaged North Barker Ecosystem Services (NBES) to conduct a vegetation assessment and aerial inspection of two Wedge Tailed Eagle (*Aquila audax fleayi*) WTE nests which were identified within 1km of the mining lease.

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NBES identified two vegetation communities within the lease; dry *eucalyptus amygdalina* coastal forest and woodland (DAC) and extra-urban miscellaneous (FUM). NBES described the DAC being “poor quality examples” due to the soil type. The vegetation surrounding the lease is better quality and will not be affected by the proposed development. FUM in the area has been mapped due to the long mining history on the lease and species are primarily exotic species which have colonised from neighbouring vegetation communities.

NBES recorded 31 vascular plant species during the field survey with a listing of plants included in its report (included as North Barker Report); none of these species were listed as threatened in the *Threatened Species Act 1995* (TSPA). NBES concluded that threatened flora species within 5km of the lease have a low likelihood of impact from this proposal. NBES identified no threatened fauna species on the site during their visit, though a number have been identified within 5km of the lease. These species are not considered to have viable habitat on the lease and the operations are unlikely to affect the persistence of the species in the region.

NBES conducted an aerial WTE survey for nests (RND 922 and 1737) identified in 2008. The survey concluded that the WTE nests have fallen. No eagles were noted on the site on the day of the survey. Nesting habitat is suboptimal in the area surrounding the lease. NBES provide a WTE habitat model in figure 3 of its report for the area surrounding the lease.

NBES identified two declared weeds; Spanish heath (*Erica lusitanica*) and pampas grass (*Cortaderia* species), and three environmental weeds; radiata pine (*Pinus radiata*), blue periwinkle (*Vinca major*), and arum lily (*Zantedeschia aethiopica*) on or close by the site. NBES presents a map of their distribution in figure 2 of its report. TT will add these occurrences to its annual weed management program. The quarry has been assessed for *Phytophthora cinnamomi* (PC) by Sue Jennings of STT with some signs present. The PC report has been included as an appendence to the NBES report. TT has a management plan in place to control the spread of PC business wide. TT effectively manage the PC on many of its leases under the close guidance of Sue Jennings.

TT’s Weed and PC management plan is included as Appendix D.

2. Rivers, creeks, wetlands and estuaries

The landfill operations are positioned on the southern slopes of Porcupine Hill, a drainage plan is shown in Figure 6. The drainage to the south reports to Goldie Creek and drainage to the north, from the quarrying activity, reports to an unnamed tributary of Goldie Creek. Goldie Creek discharges into the Forth River downstream of the lease. All drainage from the site travels via a network of settling ponds. A portion of the drainage network from the quarry operations flows past the permitted landfill site, sampling from PH1 is currently in accordance with the landfill permit. The drainage network is commonly dry in the summer. The drainage network has not been designed to a specific standard, however it is likely to cater for a minimum of 1:20 year flood event.

The settling ponds will be inspected and cleaned out periodically. PH2 and PH3 area associated with the quarrying permit and is included in this proposal for information only. As the landfill progresses, the sampling point PH3 will need to move upslope so that the drainage is from the quarry only. This is unlikely to occur for many years. The likelihood of impacts to Goldie Creek are very low due to there being a network of settling ponds and an expected low sedimentation of water within the network. Table 4 shows the coordinates for the proposed sampling locations.

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Forthside Inert Landfill

Table 4 - shows northing and easting for sampling locations

Site Name	Northing	Easting
7694 Permitted - PH1	5434938.9	439020.7
PH2	5435168.0	438635.0
PH3	5434933.2	439149.2

3. Significant Areas

The lease is partially within a permanent timber production zone and adjacent to Porcupine Hill Regional Reserve. The regional reserve lies 120m to the west and 560m to the south. The regional reserve is managed by Parks and Wildlife Service (PWS). Regional reserves are designed for the preservation of natural resources while allowing them to have controlled removal of the land's natural resources.

4. Air Emissions

Dust emissions will occur because all operating surfaces in the quarry are gravel. There are no metal or other contaminants in the host rock, therefore dust emissions will be benign in nature. Potential sources of dust within the operations are from:

- Stockpiling and dumping
- Road use around the landfill

The nearest sensitive receptor is 650m from the quarry Figure 1 shows this residence, the road past the residence being bitumen, the dust nuisance is expected to be negligible. The quarry is surrounded by trees which will act as a dust filter, maintaining dust emissions on the lease.

The site is in a moderately high rainfall area, with a mean annual rainfall of 965mm and over 1mm of rain on 35% of days. During periods of high dust emissions from vehicular traffic, TT will conduct dust suppression activities (watercart). The dampening of road surfaces and truck loads of material with water is an industry standard practice to address the risk of fugitive emissions that may cause environmental nuisance or harm. Vehicular traffic will be limited to 30km/h on gravel surfaces which will limit dust emissions from traffic movements.

There are no stationery sources of emissions as part of this proposal.

TT has operated the site since 2009 with no complaints with respect to dust emissions during this time.

5. Liquid Effluent

There will be no discharge of liquid effluent (excluding stormwater which is discussed above) as part of the project scope. There will be no permanent site-based amenities. During mining campaigns, transportable amenities will be installed on site with all wastes removed by a licensed contractor.

6. Solid Wastes

There will be no other solid waste produced as part of this project.

All machinery servicing which produces solid wastes will be conducted at the TT workshop in Sheffield. Waste generated by repair of equipment breakdowns is removed from site after the repairs are conducted. Waste generated by workers is removed at the end of the shift each day, no waste bins are provided on site.

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7. Noise Emissions

A noise survey was conducted by Pearu Terts in April 2014. Pearu has recently revised the report using the same data against the new QCP. Pearu used three monitoring locations during his noise survey, which are shown in Figure 7. The QCP specifies noise emissions, when measured at a neighbouring sensitive receptor should not exceed the greater of:

- “the A-weighted 10 minute L90, excluding noise from the quarry, plus 5 dB(A), or
- the following levels:
 - 45 dB(A) from 0700 to 1900 hours (daytime)
 - 40 dB(A) from 1900 to 2200 hours (evening), and
 - 35 dB(A) from 2200 to 0700 hours the following day (night time)

when measured as a 10 minute Leq.¹”

The noise surveyed at the sample locations is shown in

Table 5 - noise results at sampling locations

Location Number	Description	Noise in dB(A) – Leq 90
Ambient	Private gate, 300 m from crusher	28.8
1	At 28 m from the crusher	71.8
2	Private gate, 300 m from crusher	38.0
3	House at 477 Forthside Rd	40.8

The noise report suggests that there is a high level of ambient noise due to bird calls and other environmental factors. The report determined that noise from the quarry was 44 dB(A) and is likely to comply with the QCP “daytime operating hours” of 45 dB(A) for noise requirements. The noise survey was conducted on a calm day, which are suitable for noise measurements. The summary provided during 2017 suggested that the noise at the northern receptor would be less due to the lowering of the quarry benches since 2013.

The report suggests that the noise emissions from the quarry will comply with the QCP, the full report is attached in Appendix B.

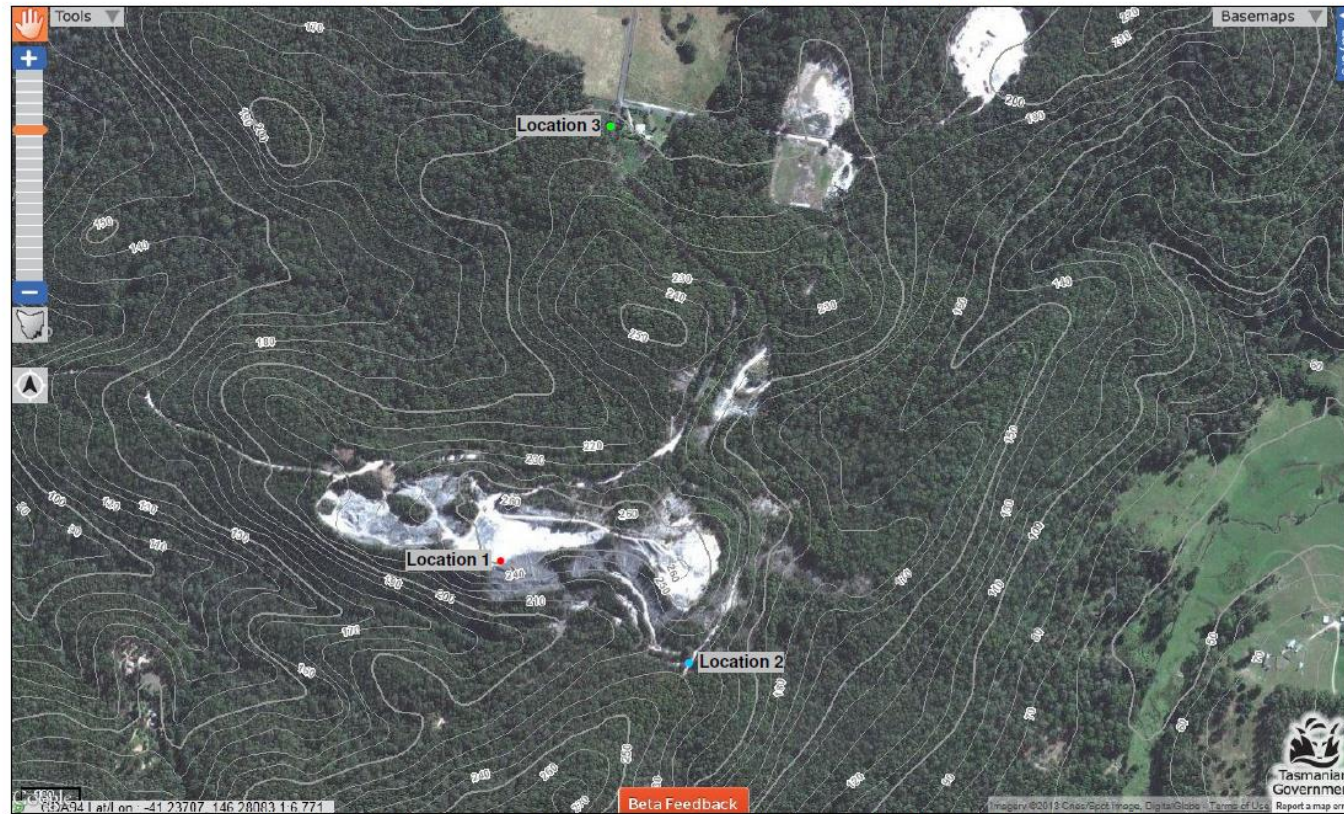
¹ Quarry Code of Practice – May 2017, pp17

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7.1. Noise survey sample locations

Location – airphoto showing quarry site, monitoring locations and surrounds



Monitoring locations plotted to reasonable accuracy. Imagery sourced from TheList 29/11/2013. Scale bar 100 m.

Note: changes may have occurred since this image was captured.

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

Figure 7 - shows the noise survey locations used in 2013

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8. Transport Impacts

A Transport Impacts Assessment (TIA) was completed by Chris Martin of CRE Tasmania and is included in Appendix C. The proposal will not cause an increase in truck movements. The TIA was conducted for the recent quarry expansion, and the content is somewhat relevant to this proposal.

Perry's Road is maintained by Devonport City Council.

9. Other off-site impacts

There are five sensitive receptors within a 1km buffer of the mining lease boundary. A plan showing the sensitive receptors is shown in Figure 1.

10. Hazardous substances and chemicals

There will be no storage of fuels and oils on site. All fuel and oil is transported onto site each day by light vehicle. Each vehicle is equipped with spill kits and TT has a program in place to train employees of the use of spill kits. The quantity of fuel and oil brought on to site is a maximum of 420L in a ute mounted tank, which is not of significant quantity to cause environmental harm should there be a spill.

Chemicals for the purpose of weed treatment will be on site during the annual weed management program. Contractor chemical storage will be assessed prior to work commencement on site to ensure that chemicals are stored appropriately.

No controlled wastes are stored or brought to site. Contractors wishing to dispose of controlled waste are advised to use other facilities which are licenced for controlled waste disposal.

11. Site Contamination

There are no previous activities on site which have caused site contamination to the soil or groundwater.

12. Sustainability and climate change

Operation of mobile plant will cause greenhouse gas emissions. Machinery owned and operated by TT is modern and well maintained, which will ensure that minimum emission will be released into the environment. Water use on site will be minimal (for dust suppression).

TT have been reviewing their operations with regard to Tasmania's *climate change strategy*. TT currently have embedded a number of practices into their workflows to ensure that they consider climate change, which are listed below:

- Mobile plant exhaust emissions will be controlled by maintaining plant exhaust systems to the manufacturer's recommendations.
- TT takes advantage of back loads where possible to reduce their empty travel and green house gas emissions.
- TT have recently refitted their office to modern standards, including installation of more efficient heating and cooling capabilities.
- TT keenly support local community organisations, and will start adding sustainability to their list of considerations when funding such organisations

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13. Cultural Heritage

The heritage register has been consulted and there are no heritage features within the vicinity of the lease. The closest heritage features shown on the LIST are in the Forth township over 4.5km away.

A search was conducted on the aboriginal heritage website, which did not identify any registered Aboriginal relics or apparent risk of affecting Aboriginal relics. An *Unanticipated Discovery Plan* will be kept on record by TT to ensure it complies with the Act should any aboriginal relics be uncovered during operations.

14. Sites of High Public Interest

There are no sites of high public interest nearby.

15. Monitoring

Monitoring will continue as per the current permitted activity. The landfill monitoring is currently permitted for PH1 in the location shown in Figure 6, with PH2 and PH3 affecting the quarrying operation.

16. Rehabilitation

16.1. Final landform

Historical use of the site has resulted in the current heavily disturbed, steep terrain profile. TT intends to work the quarry component of the operation in a manner designed to terrace the existing steep slopes, minimizing erosion potential, and ensuring long term stability by reducing the overall slope angle.

The inert waste landfill will be at the toe of the quarry, and will conform with this rehabilitation principle, consisting of a series of terraces, 7m wide, backsloped at 1:20 into the hill side (to assist in slowing waterflow) at 5m vertical intervals, with the slopes between at 1v:3H. This results in a final overall slope angle of 15°, which is comparable to the existing natural terrain. It will be much flatter than the existing disturbed quarry which has slopes greater than 45° in some sections. This relatively flat angle, plus water management measures directing flows to designated rock lined channels, will ensure geotechnical stability.

The footprint of the landfill after ten years of operation will be 6000m².

Final land uses are limited by the steepness of the site and the surrounding terrain, with the most appropriate use being wildlife habitat.

Completed landfill sections will be covered with 0.8m of selected clean fill and topsoil, as per the Landfill Sustainability Guidelines for inert waste landfill. This material will be sourced from delivered materials.

As the landfill will commence on the western extent of the bottom bench, progressive rehabilitation will commence as soon as the tipping face has retreated sufficiently to enable a sufficient area of landfill to be reshaped. It is estimated approximately 2,000 m² of landfill will be rehabilitated on a yearly basis. Advice will be sought from STT on suitable local species to be spot planted, as well as a suitable cover crop to quickly develop a suitable erosion preventing ground cover.

16.2. Landfill aftercare monitoring

Aftercare monitoring will consist of:

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- Maintaining the final landform design until an acceptable level of stability is reached – i.e. adding material to remedy slumps, repairing erosion, maintaining drains and settling ponds
- Maintaining vegetation – i.e. replanting losses, weed control.
- Monitoring of surface run – off in settling ponds.

This aftercare will continue until the Regulator, in discussion with TT, agrees that a suitable level of stability and rehabilitation standard has been reached.

PART D – MANAGEMENT COMMITMENTS

No.	Commitment	Completion date	By Whom
1	Maximise the application of the waste management hierarchy, by reusing as much delivered material as is suitable for further use. Segregate useful material to aid future reuse		Management and operator
2	Install a substantial locked gate to prevent unauthorized afterhours access.		Management
3	Man the site at all times whilst accepting loads from the public, with all loads being visually screened before and after dumping.		Management and operator
4	Only accept materials from Category A of the Landfill Sustainability Guide.		Management and operator
5	Only operate the landfill according to the approved hours of operation. Seek approval from the EPA and Devonport City Council if it is deemed necessary to operate outside these hours due to exceptional circumstances.		Management and operator
6	Adopt Follow the “Tasmanian Washdown Guidelines” for vehicles being brought to site. Do not accept weed infested or <i>P cinnamoni</i> contaminated material		Management
7	Provide a water truck / trailer on site if necessary, to control raised dust.		Management and operator
8	Store no fuel or Dangerous Goods on site		Management and operator
9	Cease work if potential Aboriginal heritage items are found. Advise Aboriginal Heritage Tasmania.		Management and operator
10	Provide rehabilitation and after care of the site as per Section 16 of this EER		Management and operator
11	Impose a speed limit of 60 kph on TT trucks using that portion of Forthside Road south of the Bellamy Road junction		Management and operator

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PART E – PUBLIC CONSULTATION

The application to intensify activities at Forthside quarry have included discussions and consultation with the following surrounding residences and agencies:

- Local residents by site visit or letter where properties weren't accessible
- STT as land manager of the Crown land on the western side of the lease
- Environment Protection Authority (EPA)
- Department of State Growth - Mineral Resources Tasmania (MRT)
- Devonport City Council

This application is for a Level 2 Activity which is 'discretionary' in the Rural Resource Zone and as such the application will be advertised to the public. The EPA and the Devonport City Council will take into account all comments and representations received through the public consultation period in the assessment of this proposal.

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Appendices

- Appendix A – North Barker Ecological Services Field Survey Report (including WTE survey report)
- Appendix B – Noise Survey by Pearu Terts – Acoustics Noise Control
- Appendix C – Traffic Impacts Assessment by Chris Martin of CRE Tasmania Pty Ltd
- Appendix D – Weed and Pathogen Management Plan

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Forthside Inert Landfill

Appendix A. North Barker Report

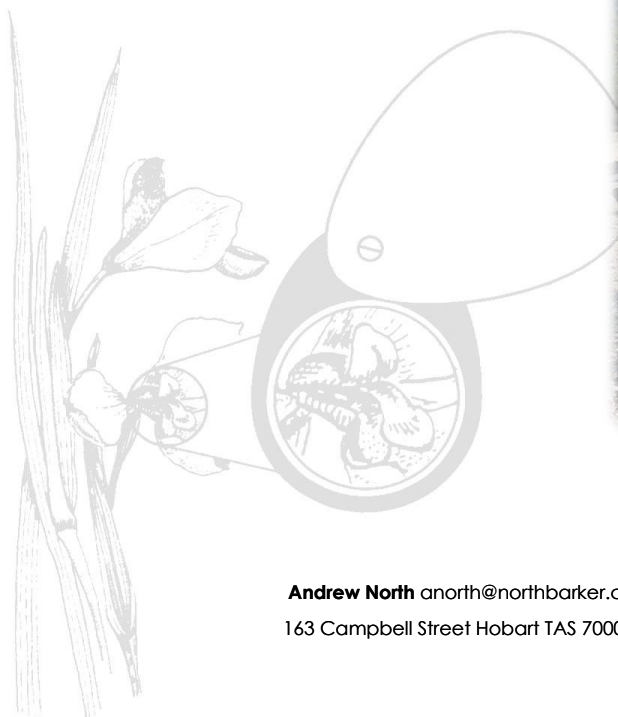


Forthside Quarry – new permit

FLORA AND FAUNA ASSESSMENT

27th July 2017

For Treloar Transport (TRE002)



Andrew North anorth@northbarker.com.au **Philip Barker** pbarker@northbarker.com.au
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Forthside Quarry
Flora and Fauna Habitat Assessment

Summary

The proponent is seeking a new permit to cover quarry operations at Porcupine Hill at Forthside. This quarry produces crushed rock from Mining Lease 8M/2015 and 1704 P/M. The proponent has requested a threatened flora and fauna survey in accordance with the *Guidelines for Natural Values Surveys – Terrestrial Development Proposals*¹ over the lease focused around the active quarry. A helicopter survey was also undertaken targeting known and potential eagle habitat within a 1km radius and known nest records.

Vegetation

The lease area was found to contain the following TASVEG units:

- dry *Eucalyptus amygdalina* coastal forest and woodland (DAC); and
- extra-urban miscellaneous (FUM).

DAC is not listed as threatened under the *Tasmanian Nature Conservation Act 2002* (NCA) nor does it correspond to a community listed under the EPBCA.

Approximately 7 ha of DAC remains within the mine lease area (MLA).

Threatened Flora

No threatened flora species have been observed within the MLA.

Threatened Fauna

No threatened fauna species have been directly or indirectly observed on site.

Wedge-tailed eagle helicopter survey:

Evidence suggests that the nest that was newly located in 2008 has fallen from the tree, with all that remains being some bark remnants and discoloration of the fork in the tree. No nest was observed at the reported location of nest 922; this nest is presumed absent. No eagles were sighted in the area on the day of the field survey. Nesting habitat quality was suboptimal elsewhere, with relatively small trees and a canopy of even age and structure.

Summary

Our field survey has established that the lease area contains one native plant community (*Eucalyptus amygdalina* coastal forest and woodland – DAC – on quartzite), no threatened plant species, and only potential foraging habitat for a variety of threatened fauna. A helicopter survey could not relocate two past wedge-tailed eagle records that were 500 to 700m north east of the active quarry. The declared weeds gorse, pampas grass and Spanish heath plus some environmental weeds have been recorded on or close to the quarry. Sign of weed treatment is evident however it is recommended the Spanish heath is treated as priority.

¹ Natural and Cultural Heritage Division, 2015

Acknowledgments

Project management: Dave Sayers

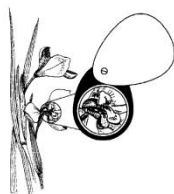
Field work and photographs: Dave Sayers

Eagle Helicopter survey: Grant Daniels

Report: Dave Sayers

Mapping: Dave Sayers

Proponent consultation: Nigel Beeke



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1. Introduction and Methods

1.1. Background

The proponent is seeking a new permit to cover quarry operations at Porcupine Hill, Forthside. This quarry produces crushed rock from Mining Lease 8M/2015 and 1704 P/M. The proponent has requested a threatened flora and fauna survey in accordance with the *Guidelines for Natural Values Surveys – Terrestrial Development Proposals*² over the lease focused around the active quarry as well as inspecting two eagle nest records to the north east.

North Barker Ecosystem Services (NBES) has been commissioned to undertake the present survey to fulfil the requirements of the threatened flora and fauna assessment. The results will be used to determine potential impacts of the proposed works and any mitigation measures identified will be applied to minimise impacts on conservation significant values.

1.2. Study Area and Methods

1.2.1. Study Area

The existing quarry, known as the Forthside Quarry, is located off Forthside Road, Forthside (Figure 1), approximately 6 km west of Devonport. The mining lease 8M/2015 (7 ha) and 1704 P/M (12 ha) is owned by JR Treloar. Operations to date cover around 11 ha. The land is zoned Rural Resource under the *Devonport Interim Planning Scheme 2013* and is part of the Tasmanian Northern Slopes bioregion³.

The quarry is located just north of the Porcupine Hill peak. Site geology is dominated by the Forth metamorphics (Proterozoic metamorphosed siliceous shelf sequences), predominately quartzite. Altitude across the study area is between 180 and 250 m AHD. Average annual rainfall at nearby Devonport is around 775 mm⁴.

² Natural and Cultural Heritage Division, 2015

³ IBRA7 - Commonwealth of Australia 2012

⁴ Devonport, Tasmania; 41.1701 ° S, 146.4289 ° E, 8 m AMSL; commenced 1962

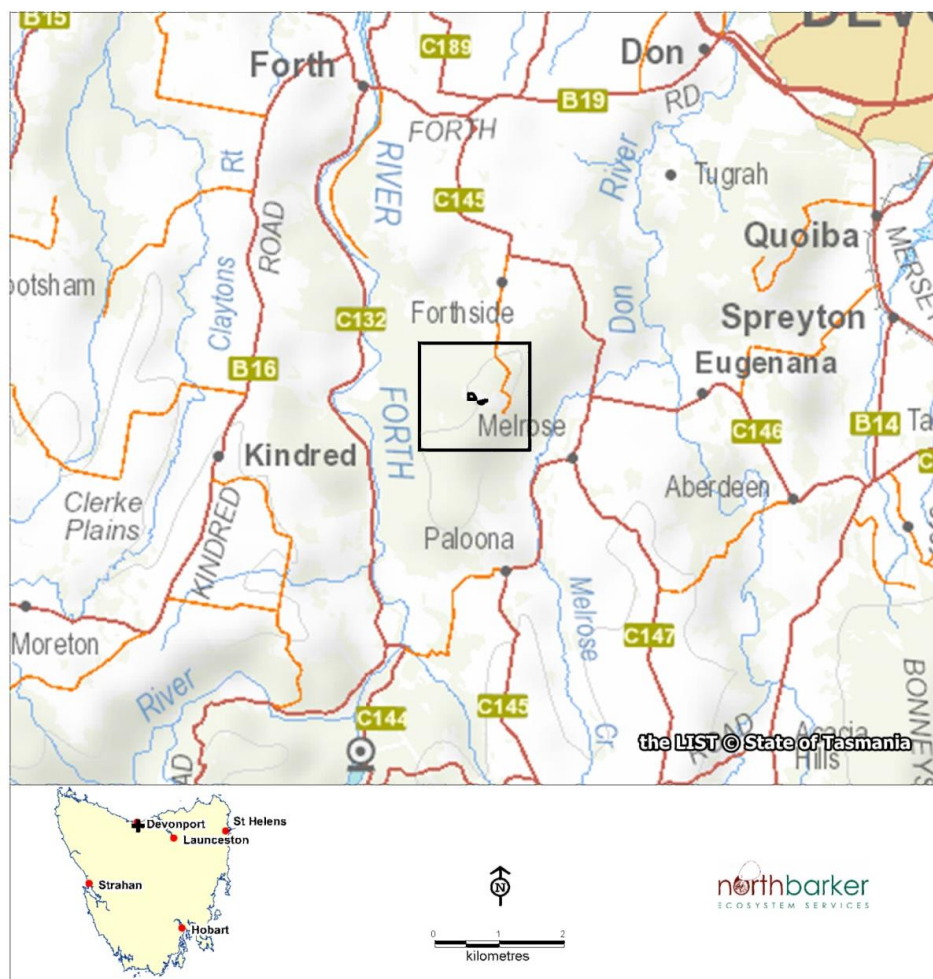


Figure 1: Site location

1.2.2. Field Survey

Field work was undertaken on foot by one observer on the 10th of July, 2017. Vegetation was mapped throughout the lease area in accordance with units defined in TASVEG 3.0⁵. Within all vegetation types, plant species lists were compiled according to nomenclature within the current census of Tasmanian plant census⁶, using a meandering area search based on the Timed Meander Search Procedure⁷. Observations of habitat suitability for fauna, as well as direct or indirect indicators of presence (*i.e.* sightings, scats, tracks, dens, *etc.*) were made concurrently.

Observations were recorded with a handheld GPS.

⁵ Kitchener and Harris 2013

⁶ de Salas and Baker 2016

⁷ Goff *et al.* 1982

Eagle habitat modelling has previously been obtained from the Forest Practices Authority (FPA). This modelling highlighted locations worthy of further targeted searching outside of the known eagle nest locations to the north east. A helicopter survey was carried out on 26th May 2017 (outside the breeding season) to undertake targeted nest searches surrounding the mine footprint, and up to 1 km from the boundary of the investigation area.

1.2.3. Limitations

Due to seasonal variations in detectability and identification, there may be some species present within the study area that have been overlooked. To compensate for these limitations to some degree, data from the present survey are supplemented with data from the Tasmanian Natural Values Atlas⁸ (NVA) and the EPBC Significant Matters database (PMST_UZHNKD). From these sources, all threatened species known to occur in the local area (5 km) are considered in terms of habitat suitability on site.

2. Results - Biological Values

2.1. Vegetation

Our survey has resulted in some minor boundary corrections to the community data held within the TASVEG v3.0 database however the communities mapped were confirmed. The lease was found to contain two community units:

- dry *Eucalyptus amygdalina* coastal forest and woodland (DAC); and
- extra-urban miscellaneous (FUM).

DAC does not correspond to a community listed as threatened under the Tasmanian *Nature Conservation Act 2002* (NCA) nor is it listed under the EPBCA.

Distributions of TASVEG units within the lease are presented in Figure 2. Floristics are presented in Appendix A, while each unit is described briefly below, with representative photos in Plates 1-4.

⁸ nvr_3_24-July-2017

Forthside Quarry
Flora and Fauna Habitat Assessment

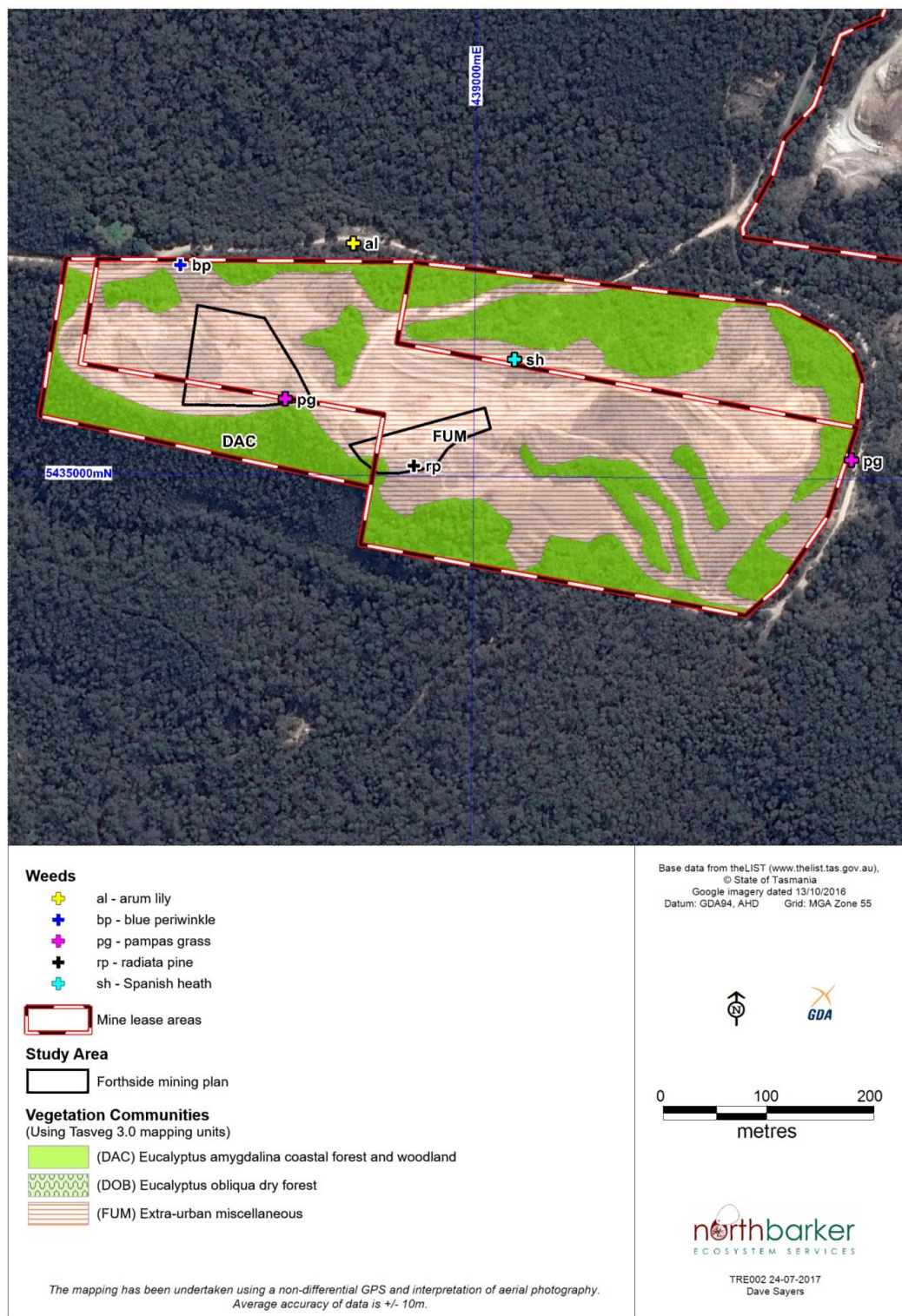


Figure 2: Distribution of TASVEG units within the lease area – note that the proposed extension of intensification (provided by the proponent) is indicative only and, in accordance with the requirements of mining lease agreements, no disturbance will occur within 10 m of the lease boundary

Dry *Eucalyptus amygdalina* coastal forest and woodland (DAC) – Plates 1 and 2

The occurrences of this community on site are species poor in contrast to examples of the community on coastal sands due to the quartzite rock. The canopy is almost exclusively dominated by *Eucalyptus amygdalina*, with occasional *E. obliqua*, particularly on lower slopes which favour greater soil moisture retention. The understorey of this community was largely dominated *Leptospermum* species (especially *L. scoparium*). Other frequent shrubs include *Monotoca glauca*, *Acacia melanoxylon*, *A. dealbata*, *Persoonia juniperina*, *Banksia marginata* and *Exocarpos cupressiformis*. Small species included *Amperea xiphoclada*, *Cassinia aculeata*, *Dianella tasmanica*, *Gahnia grandis*, *Epacris lanuginosa*, *Dillwynia glaberrima* and *Aotus ericoides*.

Extra-urban miscellaneous (FUM) – Plate 3

This community includes the active quarry, access roads and area of past disturbance in which near surface material has been extracted. Resultantly, vegetation in this area is largely dominated by ruderal exotics and natives. Native species within the area of FUM are largely adventive individuals that have colonised the area from the adjacent native communities.



Plate 1: regrowth *Eucalyptus amygdalina* coastal forest and woodland on the edges of the active quarry.



Plate 2: *Eucalyptus amygdalina* coastal forest and woodland within the south east of the mining lease.



Plate 3: The quarry looking west

2.2. Plant Species of Conservation Significance

In total, 31 species of vascular plants were recorded during our field survey (Appendix A). This included no species listed as threatened under the schedules of the TSPA. Several threatened species have previously been recorded within 5 km of the site⁹, or have the potential to do so based on habitat mapping. None of these species are considered likely to have been overlooked to any meaningful degree and thus have a very low likelihood of impact from the proposed works (Table 1).

Table 1: Flora species of conservation significance known within a 5 km radius of the study area, or predicted by habitat mapping¹⁰

Species	Status TSPA / EPBCA	Potential to occur if not observed	Observations and preferred habitat ¹¹
REPORTED FROM WITHIN 5 km¹²			
<i>Epacris moscalianus seepage heath</i>	Rare/ ENDANGERED	None	Occurs in riparian, woodland, forest and rockplate habitats in northern Tasmania. Known from the headwaters of the St Pauls, Dukes and Coal Rivers in the Eastern Tiers and occurs along the mid to upper reaches of St Pauls River, Swan River, Nile River and Mersey River. No suitable habitat was observed on site.
<i>Epilobium pallidiflorum showy willowherb</i>	Rare/ -	Very Low	A floriferous perennial herb of creeks and swamps, particularly in the north of the State. Ponds on site are very low in suitability and the species is unlikely to have been overlooked. No suitable habitat was observed elsewhere on site.
<i>Gynatrix pulchella fragrant hempbush</i>	Rare/ -	None	No suitable riparian habitat present. A highly distinctive species unlikely to have been overlooked.
<i>Pimelea curviflora curved riceflower</i>	Rare/ -	Very Low	Habitat within the forest on site is suitable, but the highly distinctive species is unlikely to have been overlooked unless present in very low numbers or in a highly discreet location. Suitable habitat extends beyond the proposed intensification area.
<i>Schoenoplectus tabernaemontani river clubsedge</i>	Rare/ -	Very Low	Inhabits margins of lagoons on King Island, Flinders Is and some riverbanks in the Midlands. Few records within mainland Tasmania however a Herbarium accepted record is 2.3 km east. Unlikely to be present within the study.
PREDICTED AS POSSIBLE BY HABITAT MAPPING ONLY¹³			

⁹ nvr_3_24-July-2017

¹⁰ nvr_3_24-July-2017

¹¹ Includes statements from Threatened Species Link summaries and note sheets

¹² nvr_3_24-July-2017

¹³ EPBCA protected matters report – PMST_ UZHNDK

Forthside Quarry
Flora and Fauna Habitat Assessment

Species	Status TSPA / EPBCA	Potential to occur if not observed	Observations and preferred habitat ¹¹
<i>Barbarea australis</i> native wintercress	Endangered/ ENDANGERED	None	<i>Barbarea australis</i> is a riparian plant species found near river margins, creek beds and along flood channels adjacent to the river. It has not been found on steeper sections of rivers, and tends to favour slower reaches. It occurs in shallow alluvial silt deposited on rock slabs or rocky ledges, or between large cobbles on sites frequently disturbed by fluvial processes. Some of the sites are a considerable distance from the river in flood channels scoured by previous flood action, exposing river pebbles. No suitable habitat occurs on site.
<i>Caladenia caudata</i> tailed spider orchid	Vulnerable/ VULNERABLE	Very low	<i>Caladenia caudata</i> (tailed spider-orchid) is a terrestrial orchid, found mainly in dry heathland and heathy woodland habitats, in lowland areas of northern, eastern and south-eastern Tasmania. Habitat on site is suitable within the DAS community, but none of the orchid leaves observed during the survey could possibly belong to this species.
<i>Epacris exserta</i> South Esk heath	Endangered/ ENDANGERED	None	Strictly a riparian species of dolerite substrates. No suitable habitat present on site.
<i>Glycine latrobeana</i> clover glycine	Vulnerable/ VULNERABLE	None	Habitat low in suitability. Can be detected by foliage at any time of the year and is not likely to have been overlooked.

2.3. Introduced Plants

Two declared weeds, Spanish heath (*Erica lusitanica*) and pampas grass (*Cortadeira* species) and three environmental weeds (radiata pine (*Pinus radiata*), blue periwinkle (*Vinca major*), and arum lily (*Zantedeschia aethiopica*) occur on site or close by. Pampas grass on site showed signs of herbicide treatment as well as old gorse (*Ulex europaeus*). Their distribution is shown in Figure 2.



Plate 4 – Spanish heath



Plate 5 – pampas grass under control



Plate 6 – blue periwinkle infestation near an old entry road in the north west of the mine lease.

2.4. Plant Pathogens

The quarry has previously been assessed for cinnamon root rot fungus *Phytophthora cinnamomi* (PC) presence with some signs present. The proponents are active in minimising the presence and spread of PC within the quarry and ensuring the product is certified free (Appendix C provides the most recent report).

2.5. Fauna Species of Conservation Significance

No threatened fauna species have been directly or indirectly observed on site. A number of threatened fauna are however known to occur within 5 km of the site, or have the potential to do so based on habitat mapping¹⁴. The majority of these species are not considered to have viable habitat on site (particularly nesting habitat) or the habitat is considered to be relatively unimportant to the persistence of species at even a local scale should they be present (Table 2). There are two locations north east of the quarry for nests of the wedge-tailed eagle. A helicopter survey was carried out to determine the status of these nests as well as surrounding potentially suitable habitat based on FPA habitat modelling.

¹⁴ nvr_3_24-July-2017

Forthside Quarry
Flora and Fauna Habitat Assessment

Table 2: Fauna species of conservation significance previously recorded within a 5 km radius of the study area, or with the potential to do so based on habitat mapping¹⁵

Species	Status TSPA / EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁶
BIRDS			
<i>Accipiter novaehollandiae</i> grey goshawk	Endangered/ -	Very low	No suitable nesting habitat is found on site. If the area is used by this species it is only likely to represent a minor part of a foraging range.
<i>Aquila audax fleayi</i> wedge-tail eagle	Endangered/ ENDANGERED	Foraging: Very low Nesting: None	Requires sheltered old-growth trees for nesting. No viable nesting habitat occurs within the quarry. The helicopter survey revealed nesting habitat quality was suboptimal elsewhere within 1km of the quarry, with relatively small trees and a canopy of even age and structure. Two previous nest records to the north east could not be relocated.
<i>Apus pacificus</i> fork-tailed swift	-/ MIGRATORY	Very low	Uncommonly recorded in Tasmania. An aerial insectivore that would most likely only fly over the site if present. Potential presence and habitat use would not be affected by proposal.
<i>Ardea alba</i> great egret	-/ MIGRATORY	None	A non-breeding migratory wetland species. No suitable habitat present.
<i>Ardea ibis</i> cattle egret	-/ MIGRATORY	None	A non-breeding migratory wetland species. No suitable habitat present.
<i>Botaurus poiciloptilus</i> Australasian bittern	-/ ENDANGERED	None	No suitable permanent aquatic habitat.
<i>Ceyx azureus</i> subsp. <i>diemenensis</i> azure kingfisher	Endangered/ ENDANGERED	None	Species primarily utilises major rivers within western Tasmania. No known records within 5km.
<i>Gallinago hardwickii</i> Latham's snipe	-/ MARINE – MIGRATORY	None	A wide-ranging shorebird that frequently utilises the margins of subalpine lakes and tarns, and less frequently farm dams. No suitable habitat present on site.

¹⁵ nvr_3_24-July-2017

¹⁶ Bryant & Jackson 1999

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Species	Status TSPA / EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁶
<i>Haliaeetus leucogaster</i> white-bellied sea eagle	Vulnerable/ MIGRATORY	None	Requires large coastal or lakeside trees for nesting. No viable nesting habitat will be impacted by the proposal. No nests known within 500 m or within 1 km line of sight.
<i>Hirundapus caudacutus</i> white-throated needletail	-/ MIGRATORY	Very low	An aerial species most likely unaffected by terrestrial habitat alteration outside of its Northern Hemisphere breeding range. Potential presence and habitat use would not be affected by proposal.
<i>Lathamus discolor</i> swift parrot	Endangered/ ENDANGERED	Very low	For nesting, this species requires tree hollows within 10 km of mature stands of food plants, which are blue gums (<i>E. globulus</i>) and black gums (<i>E. ovata</i>). No food trees have been observed on site and there is a very low likelihood the site could be utilised for nesting. Given the current operations at the site it is considered highly likely that any hollows in the area would be occupied by disturbance tolerant edge species such as possums and sugar gliders. Nearest known nest is around 4.2 km away but NW breeding areas are not classified as swift parrot important breeding areas ¹⁷ .
<i>Myiagra cyanoleuca</i> satin flycatcher	-/ MIGRATORY	Low	An interstate migrant of which some of the population spends the summer breeding months in Tasmania. Widely distributed across forested environments but is sensitive to fragmentation and canopy thinning and not generally associated with small remnants or edge habitats. Regional populations not likely to be impacted by a proposal of this scale.
<i>Pterodroma leucoptera leucoptera</i> Gould's petrel	-/ ENDANGERED	None	A pelagic species. No suitable habitat present.
<i>Tyto novaehollandiae</i> masked owl	Endangered/ VULNERABLE	Nesting: None Foraging: Low	The site is within the core habitat range for this species, which includes all land below 600 m AHD. Requires a mosaic of forest and open areas for foraging, and large old-growth, hollow-bearing trees for nesting. The forest habitat on site is moderately suitable for foraging, but no viable nesting

¹⁷ Forest Practices Authority 2010

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Species	Status TSPA / EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁶
			hollows were observed nor are likely to have been overlooked.
<i>Tringa nebularia</i> common greenshank	-/ MIGRATORY	None	A shorebird species. No suitable habitat present.
MAMMALS			
<i>Dasyurus maculatus</i> ssp. <i>maculatus</i> spotted-tailed quoll	Rare/ VULNERABLE	Low - moderate	This naturally rare forest-dweller most commonly inhabits wet forest but also occurs in dry forest and occasionally grassy areas. The study area does occur within the core range for the species (as defined on the NVA) and only one record is known from within 5 km. The quarry does not contain any optimal habitat for this species.
<i>Dasyurus viverrinus</i> eastern quoll	-/ ENDANGERED	Very low	Species is extinct on mainland Australia and was recently listed on the EPBCA as a result of the decline in the Tasmanian population during the last decade. Currently the eastern quoll is not listed on the Tasmanian TSPA and remains widespread across eastern Tasmania in particular, with a preference for high soil fertility and grassy open habitats. No observations of this species are known within 5 km of the site and the habitat is low in suitability.
<i>Perameles gunnii</i> eastern barred bandicoot	- / VULNERABLE	None	Predicted based on habitat mapping only. However, no suitable habitat is present on site for this species and it is more likely to be present in the surrounding rural landscape.
<i>Sarcophilus harrisii</i> Tasmanian devil	Endangered/ ENDANGERED	Moderate	The study area does not occur within the core range for the species (as defined on the NVA) however 48 (numerous road kill) records are known from within 5 km. No scats were observed on site. Limited denning opportunity was seen however the quarry may be used for hunting/foraging.
OTHER SPECIES			
<i>Astacopsis gouldi</i> giant freshwater crayfish	Vulnerable/ VULNERABLE	None	Species primarily utilises major rivers within northern Tasmania. Nearest suitable habitat is 2.5 km away on the Mersey River.

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Species	Status TSPA / EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁶
<i>Engaeus granulatus</i> Central North burrowing crayfish	Endangered/ ENDANGERED	None	Predicted based on habitat mapping only. Soil conditions not suitable on site.
<i>Galaxiella pusilla</i> eastern dwarf galaxias	Vulnerable/ VULNERABLE	None	No suitable aquatic habitat present.
<i>Galaxias fontanus</i> Swan galaxias	Endangered/ ENDANGERED	None	No suitable aquatic habitat present.
<i>Hickmanoxymma gibbergunyar</i> Mole Creek cave harvestman	Rare/ -	None	Only known from caves within the Mole Creek karst system. No suitable karst habitat is known on site.
<i>Litoria raniformis</i> green and gold frog	Vulnerable/ VULNERABLE	Very low	Occurs in large, permanent, well vegetated wetlands. No suitable habitat within study area.
<i>Limnodynastes peronii</i> striped marsh frog	Endangered/ -	None	Known from frontal dune wetlands within Tasmania at a few locations. No habitat onsite.
<i>Prototroctes marina</i> Australian grayling	Vulnerable/ VULNERABLE	None	No suitable river habitat present.
<i>Pseudemoia pagenstecheri</i> tussock skink	Vulnerable/ -	None	Occurs in <i>Poa</i> tussock grassland and <i>Themeda</i> grassland without trees. Known to occur in the northwest, but not within 5 km the study area. No suitable habitat present on site.

Freshwater snails have not been included given there is no creeks within the quarry.

Wedge-tailed eagle (*Aquila audax fleayi*)

Survey Results

There are two nest records (RND 922 and 1737) between 550 and 700 m north east, last confirmed as present in 2008. A helicopter survey was undertaken on the 26 May 2017. Figure 3 shows the study area, known nest locations, the FPA WTE habitat modelling and chopper survey target locations. Evidence suggests that the nest that was newly located in 2008 has fallen from the tree, with all that remains being some bark remnants and discoloration of the fork in the tree. No nest was observed at the reported location of nest 922; this nest is presumed absent. No eagles were sighted in the area on the day of the field survey. Nesting habitat quality was suboptimal elsewhere, with relatively small trees and a canopy of even age and structure.

General discussion

Wedge-tailed eagles nest in a range of old growth native forests and the species is dependent on forest for nesting. It nests almost exclusively in mature eucalypts capable of supporting their nests, which can develop after many years of use into massive structures over 2m in diameter. The eagles choose old growth trees in relatively sheltered sites for locating their nests. Territories can contain multiple nests and up to five alternate nests have been located. Nests within a territory are usually close to each other but may be up to 1 km apart where habitat is locally restricted. Wedge-tailed eagles prey and scavenge on a wide variety of fauna including fish, reptiles, birds and mammals.

The Tasmanian subspecies of the wedge-tailed eagle (*Aquila audax* subsp. *fleayi*) is regarded as being larger than the mainland birds with a wingspan of 2m and a body weight up to 5.5kg.¹⁸ However, there is an overlap in size between the two populations. Tasmanian juvenile and immature birds also differ in plumage colour from mainland birds¹⁹, they lack the rufous-brown markings on the nape, hind neck and wing coverts²⁰. DNA studies²¹ have been undertaken to resolve the uncertain taxonomic status of the Tasmanian subspecies. Adults are resident, highly territorial and have very large home ranges. Although considered to be widespread but uncommon at the time of European settlement, the population has been estimated to number less than 1,000 individuals occupying an estimated 220 breeding territories²².

¹⁸ Bryan & Jackson (1999)

¹⁹ Marchant & Higgins (1993)

²⁰ Marchant & Higgins (1993)

²¹ Debus (2009)

²² DSE/WPC (2012b)

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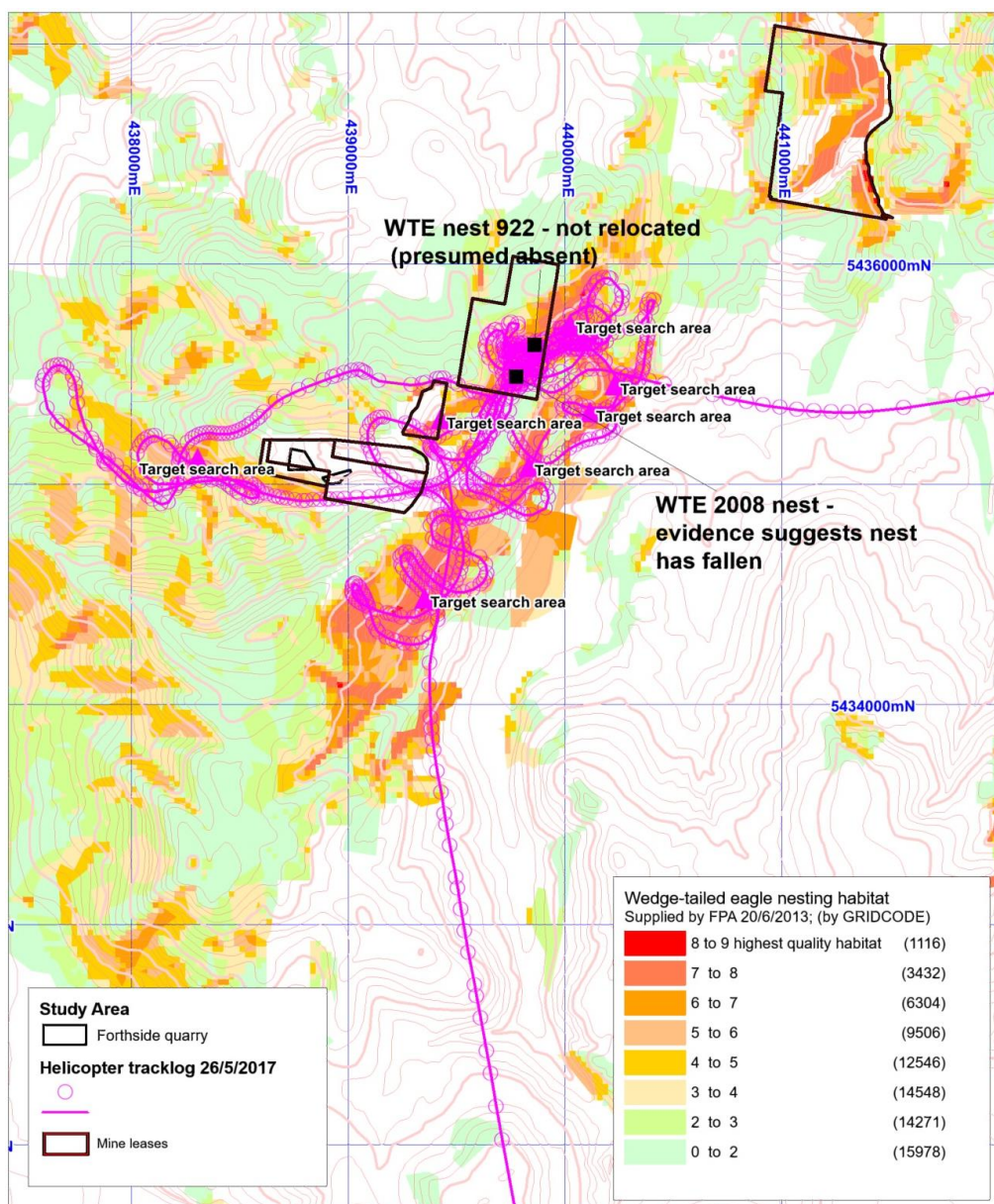


Figure 3 – WTE habitat modelling surrounding the quarry and helicopter survey route.

3. Summary of Natural Values and significance

Our field survey has established that the lease area contains no threatened plant species, no threatened native plant community, and generally only foraging habitat for threatened fauna.

Table 3: Summary of natural values present within the mine lease area (MLA)

Conservation Significant Value	Area	Context
Extent of native vegetation communities within intensification area (ha) – asterisk denotes communities listed as threatened under Tasmanian <i>Nature Conservation Act 2002</i>		
(DAC) <i>Eucalyptus amygdalina</i> coastal forest and woodland	7 ha remaining within MLA	Total extent in Tasmanian reserve estate: 63,000 Total extent in Tasmania: 149,600 Total extent in reserves in Devonport Council: 80 Total extent in Devonport Council: 400 Total extent in reserves in Northern Slopes bio-region: 4,200 Total extent in Northern Slopes bio-region: 7,300
Threatened Fauna Habitat		
Tasmanian devils Spotted tailed quolls/eastern quolls Wedge-tailed eagles Masked owls		Foraging values across the site. No significant breeding habitat is within the MLA. A chopper survey did not relocate nests at either of the previous known nest records and no additional nests or optimal habitat was found within 1km of the MLA.

4. Recommendations for Avoidance, Compliance and Mitigation

4.1. Weeds and Pathogens

- The containment principles of the *Tasmanian Weed Management Act 1999* should be sufficiently met with best practice construction hygiene that prevents the introduction of contaminated material from beyond the study area, such as tool and machinery wash-down before entry, and by only importing materials from verified weed and PC free locations.
- The proponent should continue their control of declared weeds such as *Pampas* sp. On site. Spanish heath observations should be treated and reinspected to ensure it is adequately controlled and controlling environmental weeds such as blue periwinkle and preventing arum lily from spreading along the access road would be beneficial.
- Continue work with PC testing and remediation works as outlined in PC assessment.

4.2. Threatened Flora/Fauna/Vegetation Communities

- No mitigation required as none observed.

4.3. General Natural Values

- In addition, where possible avoid stockpiling dense material around the base of retained trees, in order to prevent root smothering.

5. Legislative Requirements

5.1. Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The EPBCA is structured for self-assessment; the proponent must indicate whether or not the project is considered a 'controlled action', which, if confirmed, would require approval from the Commonwealth Minister.

The assessment has not recorded any significant habitat for threatened species and consequently, referral to the Minister is not considered to be necessary for this proposal.

5.2. Tasmanian Threatened Species Protection Act 1995

No impact to threatened flora/ fauna habitat has been observed.

5.3. Tasmanian Weed Management Act 1999

Continue with weed management actions within the quarry and target the Spanish heath observed. Spanish heath and gorse are Zone B weeds under this act where containment is the principal target however eradication is feasible within the quarry. Pampas is a Zone A weed where eradication is the ultimate aim. Appropriate construction hygiene should be applied in order to avoid the introduction of species listed under this Act. This may include machinery washdown following use at contaminated sites and before entering the site.

5.4. Devonport Interim Planning Scheme 2013

It is understood the quarry is a level 2 activity that will be assessed by the Board of Environmental Management and Pollution Control.

6. Conclusion

Our field survey has established that the lease area contains one native plant community (*Eucalyptus amygdalina* coastal forest and woodland – DAC – on quartzite), no threatened plant species, and only potential foraging habitat for a variety of threatened fauna. A helicopter survey could not relocate two past wedge-tailed eagle records that were 500 to 700m north east of the active quarry. The declared weeds gorse, pampas grass and Spanish heath plus some environmental weeds have been recorded on or close to the quarry. Sign of weed treatment is evident however it is recommended the Spanish heath is treated as priority.

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Appendix A - Vascular Plant Species by Community

Site: 4 Forthside - DAC - quartzite

Grid Reference:	439190E, 5435150N
Accuracy:	GPS (within 10 metres)
Recorder:	Dave Sayers
Date of Survey:	11 Jul 2017
Trees:	<i>Acacia melanoxylon</i> , <i>Eucalyptus amygdalina</i> , <i>Eucalyptus obliqua</i>
Tall Shrubs:	<i>Acacia dealbata</i> subsp. <i>dealbata</i> , <i>Banksia marginata</i> , <i>Exocarpos cupressiformis</i> , <i>Leptospermum scoparium</i> var. <i>scoparium</i> , <i>Monotoca glauca</i>
Shrubs:	<i>Acacia terminalis</i> , <i>Amperea xiphoclada</i> var. <i>xiphoclada</i> , <i>Cassinia aculeata</i> subsp. <i>aculeata</i> , <i>Dillwynia glaberrima</i> , <i>Epacris lanuginosa</i> , <i>Leucopogon australis</i> , <i>Persoonia juniperina</i>
Graminoids:	<i>Gahnia grandis</i> , <i>Lepidosperma gunnii</i>
Climbers:	<i>Cassytha pubescens</i>

Site: 5 Forthside - FUM - around the quarry

Grid Reference:	439190E, 5435150N
Accuracy:	GPS (within 10 metres)
Recorder:	Dave Sayers
Date of Survey:	11 Jul 2017
Trees:	<i>Eucalyptus amygdalina</i>
Tall Shrubs:	<i>Acacia dealbata</i> subsp. <i>dealbata</i> , <i>Allocasuarina littoralis</i> , <i>Exocarpos cupressiformis</i> , <i>Leptospermum scoparium</i> var. <i>scoparium</i>
Shrubs:	<i>Cassinia aculeata</i> subsp. <i>aculeata</i>
Low Shrubs:	<i>Aotus ericoides</i>
Herbs:	<i>Acaena novae-zelandiae</i> , <i>Pterostylis</i> sp.
Graminoids:	<i>Juncus pallidus</i> , <i>Juncus sarophorus</i>
Grasses:	<i>Ehrharta stipoides</i> , <i>Poa labillardierei</i>
Weeds:	<i>Cirsium vulgare</i> , <i>Cortaderia</i> sp, <i>Erica lusitanica</i> , <i>Pinus radiata</i> , <i>Vinca major</i>

Appendix B - Vascular Plant Species List

Species list - project: TRE002

Status codes:

ORIGIN	NATIONAL SCHEDULE	STATE SCHEDULE
i - introduced	EPBC Act 1999	TSP Act 1995
d - declared weed WM Act	CR - critically endangered	e - endangered
en - endemic to Tasmania	EN - endangered	v - vulnerable
t - within Australia, occurs only in Tas.	VU - vulnerable	r - rare

Sites:



4	Forthside - DAC - quartzite - E439190, N5435150	11-07-2017 Dave Sayers
5	Forthside - FUM - around the quarry - E439190, N5435150	11-07-2017 Dave Sayers

Site	Name	Common name	Status
	DICOTYLEDONAE		
	APOCYNACEAE		
5	<i>Vinca major</i>	blue periwinkle	i
	ASTERACEAE		
4 5	<i>Cassinia aculeata subsp. aculeata</i>	dollybush	
5	<i>Cirsium vulgare</i>	spear thistle	i
	CASUARINACEAE		
5	<i>Allocasuarina littoralis</i>	black sheoak	
	EPACRIDACEAE		
4	<i>Epacris lanuginosa</i>	swamp heath	
4	<i>Leucopogon australis</i>	spike beardheath	
4	<i>Monotoca glauca</i>	goldey wood	
	ERICACEAE		
5	<i>Erica lusitanica</i>	spanish heath	d
	EUPHORBIACEAE		
4	<i>Amperea xiphoclada var. xiphoclada</i>	broom spurge	
	FABACEAE		
5	<i>Aotus ericoides</i>	golden pea	
4	<i>Dillwynia glaberrima</i>	smooth parrotpea	
	LAURACEAE		
4	<i>Cassytha pubescens</i>	downy dodderlaurel	
	MIMOSACEAE		
4 5	<i>Acacia dealbata subsp. dealbata</i>	silver wattle	
4	<i>Acacia melanoxylon</i>	blackwood	
4	<i>Acacia terminalis</i>	sunshine wattle	
	MYRTACEAE		
4 5	<i>Eucalyptus amygdalina</i>	black peppermint	en
4	<i>Eucalyptus obliqua</i>	stringybark	
4 5	<i>Leptospermum scoparium var. scoparium</i>	common teatree	

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	PROTEACEAE		
4	<i>Banksia marginata</i>	silver banksia	
4	<i>Persoonia juniperina</i>	prickly geebung	
	ROSACEAE		
5	<i>Acaena novae-zelandiae</i>	common buzzy	
	SANTALACEAE		
4 5	<i>Exocarpos cupressiformis</i>	common native-cherry	
	GYMNOSPERMAE		
	PINACEAE		
5	<i>Pinus radiata</i>	radiata pine	i
	MONOCOTYLEDONAE		
	CYPERACEAE		
4	<i>Gahnia grandis</i>	cutting grass	
4	<i>Lepidosperma gunnii</i>	narrow swordsedg	
	JUNCACEAE		
5	<i>Juncus pallidus</i>	pale rush	
5	<i>Juncus sarophorus</i>	broom rush	
	ORCHIDACEAE		
5	<i>Pterostylis sp.</i>	greenhood	
	POACEAE		
5	<i>Cortaderia sp</i>	pampasgrass	d

Appendix C – Previous PC Assessment

 Forestry Tasmania <i>Phytophthora cinnamomi</i> -status of quarries			
Quarry:	Forthside	Date of inspection:	11/05/2017
Altitude:	250 m	Location:	Perry's Rd (off Forthside Rd)
Substrate:	Quartzite Sandstone	Type:	Hard Rock
Grid Ref:	438926 E, 5435044 N.	Owner:	Treloar Transport
			
<p>Figure 1. Forthside is a large active hard rock quarry at low elevation</p>			
<p>Drainage: Generally good, but existing drainage needs repair.</p> <p>The quarry floor is generally hard and dry and effectively metalled with quarried material. However, there are two levels of drains running along the benches which need to be improved.</p> <ol style="list-style-type: none"> 1. The mid-level bench is almost driveable and this should be maintained as access for spraying. The drain running along at this level needs repair as water is escaping from here onto the quarry floor. 2. There is a shallow drain running along the back of the road above the top of the quarry. This drain should be cleared out to ensure it prevents any external water from entering the quarry. It is failing near the main access road and the all water is running back into the quarry. 			
<p>Overburden:</p> <p>The majority of the active quarry is scalped back well, with no contamination of the quarry area. However, the two areas of overburden which are within the quarry boundaries are both harbouring <i>P. cinnamomi</i>. These are a small pile of topsoil on the southern edge (Figure 2) and the vegetated bank which runs across the northern edge of the quarry (Figure 3). These two areas should be scalped, with the contaminated material trucked to a storage area below and separate from the active quarry area. All machinery used should be considered contaminated and washed down well before any further use.</p>			

Forthside Quarry

Weed issues: Most of the quarry is free of weeds, and a spraying program has been undertaken, however, the bank of vegetation running across the top of the active quarry area is infested with both Spanish heath and Gorse (Figures 4 & 5). These weeds are declared under the *Weed Management Act* 1999 and both have long-lasting ground-stored seed which is easily spread in quarried material.

***P. cinnamomi* field symptoms:**

Most of the quarry is very clean, with little vegetation within the active area. However, there are two areas of vegetation which displayed *P. cinnamomi* symptoms. Dead and dying golden pea (*Aotus ericoides*) was common on the southern topsoil bank (Figures 2 & 6). Dead Golden pea and common heath (*Epacris impressa*) were also observed on the bank of vegetation running across the top of the quarry (Figure 3).

Samples tested for *P. cinnamomi*: Yes

Two samples were taken from the root zones of dead and dying plants and they both tested positive for *P. cinnamomi*. This quarry is not suitable for use where a requirement for *P. cinnamomi*-free gravel has been specified.

Materials from this quarry can still be used in areas of non-susceptible vegetation such as rainforest or wet eucalypt forest with a thick understorey, at elevations of over 700m, in agricultural (pasture) areas, in areas of low rainfall (< 600 mm annually) or where *P. cinnamomi* is already present.

Other issues:

This quarry is used for storing materials imported from other sources including bluestone from the Bunnings site and various others materials for recycle. This is a high risk activity for introducing weeds and diseases into quarries. It appears that there are several separate areas around the quarry which are available, so these materials should be removed from the active quarry area and stored elsewhere (Figure 7).



Figure 2. There is an isolated pile of topsoil on the southern edge of the quarry which is contaminated and which should be removed.



Figure 3. The bank of vegetation running across the top of the active quarry area is also contaminated with *P. cinnamomi*.

Spray off the western end of the internal bank where it has been scalped previously, and remove the vegetation and topsoil from the eastern end which has not been scalped and which has some imported piles of red dirt (and gorse!). Vegetation should be removed to the green waste area to the east of the quarry and the soil and weeds should be trucked to the storage area below the quarry. All machinery and trucks should then be washed down.

The scalped contaminated areas should be sprayed with Ridomil Fungicide, and then kept clear of all vegetation regrowth.

- **Weed control:**

Spray the **Spanish heath** from the bank and across the road. The soil surrounding the Spanish heath plants will contain ground-stored seed, so be aware of spreading this and dump any scalped soils where you can control the regrowth.

Remove the **gorse** plants with the rest of the vegetation on the eastern end of the bank and bury then in the storage area.

- **Drainage**

Both of the existing drains require maintenance as they have both failed, and they are diverting run-off water into the active quarry area instead of away from it. Ensure that the drainage works are done with clean machinery.



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Sue Jennings Forest Management Services Forestry Tasmania Smithton. sue.jennings@forestrytas.com.au	Environmental risk	Moderate
	Management risk	Moderate
	Quarry assessment valid until:	Management changes are implemented

Treloar Transport

Forthside Inert Landfill

Appendix B. Noise Survey

1

PEARU TERTS

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Tasmania AUSTRALIA

**ARCHITECTURAL ACOUSTICS
NOISE CONTROL**

Phone 03 6249 7165
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Forthside Quarry, Near Porcupine Hill
Owner: Treloar Transport

25/10/2017

NOISE ISSUES

S U M M A R Y.

1. The measured noise level during calm conditions was $L_{90} = 29$ dB(A) and $Leq = 44$ dB(A) at gate of nearest neighbour. House is about 650 m from the quarry.
2. During quarry operations, $L_{90} = 38$ dB(A) and $Leq = 45$ dB(A) and 56 dB(C).
3. During quarry operations, at 28 m from the crusher, the following was measured: $L_{90} = 71.8$ dB(A), $Leq = 74.6$ dB(A) and 86.9 dB(C).
4. The following equipment was operating in the quarry:: Jaw Crusher (300 HP) + Loader (180 HP) + excavator (120 HP) = total 600 HP
5. The 120 HP excavator is replaced with a 268 HP excavator = total 748 HP.
6. The calculated noise level of the quarry operating with the 268 HP excavator is $Leq = 42$ dB(A) at the nearest neighbour.
7. The operation of the quarry is likely to meet the "Quarry Code of Practice" requirement that the quarry operation noise level not to exceed 45 dB(A) during the daytime.

CLIENT: Mr. Nigel Beeke
Treloar Transport
P.O. Box 21
Sheffield
Tasmania 7306

Mobile 0409 067 573
e-mail: nbeeke@bigpond.net.au

BRIEF:

Estimate the likely increase in noise due to the replacement of the 120 HP P1 320B CAT excavator with a 268 HP Kobelco 30 t excavator with the crusher and the wheel loader remaining the same as reported in the 7/4/2014 noise report. In addition, comment on the likely compliance of the quarry operation with the requirements of the May 2017 Quarry Code of Practice.

INTRODUCTION:

Noise annoyance depends on the following factors:

1. the level of the existing ambient noise

1

2

2. the level of the new noise with the quarry in operation
3. whether the new noise has tonal components
4. whether the new noise has impulsive components
5. the time of the day the new noise occurs
6. whether the new noise carries unwanted intelligence such as warning announcements
7. noise annoyance is also dependent on the listener's perception of whether the noise is regretfully caused, imposed in ignorance or inflicted as an act of aggression.

The Tasmania Quarry Code of Practice (May 2017), page 17, paragraph 7.2.2.2 Level of noise states states: "Noise from quarrying and associated activities, including equipment maintenance, when measured at any neighbouring sensitive use must not exceed the greater of:

The A-weighted 10 minute L90, excluding noise from the quarry, plus 5 dB(A) , or
.45 dB(A) from 0700 to 1900 hours (daytime).....
when measured as a 10 minute Leq".

Treloar Transport is submitting a DFPEMP to the EPA seeking permission to blast at this quarry.

DEFINITIONS:

Background noise is indicated by L90. This L90 is a good descriptor of the base or background noise level. For example (see page A10, Loc 2, column 4), if L90 = 28.8 dB(A) then that means that for 90 % of the 10 minute sample, that is, 9 minutes, the noise level was 28.8 dB(A) or more. Similarly, L10 is a good descriptor of the average of the higher noise events encountered. If, for example, L10 = 44.0 dB(A) then that means that for 10 % or 1 minute, the noise level was 44.0 dB(A) or more.

Leq is the equivalent 'A' weighted noise level. A fluctuating noise having an Leq = 44.4 dB(A) has the same acoustic energy as a steady noise of 44.4 dB(A).

ESTIMATED BACKGROUND NOISE LEVELS:

Australian Standard AS 1055.2-1997 "Acoustics – Description and measurements of environmental noise Part 2: Application to specific situations," in Appendix A, the estimated L90 background sound pressure level in areas with low density transportation, between 0700 h to 1800 h, Mon. to Sat. is 45 dB(A). This estimate is a guide only for use where actual measurements are not obtained.

RESULTS:

The main results are shown on pages A 9 and A 10.

At 28 m from the crusher we measured Leq = 74.6 dB(A), and 86.9 dB(C) and L90 = 71.8 dB(A).

The difference between Leq and L90 = $74.6 - 71.8 = 2.8$ dB(A)

The difference between the dB(C) and dB(A) is $86.9 - 74.6 = 12.3$ dB.

At location 2 (private gate, 300 m from crusher) we measured the following:

3

Quarry operating	Quarry not operating	Difference
Leq = 45.3 dB(A)	Leq = 44.4 dB(A)	1.1 dB(A)
Leq = 56.2 dB(C)	Leq = 46.0 dB(C)	10.2 dB(C)
L90 = 38.0 dB(A)	L90 = 28.8 dB(A)	9.2 dB(A)

JAW CRUSHER, LOADER and EXCAVATOR

The table on page A 9 gives the results of 10 minute measurements at 28 m from the crusher which was fed by a loader and excavator as shown on page A 7.

The calculated sound power level is:

$$\begin{aligned} \text{SWL} &= \text{SPL} + 20 \log r + 8 \\ &= 74.6 + 20 \log 28 + 8 = 111.54 \text{ or say } 112 \text{ dB(A)} \end{aligned}$$

Similarly, the calculated sound power level in terms of dB(C) is:

$$\text{SWL} = 86.9 + 20 \log 28 + 8 = 123.8 \text{ dB(C) or say } 124 \text{ dB(C)}$$

The difference between the dB(C) and dB(A) noise levels is $124 - 112 = 12 \text{ dB}$ and so no penalty for low frequency components is applicable.

The nearest house is 650 m away. The P22 Pegson Jaw Crusher is rated at 300 HP. The sound pressure level at 650 m, due only to geometric spreading and NOT taking into account atmospheric absorption, noise barriers, excess attenuation due to ground cover and trees, would be:

$$\begin{aligned} \text{SPL} &= \text{SWL} - 20 \log r - 8, \\ &\text{where } r \text{ is the distance in meters.} \\ \text{SPL} &= 112 - 20 \log 650 - 8 = 48 \text{ dB(A)} \end{aligned}$$

From the above noise level we need to calculate the excess noise attenuation as the sound travels through the atmosphere and over ground cover and diffracts over natural or man made barriers. The noise was calculated using geometric spreading to 650 m

There were noisy activities taking place even when the quarry was not operating. The difference between the two Leq's was 1.1 dB(A) and this indicates that the quarry noise was corrupted by other noise sources such as intermittent bird calls. However the difference between the L90 readings (quarry operating and not operating) was 9.2 dB(A) and we can assume that the increase in noise was entirely due to the quarry operation. To this we add the difference between Leq and L90 measured at 28 m, that is, 2.8 dB(A) to determine Leq due to the quarry alone. We can therefore estimate the quarry noise to be $\text{Leq} = 38 \text{ dB(A)} + 2.8 \text{ dB(A)} = 40.8 \text{ dB(A)}$.

The above measurements and calculations take into account the excess attenuation for sound travelling over the ground, ground cover and topography.

Hence the noise level due to the quarry operation is 40.8 or say 41 dB(A) using the 120 HP excavator.

EXCAVATOR UPGRADE

The total power of the crusher, loader and excavator is 600 HP which increases to 748 HP with the new larger excavator. The likely increase in noise level is:

$10 \log (748/600) = 0.96 \text{ dB(A)}$ or say 1 dB(A). as a result of the more powerful excavator.

Hence, the likely noise level, using the more powerful excavator is likely to be $41 + 1 = 42 \text{ dB(A)}$.

DISCUSSION:

With an ambient noise level of about 44 dB(A), the quarry operation is likely to meet the 'Quarry Code of Practice requirement of 45dB(A) during the day time. We come to this result by using the L90 levels rather than the Leq noise levels measured at the neighbour's gate and making adjustments for Leq based on measurements of the differential Leq – L90 as measured at 28 m from the crusher.

Since the last noise measurements, the quarry is operating at a lower bench and this would reduce noise to the nearest neighbours.

The quarry operates during daylight.

CONCLUSION:

The calculated noise level based on measured ambient and background noise levels indicate that the 45 dB(A) daylight requirement of the Quarry Code of Practice, noise level with the quarry operating, is likely to be met at the nearest neighbour.

The World Health Organization's (WHO) Guideline for noise levels outside bedrooms is that with the window open, Leq = 45 dB(A) and Lmax = 60 dB(A). These conditions too, are likely to be met during the operation of the quarry.

Pearu Terts

A1

Field report from Treloar Quarry, Forthside site visit 27/11/2013
Appendix A to be read in conjunction with main report

General

Treloar Quarry at Forthside near Porcupine Hill operated mobile crusher intermittently. This report describes the findings of noise monitoring and observations from the site visit 8:35-11:35, 27/11/2013.

Instruments used

- Brüel & Kjær Sound Level Calibrator Type 4230 s/n 1207368,
- Brüel & Kjær Statistical Noise Analyser Type 4426 s/n 957489,
- Rion Precision Integrating Sound Level Meter Model NL-11, s/n 150321, with Rion Octave Band Filter Model NX-01A, s/n 10851228,
- Digitech Sound Level Datalogger QM1599, s/n 10051053
- Weather Instruments (Aneroid barometer, Zeal Wet/Dry bulb Psychrometer, Suunto KB-14/360R compass, Kaindl Windmaster 2 wind speed meter);
- Hema Navigator 5" GPS, s/n HN5A1209001368, 100 m fiberglass tape

Location definitions

The locations for measurements were defined as follows:

GPS datum AMG 1966 - 55G				Definition/Comments
Loc #	Location	m East	m North	
1	Quarry	438886	5434788	28.0 m from crusher motor, with loader removing output at front and excavator feeding to rear but in line of sight Microphone at 1.5 m height.
2	Private Gate	439171	5434703	By gate to neighbouring property. 300 m from crusher Microphone at 1.5 m height.
3	Last House	439013	5435603	Roadside opposite last neighbour, 477 Forthside Rd. 825 m from crusher, obscured by topography Microphone at 1.5 m height.

Aerial photos, map, plan and photographs are on the following pages.

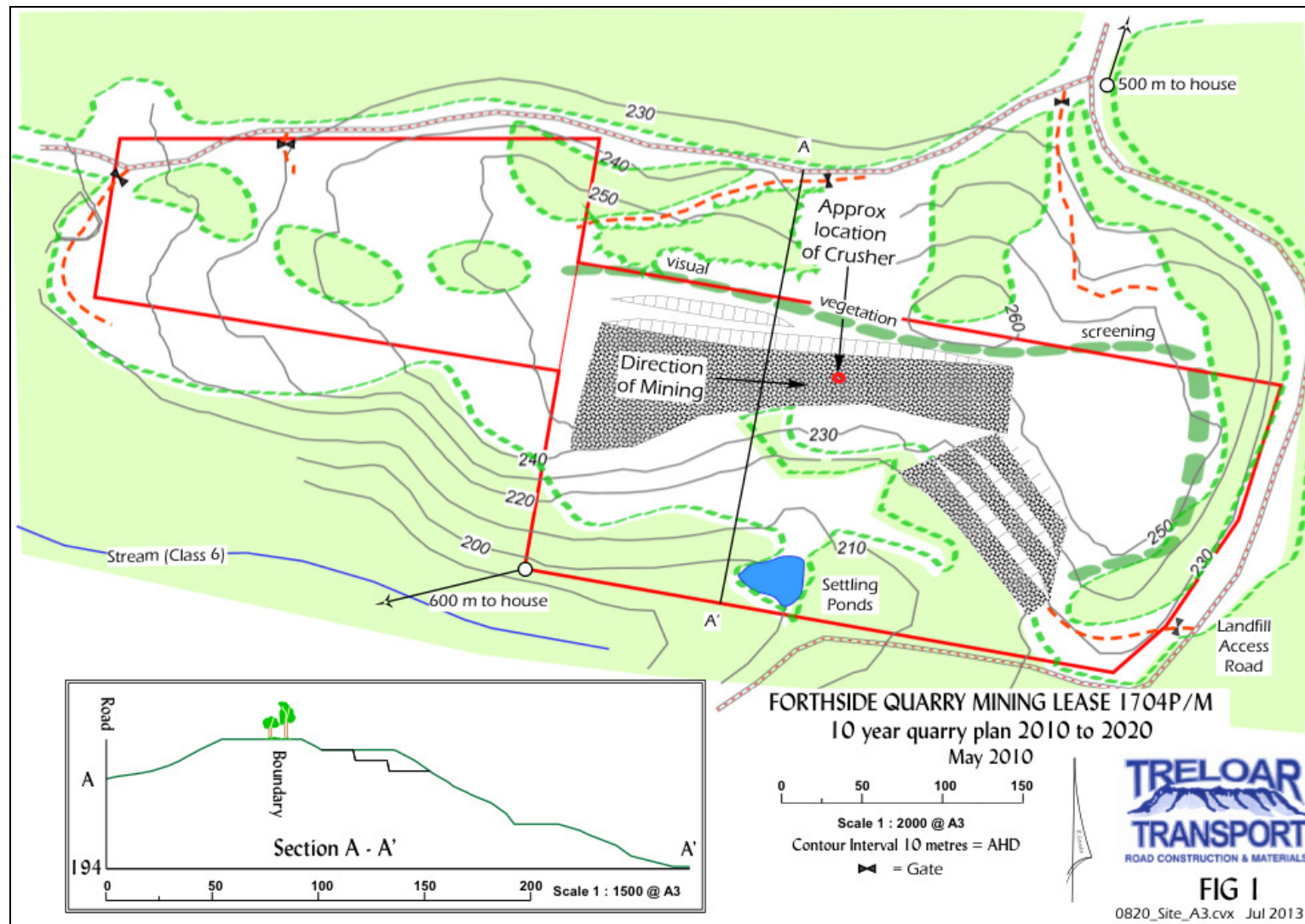
Weather observations

Calm conditions were encountered 27/11/2013, suitable for noise measurements.
 Details are shown alongside.

Weather observations		
Date	27/11/2013	27/11/2013
Location	Loc 1	Loc 2
Time	9:00	11:30
Temp °C	13	17
Relative Humidity %	84	72
Pressure hPa	996	997
Wind speed average m/s	0.6	calm
Wind speed max m/s	2.5	calm
Wind direction	SE	calm
Cloud cover x/8	8	5

[Last revised 9/12/2013]

A2
Plan of Quarry



Plan of quarry supplied by client, reproduced not to original scale

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A3

Location – airphoto showing quarry site, monitoring locations and surrounds



Monitoring locations plotted to reasonable accuracy. Imagery sourced from TheList 29/11/2013. Scale bar 100 m.

Note: changes may have occurred since this image was captured.

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A4

Panorama photograph – Quarry from access decline



View of quarry, looking to east-south arc from access decline. Location 1 was positioned near parked cars, 27/11/2013
Note the 4-photo composite has minor join error and distortion

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A5

Site photographs



View of Location 1, 28 m from crusher, 27/11/2013



View of Location 2, by the neighbour's entry gate, 27/11/2013

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A6

Site photographs



View of Location 3, with 477 Forthside Rd in background, 27/11/2013



View of Location 3, with courtesy sign to quarry truck drivers, 27/11/2013

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A7

Site photographs – quarry machinery



P22 Pegson Jawcrusher 300 HP, 27/11/2013



P1 320B CAT excavator 120 HP, 27/11/2013



P38 950G CAT loader 180 HP, 27/11/2013

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A8

Noise descriptions

For each location, ambient noise by source noted during the site visit is listed (in descending order of significance by loudness, noticeability, duration and incidence):

Location 1

- Quarry operations during test periods

Location 2

- Quarry operations during test period
- Birds including whistlers, crows
- Aircraft, one single engine aircraft pass at 30° above horizon, at 11:17am
- Distant motor
- Four shots
- Distant vehicle
- Cows

Location 3

- Birds including whistlers, owl
- Distant vehicle

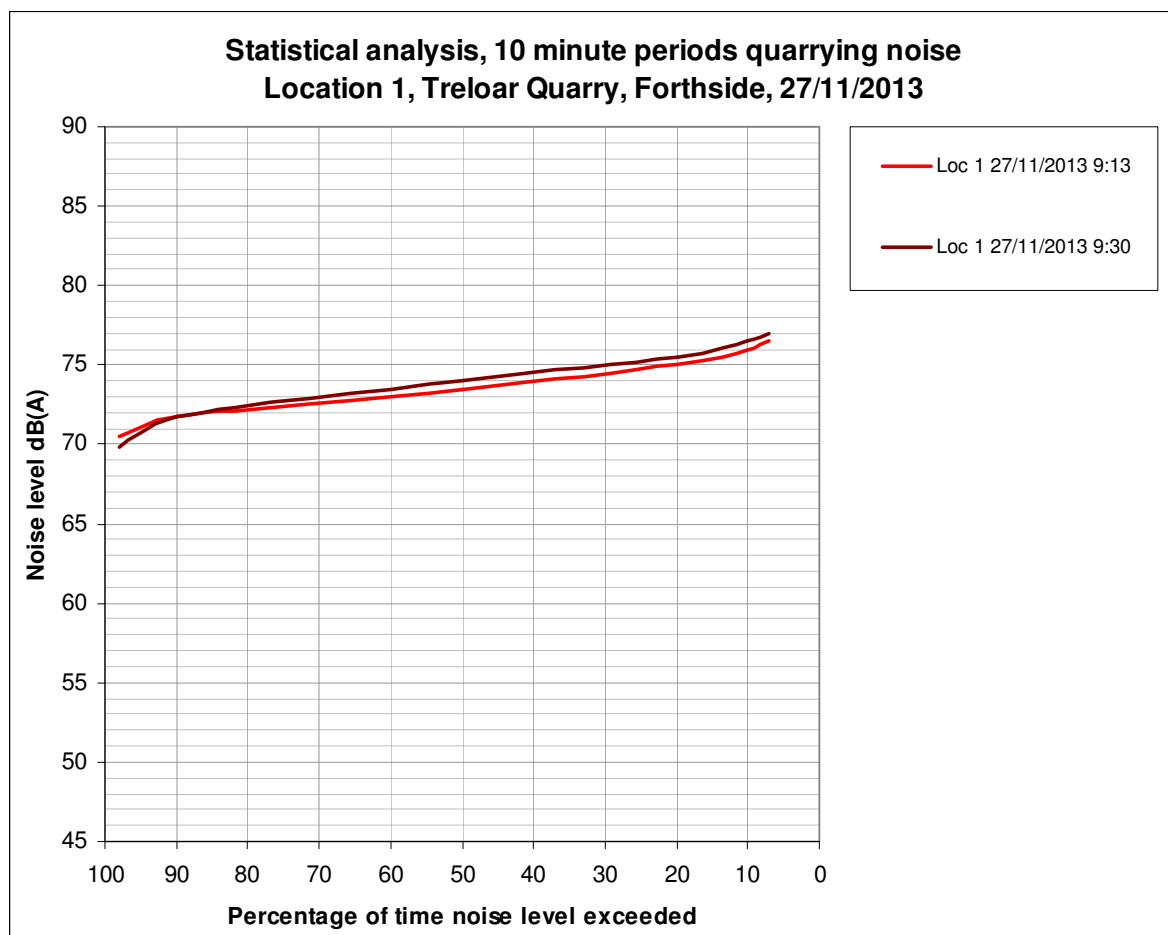
Comments

- Daytime noise measurements were conducted under suitable conditions 27/11/2013.
- Mechanical breakdown of the crusher halted the production of test noise at 10:36.
- Machinery associated with the quarry:
P22 Pegson Jawcrusher 300 HP,
P1 320B CAT excavator 120 HP,
P38 950G CAT loader 180 HP,
and P44 TD25E dozer 300 HP (not present in the quarry during the visit)
- House at side of Porcupine Hill is 650 m SW from crusher, with owners apparently unwilling to engage. Location 2 is at the boundary gate to the property, at 300 m SE of the crusher position. Quarrying raises the background and general noise at Location 2 (L20-L90) by 5-10 dB(A), but the loudest noises are bird calls regardless of quarry operations and ambient Leq is little affected by quarrying.
- House at 477 Forthside Rd, 825 m north of crusher, is obscured from the quarry by virtue of topography and quarrying was not audible in calm conditions at Location 3. Trucks would pass close by the house and a sign advises drivers to avoid using engine brakes.
- A farther neighbour is identified at 970 m east of the crusher (see airphoto) in the valley in cleared land and it also benefits from obscuring topography. No attempt was made to monitor noise at this neighbour during this visit, though one may note it lies three times the horizontal distance beyond Location 2.
- Recommend relocating the crusher deeper within the quarry (as far back from the lip as is practical) to minimise noise emissions beyond the site.
- Recommend replacing the tonal “beeper” style reversing alarms (particularly for the loader) with atonal (broadband) units preferably connected with intelligent sensors. Reversing alarms can assist the safety of nearby personnel. The broadband units resolve the problem of nuisance to distant neighbours.

A9

Statistical analysis of quarrying noise over 10 minute periods at Location 1

Location	Loc 1	Loc 1
Date	27/11/2013	27/11/2013
Time	9:13	9:30
Duration	10 minutes	10 minutes
Samples	6000	6000
Noise	quarrying	quarrying
Period	day	day
L10	76.0	76.5
L20	75.0	75.5
L50	73.5	74.0
L90	71.8	71.8
Leq A	74.1	74.6
Leq C	-	86.9

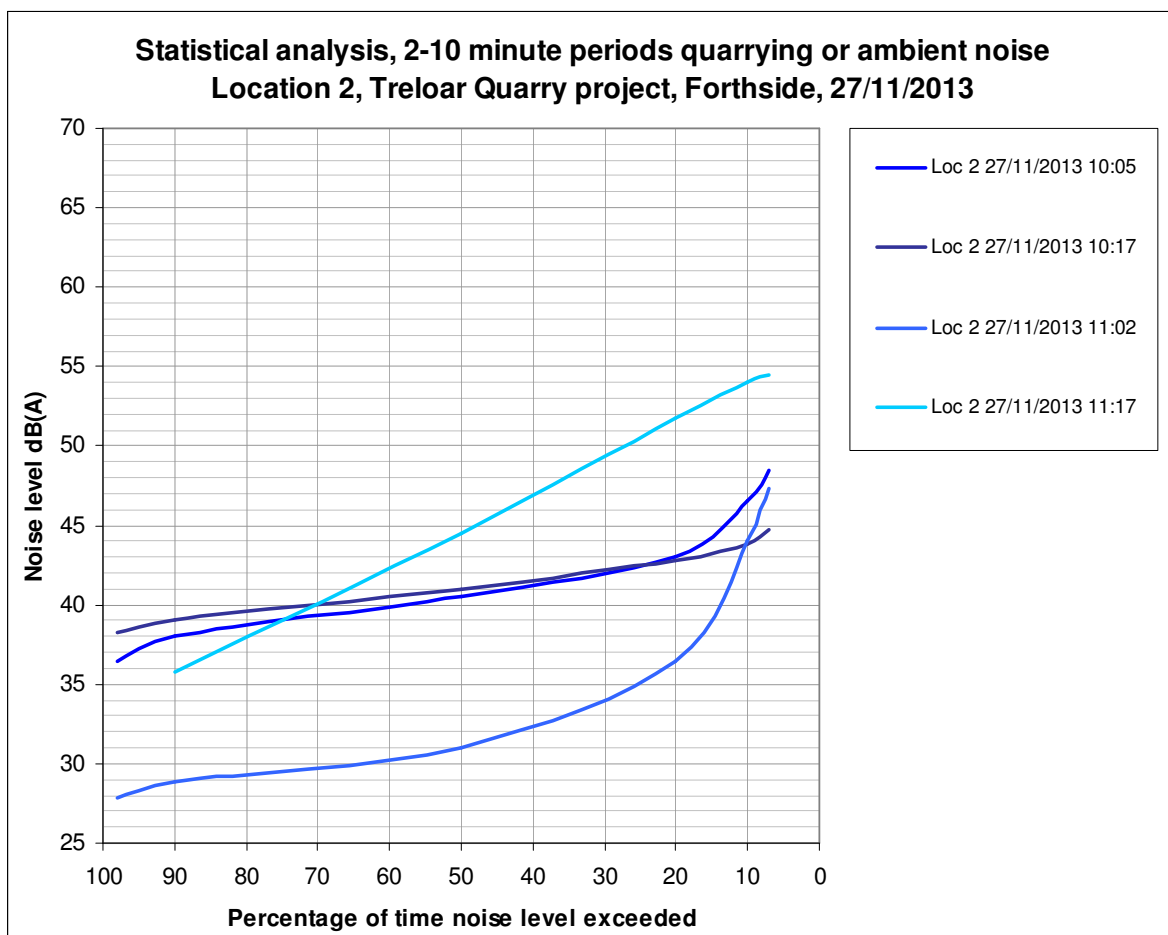


Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A10

Statistical analysis of quarrying and ambient noise over 2-10 minute periods at Location 2

Location	Loc 2	Loc 2	Loc 2	Loc 2
Date	27/11/2013	27/11/2013	27/11/2013	27/11/2013
Time	10:05	10:17	11:02	11:17
Duration	10 minutes	8 minutes	10 minutes	2 minutes
Samples	6000	4800	6000	1200
Noise	quarrying	quarrying	ambient	ambient
Comment	-	-	-	airplane
Period	day	day	day	day
L10	46.5	43.8	44.0	54.0
L20	43.0	42.8	36.5	51.8
L50	40.5	41.0	31.0	44.5
L90	38.0	39.0	28.8	35.8
Leq A	45.3	41.8	44.4	49.6
Leq C	56.2	-	46.0	-

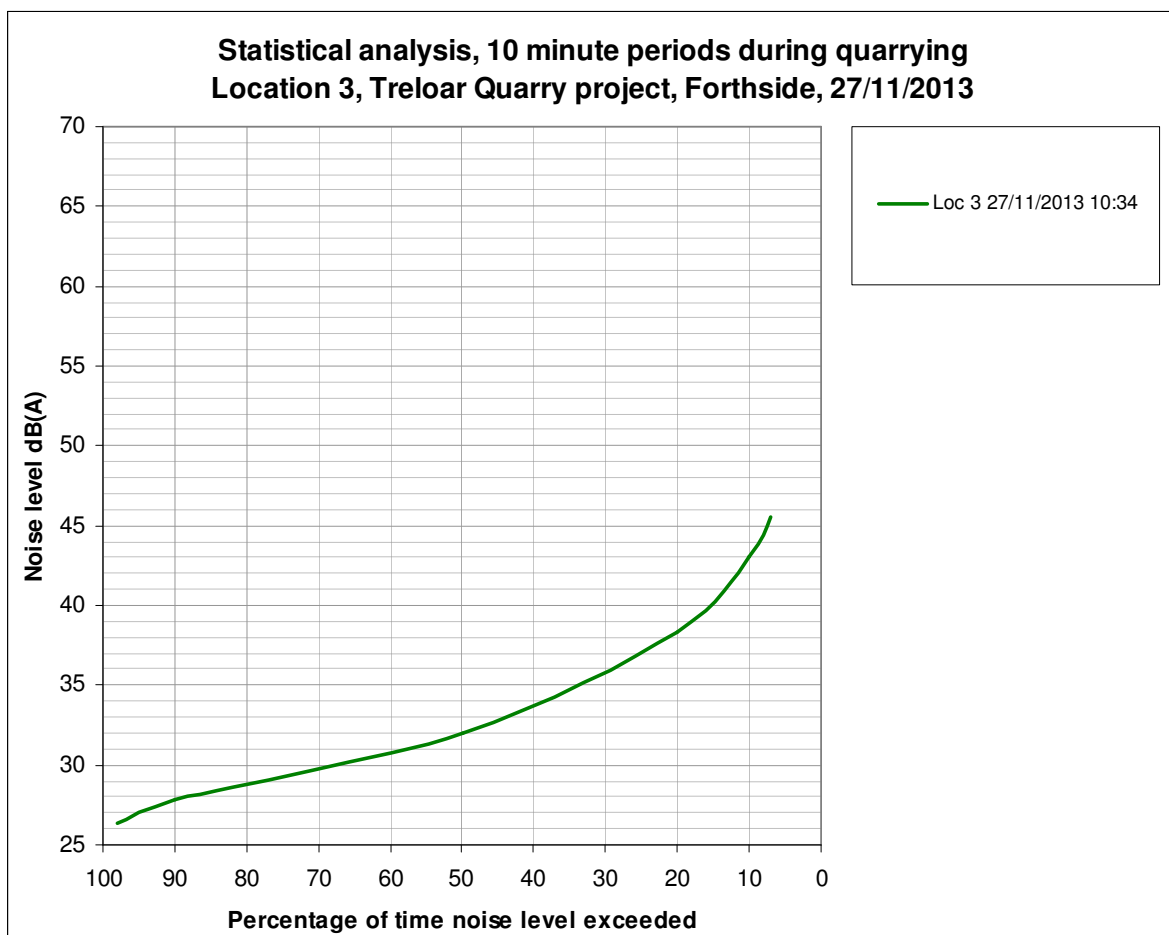


Two measurements during quarrying, one ambient, and a measurement during light aircraft overflight.

A11

Statistical analysis of ambient noise over 10 minute period at Location 3

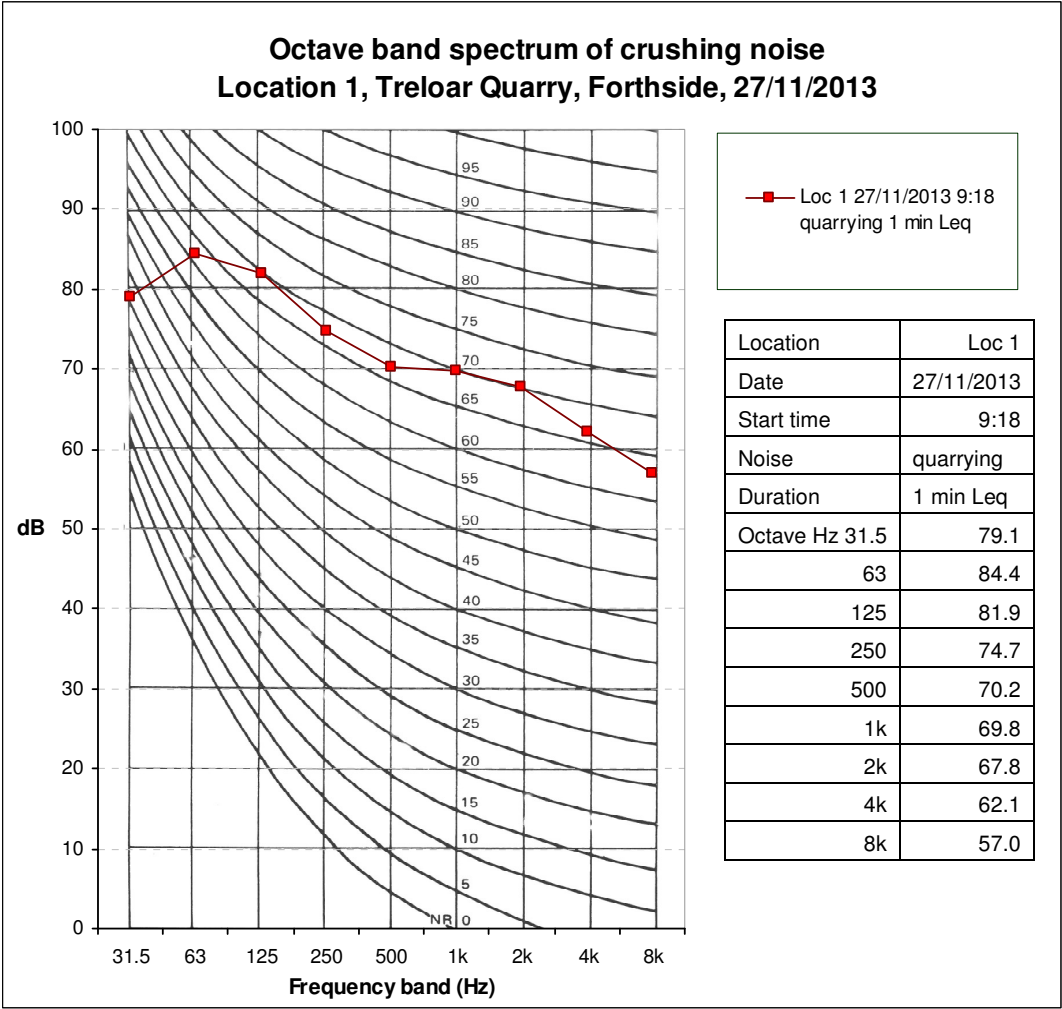
Location	Loc 3
Date	27/11/2013
Time	10:34
Duration	10 minutes
Samples	6000
Noise	ambient
Comment	3 minutes quarrying
Period	day
L10	43.0
L20	38.3
L50	32.0
L90	27.8
Leq A	40.8
Leq C	45.3



Quarrying occurred during the first 3 minutes but was not audible.
Mechanical breakdown of the crusher halted the test noise.

A12

Spectral analysis of quarrying noise at Location 1



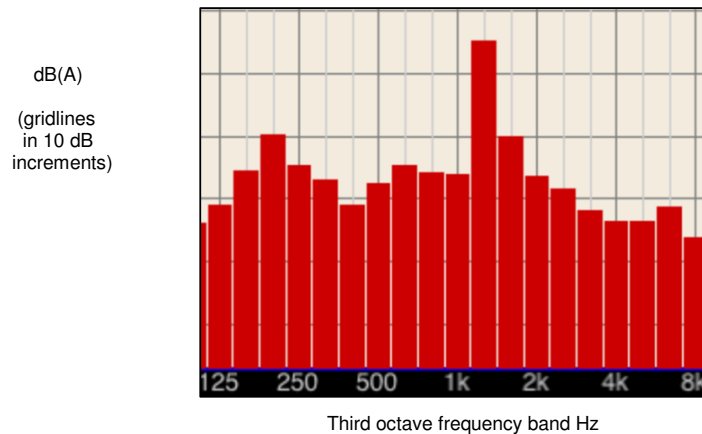
A13

**Snapshot showing indicative A-weighted 1/3-octave spectrum,
noting the intermittent reversing alarm tone captured at 20 m distance**

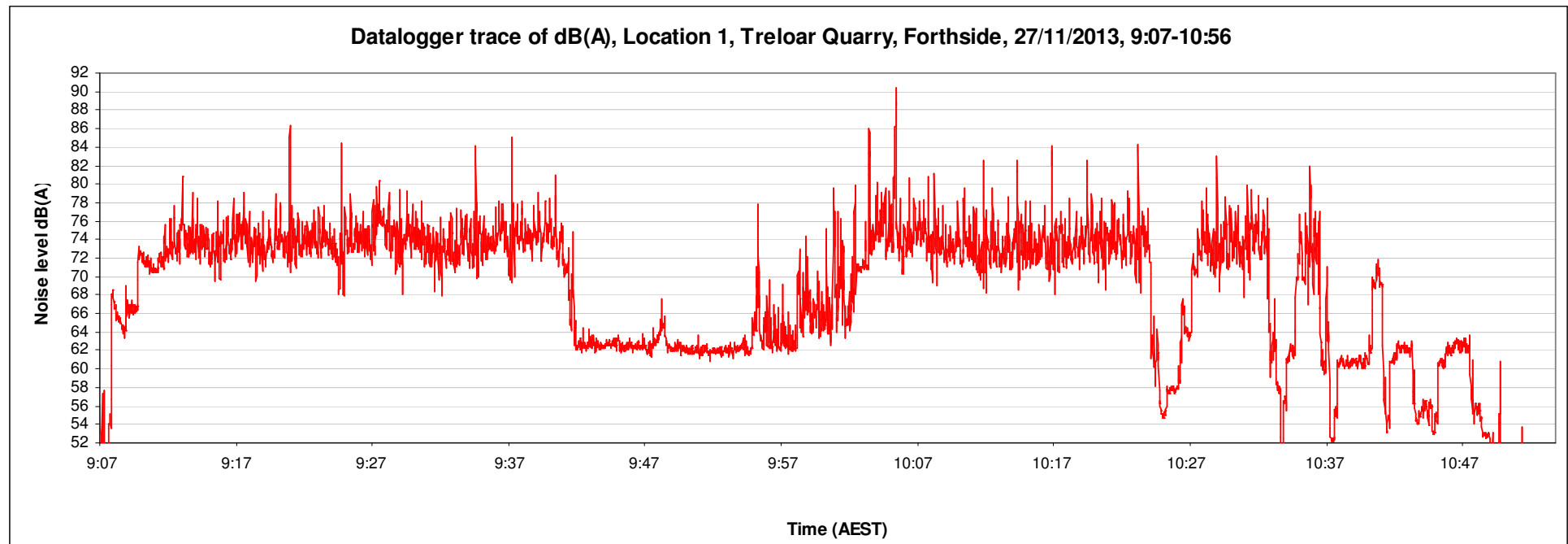
Instantaneous illustrative measurement only.

Spectral curve is not calibrated and is A-weighted.

**Crushing at 28 m and loader reversing alarm at 20 m
Location 1, Treloar Quarry, Forthside, 27/11/2013**



A14

Datalogger monitoring of quarrying noise at Location 1

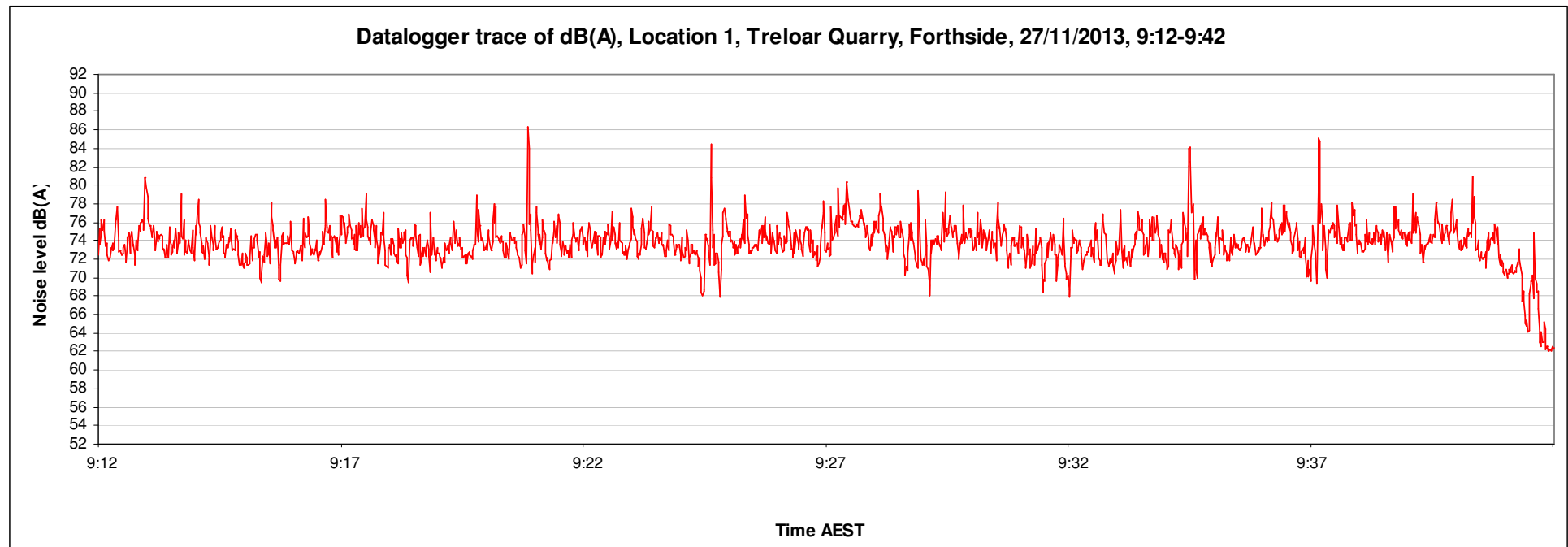
Note: ambient lulls fell below 52 dB(A), the lower limit of measurement of this instrument.

Quarry crushing operation noise is steady, punctuated by reversing alarm from loader when nearby and facing rearward to microphone.

Mechanical difficulties began to manifest in the crusher at 10:36 and the mobile mechanic was called to the site.

Pearu Terts – Field Report – Treloar Quarry, Forthside – Nov 2013

A15

Datalogger monitoring of quarrying noise at Location 1 – 30 minute sub-sample period

The expanded portion of the trace shows the nature of the crushing operation noise at 28 m.

Treloar Transport

Forthside Inert Landfill

Appendix C. Transport Impact Assessment



Treloar Transport

Forthside Porcupine Hill Quarry

Traffic Impact Assessment

PREPARED BY CHRIS MARTIN MIEAust, NPER3.

**Senior Civil Engineer
CSE Tasmania Pty Ltd
Tasmanian Building Act Accreditation Number: CC4109 V.**

DATE 15/9/17

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3	Location and Transport Routes	6
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5	Traffic Issues	12
6	Road Safety Performance	13
7	Conclusion.....	15

1 Introduction & Background

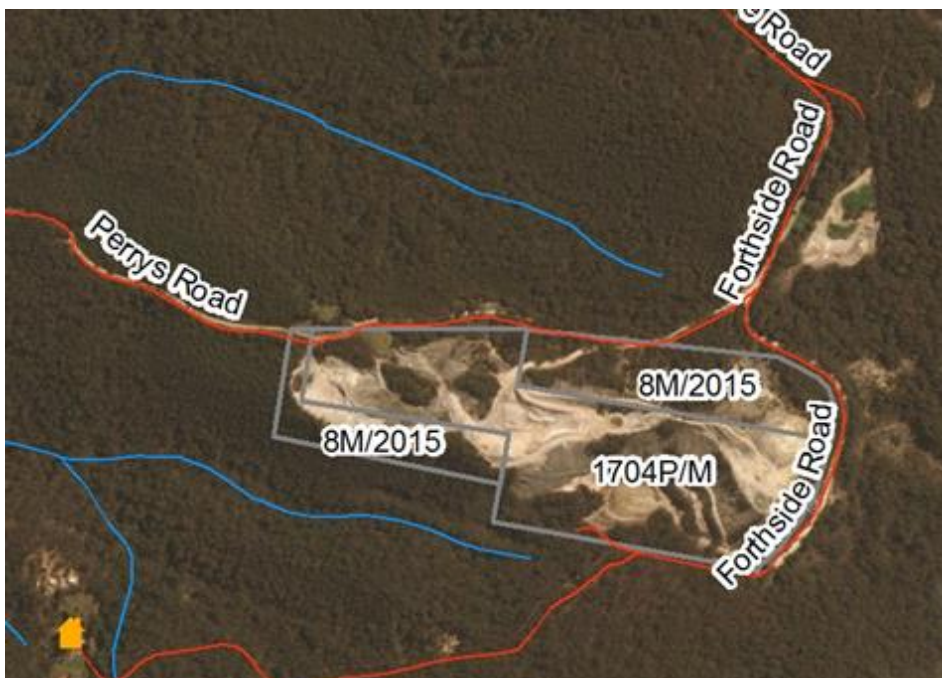
Treloar Transport are required to provide information on Traffic Impacts associated with renewing an expired lease for the Porcupine Hill Quarry (lease number PA970075).

This document should be read alongside the Notice of Intent for the quarry dated 27th of March 2017. As such the relevant general aspects of the project are not repeated in this document.

The Environmental Effects Report Guidelines for the preparation of an Environmental Effects Report supply guidance for the traffic impact assessment.

This document requires coverage of the following points:-

- Will the activity result in or require substantial transport of goods or materials to or from the site, which may affect the amenity of the surrounding area? If yes, provide details such as vehicle types, no. of vehicle movements and route(s).
- Clarify the responsible authority (Forestry Tasmania or Council) for Perrys Rd, Forthside.
- Details of management measures proposed to mitigate any adverse effects due to traffic.



Statement of Qualifications and Experience

This TIA has been prepared by an experienced and qualified Civil Engineer with significant experience in Traffic Impact Assessments and Road Safety Audits in accordance with the requirements of Council's Planning Scheme and The Department of State Growth's, A Framework for Undertaking Traffic Impact Assessments, September 2007.

This TIA was prepared by Chris Martin. Chris's experience and qualifications are briefly outlined as follows:

- Bachelor of Civil Engineering with Honours, University of Tasmania 1992
- 24 years professional experience as a Civil Engineer in infrastructure design
- Master of Business Administration (Technology Management) Latrobe University 2007
- Career experience includes design of many subdivisions, 2.5 years Council Engineer, 14 years in civil and structural consulting and 6 years in major infrastructure engineering positions.

2 Assessment Requirements

I assessed the site conditions to The Austroads AGRD04A/09 Guide to Road Design Part 4A: Unsignalised and Signalised Intersections. This standard (table 3.2) requires that Safe Intersection Sight Distances (SISD) of 114, 141, 170 and 201m be provided for design speeds of 60, 70, 80 and 90 km/hr, a reaction time of 1.5s and an eye height of 1.1m to a truck at 2.4m. A reaction time of 1.5 seconds is permitted in this instance as the road is rural and the alignment contains many horizontal curves.

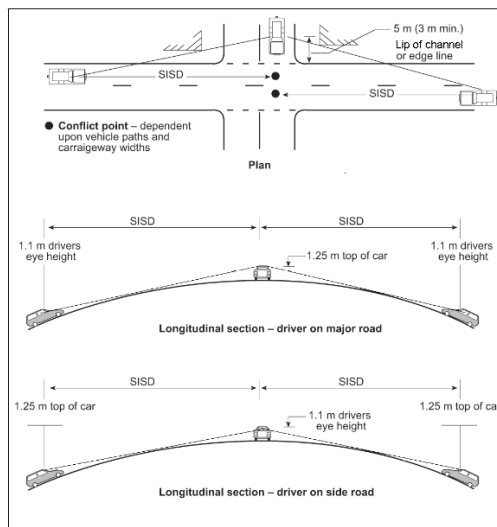


Figure 3.2: Safe intersection sight distance (SISD)

The Guide to Road Design Part 3: Geometric Design section 5.3 discusses the use of Stopping Site Distance (SSD) as the distance to enable a normally alert driver, travelling at the design speed on wet pavement, to perceive, react and brake to a stop before reaching a hazard on the road ahead. The provision of SSD is a mandatory design condition for all roads and intersections in the normal design domain. The Guide nominates SSD for design speeds of 60, 70, 80 and 90km/hr a coefficient of deceleration of 0.36 and a reaction time of 2s as 73, 92, 114 and 139m.

3 Location and Transport Routes

The locations of the quarry is south of Perrys road just west of the start of Perrys road as shown below. The only access for the quarry is via the public road along Fortside and the for a short distance on Perry's Road. Perrys Road and Fortside Road are maintained by Devonport City Council.

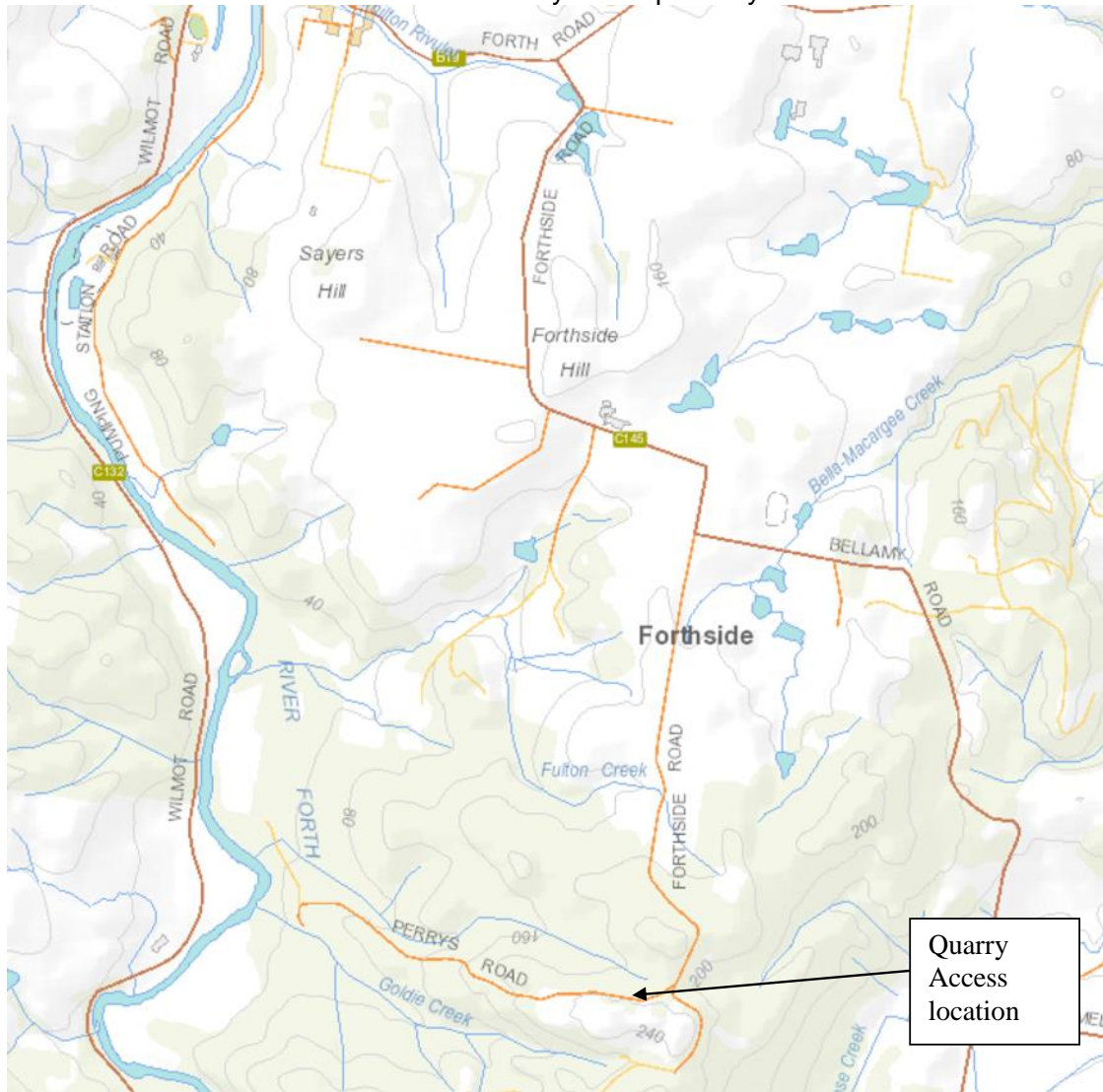


Figure 1 – Plan showing general location of quarry and access location

3.1 Road Network

A site inspection on 14/9/2017 examined the existing road Network.

The quarry access is off Perrys Road a short distance from Fortside Road.

Perrys road and the access at this location are single lane gravel.

The 3.7m wide gravel access descends from the quarry to Perrys road at a steady gradient of about 17% which flattens out at the merging point. The access merges onto Perrys road making visibility of traffic approaching along Perrys Road difficult for trucks other than by assessing their rear vision mirrors.



The angle of this intersection is nominally 5 degrees which does not comply with the recommended intersection angle of not less than 70 degrees contained in older versions of the Austroads Part 5 Intersections at Grade. The current Austroads AGRD04A 09 Guide to Road Design Part 4A: Unsignalised and Signalised Intersections outlines that intersections should be as close as possible to 90 degrees to make visibility of the road easier for all parties approaching intersections. The older driver demographic particularly finds it difficult to look behind for vehicles approaching.

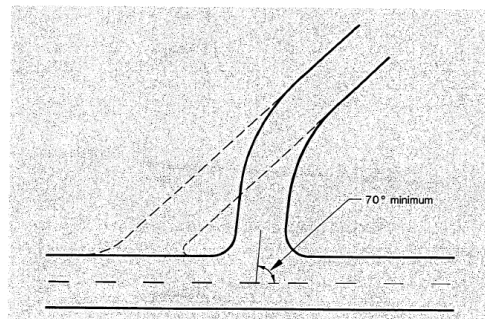


FIGURE 5.4 Treatment of Low Angle Intersection



In this instance the truck drivers will be approaching this intersection very slowly down the hill and the likelihood of traffic on Perrys Road is limited. There is some 13m where rear vision along the road will be excellent for the merging trucks before they encroach into the Perrys Road east bound traffic.

The regularly trafficked width of Perrys Road west of the intersection is 3.6m

wide with trafficable widening out to 5.3m available should the need arise.

At the merge point visibility to the east of the access is 100m before vegetation obscures view.



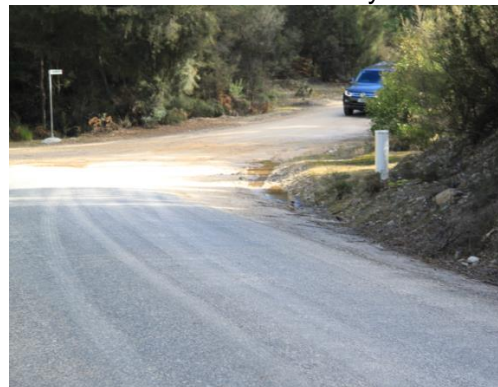
View from the east towards the intersection. Road width at this location is 4m.

The eastern approach to the intersection has additional trafficable pavement at around 7.3m width.

Perrys Road proceeds in an easterly direction until it hits the sealed Forthside Road. Forthside road is two coat sealed for a short distance beyond this intersection – generally to a width of around 5.3m.

Perrys Road has limited visibility with around 73m around curves encouraging a slower driving speed.

Forthside Road south of the Perrys Road turnoff serves the Treloar inert fill disposal facility and one other property – traffic from this direction again will not be significant.



Perrys Road has good visibility south on Forthside Road for about 25m before vehicles impact on the through lane of Forthside Road. A vehicle travelling north on Forthside Road approaching Perrys Road will sight a vehicle on Perrys Road approaching the intersection from approx. 72m.

Forthside Road through to Bellamy road contains no further issues or traffic concerns. Treloars representative noted that some residents in the past operations of the quarry were concerned about the speed of trucks. Truck drivers have been advised to limit speed to 60km by Treloar Management on this section of road. Forthside Road beyond the Bellamy Road is considered to be an open speed road. The Premium Fresh vegetable processing facility adds a significant truck load to the network in this area.

The recommended Safe Stopping Distance for 60km/hr is 73m corresponding to the truck recommended speed. The road environment generally was closed in and a design speed of 60km/hr is expected to be conservative for the sections with limited sight lines.

The Bellamy Road/Forthside Road intersection is some 60m on the west side of a crest on Bellamy Road. This limits visibility to the intersection and can be an issue for vehicles travelling west over the crest at speed.



Two advanced T intersection hazard signs are provided for the west bound vehicles approaching this intersection. The bi directional hazard sight board is visible from about 100m from the intersection which is a little over the Safe Stopping Distance for a vehicle approaching the

intersection at 70km/hr. With the long straight on Bellamy Road east of the intersection it is feasible vehicles hit this crest at up to 100km/hr if the signage has not been heeded. **Consideration could be given towards raising the bidirectional hazard board a further meter on new posts to improve visibility as vehicles approach over the crest.**

4 Proposed Traffic

The following points are relevant from the Notice of Intent:-

Typical equipment on site will be:

- 30T Excavator
- D8 Dozer
- Crusher: Terex mobile crusher / screen
- Stockpile Loader: Cat 950
- Trucks: Truck and dog combination 30t capacity

Treloars advise that they seek to increase output to 30,000 tonnes or 11500 bank cubic meters. Haulage will be via 32t truck and dog combinations therefore approx. 940 trucks per annum are expected.

The heaviest concentration of traffic would typically be 20 truck movements a day for several weeks over several campaigns per year. 50 days of trucks operating at this frequency will move the permitted tonnage.

It is proposed that operating hours will be 0700 to 1700 Monday to Friday and 0800 to 1500 on Saturday. This corresponds to normal work hours during which there is a greater likelihood that the houses in the vicinity of the road network will not be occupied with occupants at school or work.

The pit life is expected to be 30 years.



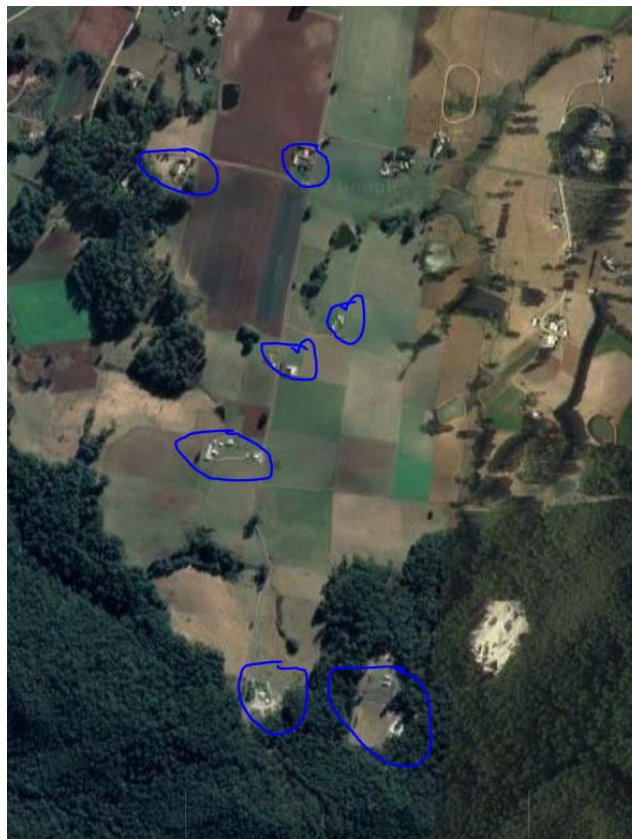
Traffic distribution anticipated based on Treloar Transport dispatching advice is:-

- 5% right at Bellamy Road heading to Melrose and beyond
- 95% proceed along Forthside Road to the Forth Road.
- At Forth Road 75% of loads will proceed towards Devonport and
- 25% will turn left towards Ulverstone.

5 Traffic Issues

One environmental issue associated with the Traffic will be dust generation from trucks on the access road during periods of relatively heavy truck traffic whilst a campaign is in progress. This impact will be reduced in sensitive areas by limiting vehicle speeds and utilising a water truck when necessary. There are however no houses near the short gravelled section of Perrys Road.

7 houses are noted along the sealed section of Forthside Road up to the Bellamy Road intersection.



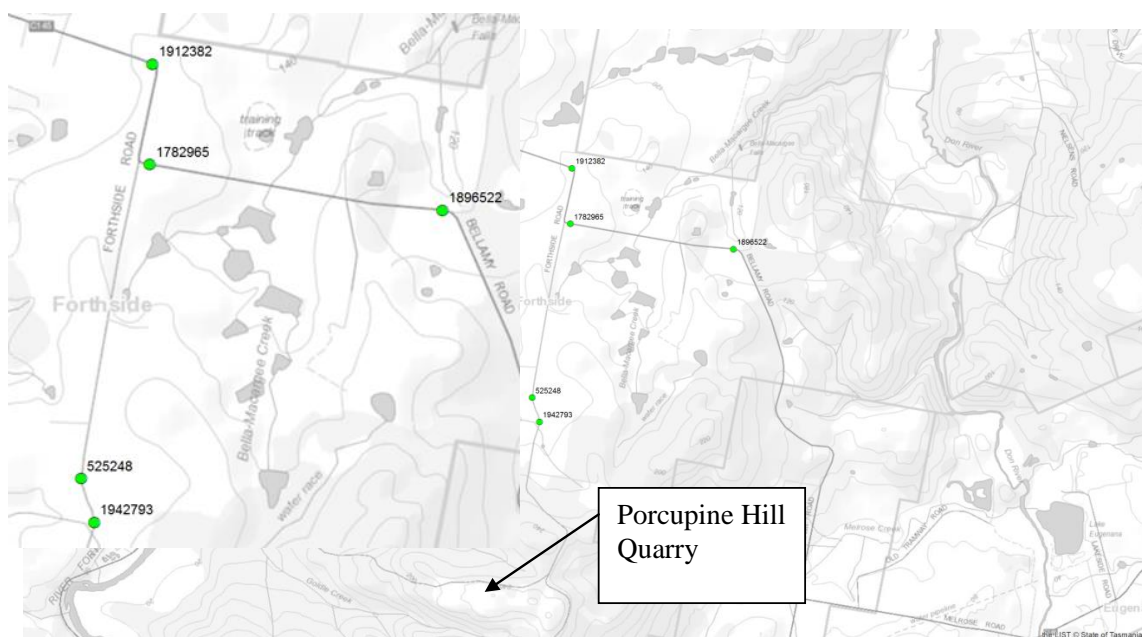
6 Road Safety Performance

Crash data provides valuable information on road safety performance. Existing road safety deficiencies can be highlighted through the examination of crash data, which can assist in determining whether traffic generation from the proposed development may exacerbate any identified issues.

The Department of State Growth DSG accident database collects all accident data in the state from 2003.

The Manager of Crash Data provided the following recorded history of crash data in the area over the last 5 years.

Crash_ No	Crash_Date	Severity	Description	Visibility	Surface_Ty	Surface_Co	Light_Cond	Unit_Types
525248	25/01/2015 12:05 SUN	Serious	189 - Other curve	Clear	Sealed	Poor road shoulder/verge condition	Daylight	Light Vehicle
1782965	11/06/2016 10:00 SAT	Property Damage Only	179 - Other straight	Light rain, drizzle	Sealed	Wet	Daylight	Motorcycle
1896522	27/08/2016 17:50 SAT	Property Damage Only	189 - Other curve	Light rain, drizzle	Sealed	Wet	Dawn / Dusk	Light Vehicle
1912382	26/09/2016 20:09 MON	Fatal	183 - Off left bend into object/parked vehicle	Clear	Sealed	Dry	Darkness (without street light)	Light Vehicle
1942793	08/10/2016 13:00 SAT	Minor	184 - Out of control on carriageway	Clear	Sealed	Wet	Daylight	Motorcycle



CSE Tasmania Pty Ltd

The accidents have all occurred in the last 2.5 years. All bar one – the Fatality occurred on the weekend – perhaps indicating the hazardous nature of the road to those that are not familiar with it.

3 of the accidents involved light vehicles, 2 involved motorbikes. All were single vehicle accidents with the motorbikes and one car being susceptible to slippery wet road conditions.

Poor verge conditions were a contributing factor in the serious Forthside Road (south of Bellamy Road) accident of the 25/1/2015. Trucking activity could contribute to this wear and tear – particularly at corners.

The fatality at the right angled bend north of the Bellamy Road/Forthside road intersection is noted as a light vehicle colliding with a fixed object. The only way that this could have happened would be an east bound vehicle hitting the power pole shown right. North bound vehicles are protected from the power pole by the guardfence. Extension of the guardfence to the north at this location could reduce the impact damage incurred by vehicles on a trajectory with the power pole in the future. The image above is a couple of years old from Google Street View. The one below is recent showing that signage has been improved to provide more awareness of the approaching corner.



7 Conclusion

The increase in truck movements from the quarry proposed by Treloar Transport will increase the truck loading on the road network particularly on the lower standard section of Forthside Road to the Forthside Road/Bellamy Road intersection.

Accident data demonstrates that sharp bends on the roads in this vicinity are problematic – possibly more so to drivers not frequently using the road.

Minor improvements are recommended in the report. These include:-

- managing vegetation growth to maximise sight lines where possible
- raising the bi-directional hazard sight board opposite the Bellamy Road turnoff to improve its visibility as vehicles drive west over the crest.
- Extend the guardfence at the right angled bend to protect the power pole from vehicles approaching the right angled bend on Forthside Road north of the Forthside Road/Bellamy Road intersection.

Past accident data demonstrates that the roads in this area are hazardous. Single vehicle accidents predominate.

There is no evidence to demonstrate that the trucking activity proposed by Treloar Transport will increase safety issues beyond those inherent with the existing road design.

Treloar Transport

Forthside Inert Landfill

Appendix D. Weed and Pathogen Management Plan



Weed and Pathogen Management Plan

Porcupine Hill Quarry

WEED AND PATHOGEN MANAGEMENT PLAN

**This Weed Management Plan was prepared by:**

TRELOAR TRANSPORT PTY LTD

Registered office

26 Claude Road,
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Issue	Date	Recipient	Organisation
DRAFT1	2 August 2018	NB	Treloar Transport
DRAFT2	14 August 2018	Mining and Operations Unit	EPA Tasmania
VERSION 1	21 August 2018	Mining and Operations Unit	EPA Tasmania

WEED AND PATHOGEN MANAGEMENT PLAN



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1. INTRODUCTION

1.1. COMPANY OVERVIEW

Treloar Transport (TT) manage seven quarries (with nine leases) throughout the north west of Tasmania, Figure 1 shows locations of the quarries. In addition to this, TT operates civil construction sites during the year. Company and subcontractor equipment is used in both the quarries and on the civil construction sites. This Weed and Disease Management Plan (WDMP) covers the principles and methods used by TT to control the spread of weeds and pathogens between on the Porcupine Hill (Forthside) quarry and landfill site.

TT's main quarry is located at Shackley Hill in No Where Else, near the township of Sheffield. The quarry has some fixed plant and a small number of mobile plant, which permanently work from the quarry. TT has an office and workshop complex in the township of Sheffield. The remaining TT quarries are operated intermittently on a campaign basis, machinery is moved between the quarries and TT civil clients. This movement of machinery causes a level of risk, which this management plan addresses. TT also have confirmed occurrences of *Phytophthora cinnamomi* at a number of their quarries, the *P. cinnamomi* status is shown in Table 1 below for each quarry.

Table 1 - *P. cinnamomi* status of Treloar Transport quarries

Lease #	Name	<i>P. cinnamomi</i> Status
8M/2015	Porcupine Hill	Small area confirmed in 1704P/M
1704P/M	Porcupine Hill	Small area confirmed
1982P/M	Big Bend (Railton)	Assessed and no PC present
20M/2003	Cethana (Sand)	Assessed and no PC present
1007P/M	Punches Terror	Suspected, sampled with confirmation of no PC present
45M/1982	Moina	Area confirmed, managed and quarantined
1639P/M	Shackley Hill	Assessed and no PC present on 11th May 2017
28M/1990	Punches Terror	Assessed and no PC present
24M/2000	Gowrie Park	Area confirmed, managed and quarantined

1.2. SITE OVERVIEW

The Porcupine Hill quarry comprises of two leases, 1740P/M and 8M/2015. The operation is located off Perry's Road in Forthside, 5km to the south east of the Forth township. The quarry has been operated by TT since 2009. TT have recently received a new environmental and council permits to operate the site.

The mining activities are operated under Permit Conditions – Environmental 9697, adjacent landfill operations are operated under Permit Conditions – Environmental 7694. Figure 2 shows the two permitted operating areas in which this weed management plan covers.

The quarrying operation is a traditional drill, blast, load and haul operation. Operations are currently being conducted in areas shaded in orange in Figure 2. The project will be conducted in accordance with the approved mining plan.

The landfill operations consist of a level 2 inert landfill (category A), which receives waste including construction building material, clean fill, concrete, logs and rocks. TT also conducts some recycling/reuse activities, especially with materials like concrete, which are sorted and screened and resold as clean fill. This is considered best practice according to the *Landfill Sustainability Guide 2004*. TT also understands that it is their responsibility to undertake rigorous weed and pathogen

WEED AND PATHOGEN MANAGEMENT PLAN



management to ensure that their client base does not receive weeds and pathogens in their recycled products.

The company wide policy with respect to washdown is to return the machinery from all jobs to the main workshop at 26 Claude Road, Sheffield for washdown with fungicide Ridomil Gold. More details on the washdown procedures are included in section 5.2.

The quarry has been confirmed to contain two small areas of *P. cinnamomi*, which is being treated under advice from Sue Jennings. The quarry also has confirmed occurrences of Pampas, Gorse, Radiata Pine, Broom, Spanish Heath and Thistles.

The most recent assessment conducted by Sue Jennings of Quarry Clean, are attached in section 8.4.

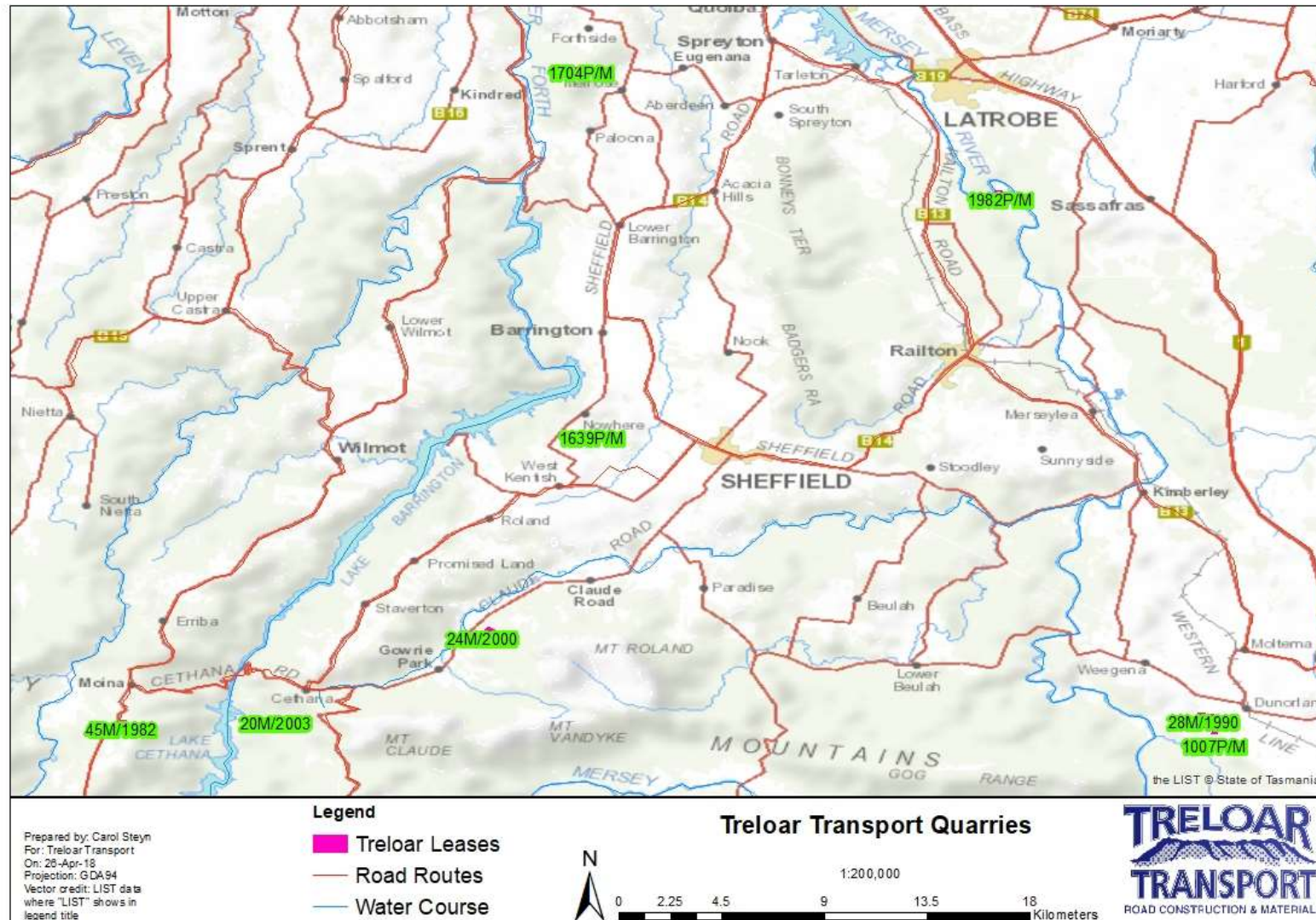


Figure 1 - plan showing the locations of the Treloar managed quarries, with the head office in Sheffield

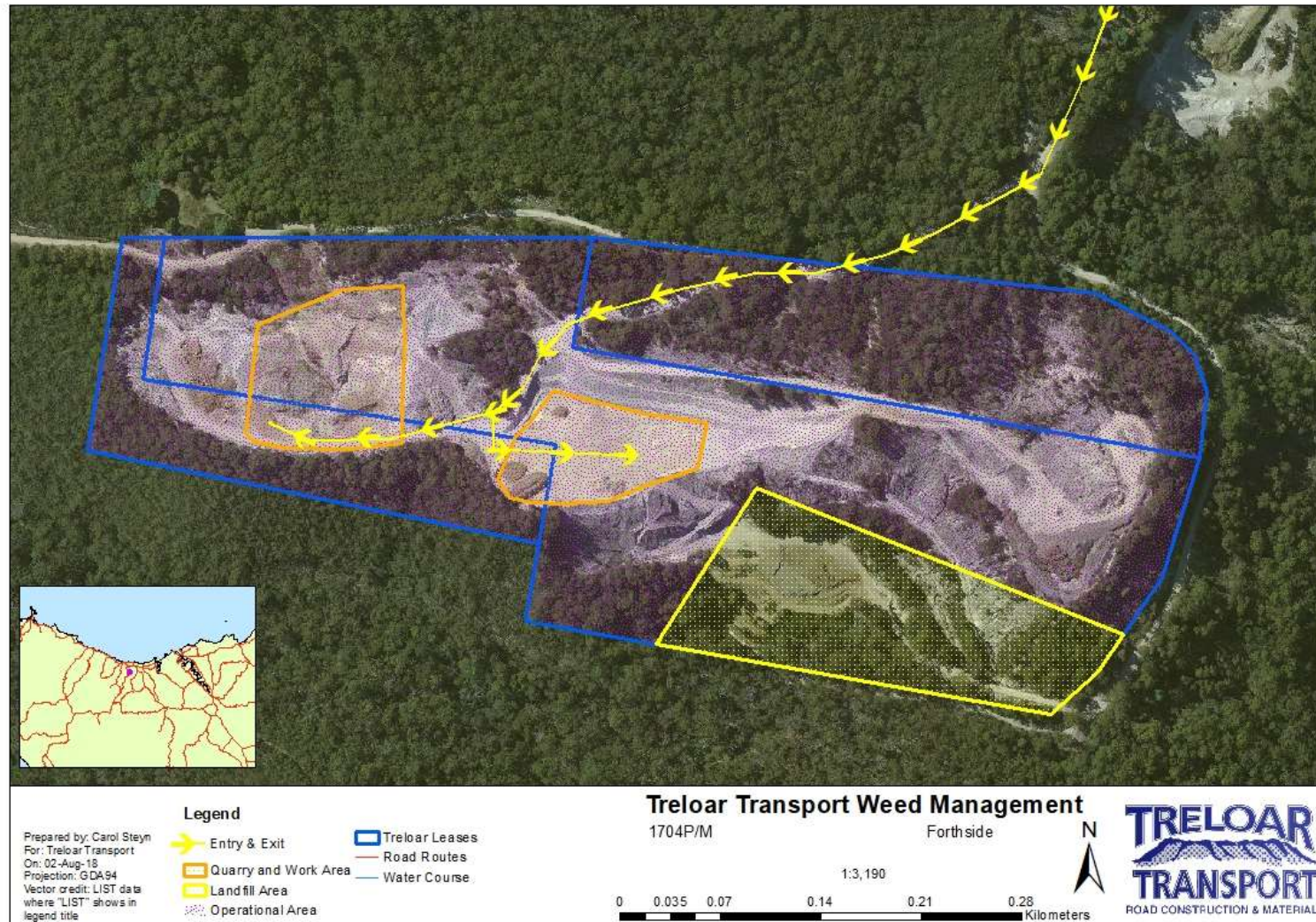


Figure 2 - shows the operational areas of the quarry (purple shading) operated under permit conditions - environmental 9697 and the landfill area (yellow) which is operated under permit conditions - environmental 7694

WEED AND PATHOGEN MANAGEMENT PLAN



1.3. PURPOSE AND SCOPE

The purpose of this WDMP is to detail requirements for the management of weeds associated with operation of the Porcupine Hill Quarry at Forthside. The WDMP identifies site specific mitigation measures and environmental controls for weed management to ensure weeds and diseases are effectively managed during works and into the future. The WDMP identifies measures to control, eradicate and prevent the spread of declared weeds and environmental weeds.

1.4. BACKGROUND, AIMS AND OBJECTIVES

The site is used as a quarry and landfill site, with defined areas for each activity. Figure 2 shows the areas where these activities will occur. The landfill site poses more of a weed and pathogen risk than the quarrying activities, as it allows importation of material from outside the site. The landfill area will have more rigorous inspections conducted throughout the year.

This WDMP aims to provide a detailed methodology for mitigating and managing impacts associated with the presence, emergence and spread of weeds, throughout the project.

The objectives of the Weed and Disease Management Plan are to:

- Record the distribution of weeds declared under the Weed Management Act 1999.
- Record the distribution of significant, non-declared, environmental and agricultural weed species.
- Record the presence and distribution of pathogens.
- Provide control measures for identified weeds and pathogens to prevent new weeds and pathogens from establishing and spreading.
- Establish an ongoing monitoring and control program for weeds and pathogens into the future for the site.

1.5. SUPPORTING DOCUMENTS AND CONSULTATION

TT uses Sue Jennings, who has over 35 years industry experience, with a particular interest in identification and management of *P. cinnamomi*. Sue has been assisting TT with *P. cinnamomi* management since 2013.

TT outsources treatment of weeds to numerous contractors depending on sensitivity of the area. Weed identification and management occurs in house.

1.6. GLOSSARY

Abbreviations	Definitions
DPIPWE	Department of Primary, Industries, Water and Environment
EPA	Environment Protection Agency
WoNS	Weed of National Significance
NVA	DPIPWE's Natural Values Atlas
MRT	Mineral Resources Tasmania
TT	Treloar Transport

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2. LEGISLATION, STRATEGIES AND PLANS

The aim of legislation, strategies and plans is to ensure that there is a coordinated approach to weed management activities in any given area. TT has considered and listed the relevant strategies to their operations in Table 2. The aim of this strategy is to comply with relevant legislation, environmental permits and work with key stakeholders to achieve their strategy.

Table 2 - List of relevant Legislation, Strategies and Plans

Legislation, Strategy, Code of Practice	Application
Weed Management Act 1999	The Weed Management Act 1999 is the primary legislation relating to declared weeds in Tasmania
Plant Quarantine Act 1997	Provides for the quarantine of plants and the control of pests and diseases. Quarantine Tasmania regulates and prohibits the importation of pest plants, animals and diseases into Tasmania.
Cradle Coast Regional Weed Management Strategy	Principal framework for weed management in the Cradle Coast region with the aim of identifying priorities and weed management actions within the region
Keeping it Clean – A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens	Provide guidance on hygiene management and to reduce the risk of spreading environmental diseases
Kentish Municipal Weed Plan (2007)	Kentish Council weed management plan
Australian Weed Strategy 2017 - 2027	National framework for addressing weed issues whilst maintaining the profitability and sustainability of Australia's primary industries and the reducing the impact of weeds on the environment
State WeedPlan 2005	WeedPlan - aims to achieve coordinated, collaborative and effective weed management across the whole state
Tasmanian Biosecurity Strategy 2013 - 2017	Underpins and implements the Tasmanian Biosecurity Policy
Landfill Sustainability Guidelines 2004	The <i>Landfill Sustainability Guide</i> for siting, design, operation & after-care of landfills

3. EXISTING AND POTENTIAL WEED AND DISEASE ISSUES

Weeds, diseases and other pests have the potential to establish and/or spread across the quarry and landfill areas. Increased weed colonisation could potentially have some impact on the ecological values of adjacent remnant vegetation through displacement of native species and degradation of fauna habitat.

TT has stringent hygiene practices to ensure that weeds and pathogens are not transported between its sites and client sites. TT maintains input from key consultants to ensure that, *P. cinnamomi*, in particular, is not moved around on machinery. Weed management undertaken by TT is currently managed in house, with treatment activities contracted to suitable consultants.

3.1. RECORDED WEED SPECIES

Weed species are recorded and treated annually, however, historically this has not occurred digitally. During the 2018 -2019 financial year, weed species will be recorded electronically during quarry inspections and treatment recorded within this GIS system. The GIS layer complies with the Cradle

WEED AND PATHOGEN MANAGEMENT PLAN



Coast NRM standard (see Appendix C), which they upload to the Tasmanian Natural Values Atlas (NVA).

Declared weeds:

Declared weeds in Tasmania are plants that have been declared under the Weed Management Act 1999. The legislation requires that these species be controlled or eradicated according to the relevant statutory management plan.

Declared weeds have been identified on the Porcupine Hill lease and are shown in Figure 2.

Environmental weeds:

Although many common weeds are not listed under legislation, and are therefore not legally required to be controlled they have the potential to pose a threat to the ecological and agricultural assets present in the project area and interfere with different stages of the development. Common 'non-declared' weeds include species such as cape weed (*Arctotheca calendula*) and scotch thistle (*Cirsium vulgare*).

3.2. RECORDED DISEASES OR SYMPTOMS

The main activities at risk of introducing or spreading *P. cinnamomi* and Chytrid include:

- Through soil, sand gravel or other materials attached to vehicles and machinery used as part of the development works.
- Importing water or soil, sand, and gravel material for construction purposes (eg. roading, landscaping, filling, bedding etc.).
- Spreading the pathogen/disease from infected sites (contaminated) to uninfected (clean) sites.

Advice from Sue Jennings is included in her report, attached as Appendix D with regard to appropriate site controls. A summary of her recommendations from the last site visit in May 2017;

- Ensure that drainage is directed around the perimeter of the pit to prevent water flowing through the *P. cinnamomi* areas and contaminating more of the quarry
- Spray off western internal bank and remove vegetation from top soil on eastern end of the quarry
- Scaled areas should be sprayed with Ridomil fungicide

4. IDENTIFY MANAGEMENT PRIORITIES

TT identifies the following management priorities:

1. Ensure that *P. cinnamomi* areas remain isolated to the current extents and reduce using management practices identified by Sue Jennings
2. Identify and treat weeds which are identified as Zone A weeds in the municipal area of Devonport
3. Identify and treat weeds on each site at regular intervals
4. No importation of materials into the quarry area with permission of the Director. Importation of weed bearing materials into the landfill site is isolated from saleable materials.

WEED AND PATHOGEN MANAGEMENT PLAN



5. MANAGEMENT AND CONTROL OF WEEDS AND DISEASES

Weed treatment is conducted between October and April each year. Weed treatment is primarily foliar herbicide application (spot spray). Control method is discussed with the contractors prior to treatment and conducted in alignment with Table 3. Herbicide application is recorded using a herbicide application form.

Table 3 - control methods for treatment of weeds

Weed	Control method	Chemical	Timing	Frequency of control
Pampas grass	Spot spray, foliar application	Glyphosate	Spring, summer or autumn to actively growing plants	1 treatment with follow up
Pampas grass	Hand grub	N/A	Year round	As noted and if possible
Spanish heath	Spot spray, foliar application	Grazon Extra, marker dye and surfactant	Prior to seed set	1 treatment with follow up
Gorse	Spot spray, foliar application	Grazon Extra, marker dye and surfactant	Spring to early summer	2 treatments throughout this time period
Thistles	Foliar Spray	Glyphosate	Spring to early summer	1 treatment with follow up
English Broom	Spot spray, foliar application	Grazon Extra, marker, dye and surfactant	Spring to early summer	1 treatment with follow up
Radiata Pine	Spot spray, foliar application	Grazon Extra, marker, dye and surfactant	Spring to early summer	1 treatment with follow up

Pathogen management is conducted on a continual basis due to *P. cinnamomi* infections in a number of TT quarries.

Weed infestations will be inspected numerous times per year during quarry inspections. Quarry inspections are conducted on a three-monthly basis as a minimum.

5.1. DISPOSAL

Weed matter will be disposed of via deep burial at one of TT's landfill sites. The matter will be bagged and left to sun if possible prior to disposal.

5.2. WASHDOWN

Washdown is conducted at the head office in Sheffield, once machinery is finished at site, it is returned to the head office and washed down with a fungicide Ridomil Gold. Washdown is conducted in accordance with *Weed and Disease Planning and Hygiene Guidelines 2015*, attached as appendix D.

WEED AND PATHOGEN MANAGEMENT PLAN



6. COMMUNICATION AND REPORTING

Weed management activities are communicated with the workforce and management via office memos and emails. The HSEQ manager coordinates all weed management activities and keeps records in the office filing system.

The induction includes a section on weed management and appropriate vehicle hygiene. The *P. cinnamomi* management at each quarry is undertaken by workforce awareness campaigns and signage at the quarries. The dispatch staff in head office are aware and trained to ensure that washdown procedures are allowed for when scheduling machinery for use.

Soils are rarely imported onto sites, as they were the source of the *P. cinnamomi* infections initially contaminating the TT quarries (sometime ago). If soil is to be imported onto sites, TT undertake routine *P. cinnamomi* testing to ensure that clean sites are not contaminated. TT also treat all machinery as *P. cinnamomi* contaminated if they have been working in the vicinity of a contaminated area or client site, of which the status is unknown.

Incidents are recorded according to the TT incident management process.

7. MONITORING

The following weed and disease monitoring activities will be undertaken at areas directly impacted by construction and quarrying activities undertaken by TT. These activities will involve:

- Monitoring undertaken in house by the HSEQ manager or their qualified delegate
- Weed control measures undertaken by a licensed weed contractor at least several times per year (early spring, late spring, summer, autumn).
- Monitoring vegetation condition and collecting soil samples to detect signs of *P. cinnamomi* once every annually by Quarry Clean

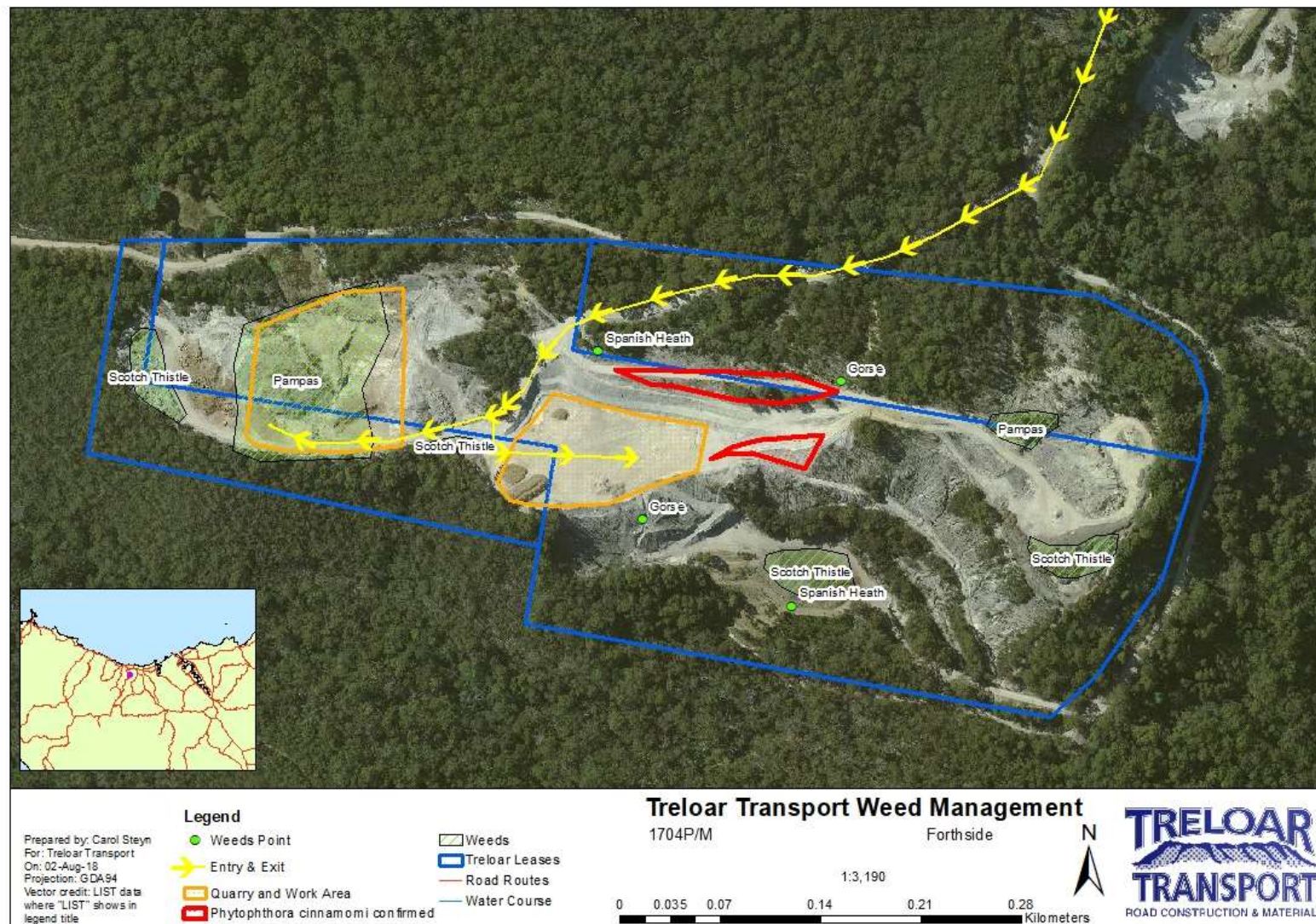
WEED AND PATHOGEN MANAGEMENT PLAN



8. Appendices

8.1. APPENDIX A: WEED MANAGEMENT PLAN – SITE PLAN

WEED AND PATHOGEN MANAGEMENT PLAN



WEED AND PATHOGEN MANAGEMENT PLAN

8.2. APPENDIX B: RECORDED DECLARED AND ENVIRONMENTAL WEED SPECIES

Common Name	Scientific Name	Status*	Municipal Zone A or B
Gorse ¹	<i>Ulex europaeus</i>	Declared	A
Pampas ²	<i>Cortaderia spp.</i>	Declared	A
Scotch Thistles	<i>Cirsium vulgare</i>	Environmental	N/A
English Broom ³	<i>Cytisus scoparius</i>	Declared	B
Spanish Heath ⁴	<i>Erica lusitanica</i>	Declared	B
Radiata Pine	<i>Pinus Radiata</i>	Not noted in Tasmania	N/A

Footnotes are links to Statutory weed management plans

¹ http://dipwwe.tas.gov.au/Documents/Gorse_WMP_2011.pdf

² http://dipwwe.tas.gov.au/Documents/Pampas-grasses_WMP_2011.pdf

³ http://dipwwe.tas.gov.au/Documents/English-broom_WMP_2011.pdf

⁴ http://dipwwe.tas.gov.au/Documents/Spanish-heath_WMP_2011.pdf

WEED AND PATHOGEN MANAGEMENT PLAN



8.3. APPENDIX C: GIS TABLE STRUCTURE (NVA COMPATIBLE)

This is the Cradle Coast Authority Natural Resource Management (CCANRM) table structure, which has been developed from the Natural Values Atlas (NVA) Instructions: *How to Enter Observation* document.

Table 4 - CCANRM compatible table structure of capture of data POINTS

Notes	
obs_date	Date observed
observer	Who observed
species	Scientific name if possible
d_accuracy	How accurate is the date (day, week, month, year)
p_accuracy	GPS accuracy
obs_state	Observed in field, or mapped on the screen?
i_count	Number of weeds or % coverage
maturity	Seedling, floret, flowering, combination
treatment	Treated, observed, mapped
project	Project, client or company
obs_type	Observed by sight, photo
ActionFollowUp	Any follow-up required?
Notes	

Table 5 - CCANRM compatible table structure of capture of data POLYLINES

Notes	
obs_date	Date observed
observer	Who observed
species	Scientific name if possible
d_accuracy	How accurate is the date (day, week, month, year)
p_accuracy	GPS accuracy
obs_state	Observed in field, or mapped on the screen?
i_count	Number of weeds
maturity	Seedling, floret, flowering, combination
treatment	Treated, observed, mapped
project	Project, client or company
obs_type	Observed by sight, photo
density	% ground cover
ActionFollowUp	Any follow-up required?
Notes	

WEED AND PATHOGEN MANAGEMENT PLAN



Table 6 - CCANRM compatible table structure of capture of data POLYGONS

Notes	
obs_date	Date observed
observer	Who observed
species	Scientific name if possible
d_accuracy	How accurate is the date (day, week, month, year)
p_accuracy	GPS accuracy
obs_state	Observed in field, or mapped on the screen?
maturity	Seedling, floret, flowering, combination
treatment	Treated, observed, mapped
project	Project, client or company
obs_type	Observed by sight, photo
density	% ground cover
ActionFollowUp	Any follow-up required?
Notes	

WEED AND PATHOGEN MANAGEMENT PLAN



8.4. APPENDIX D: QUARRY CLEAN REPORTS



Quarry Inspection Report

PO Box 156
Smithton,
TAS, 7330
27th March 2018

Nigel Beeke,
Treloar Transport,
PO Box 21, Sheffield

Dear Nigel,

The scalping work at Forthside has been done very well. However, this hasn't been followed up by the required spraying with herbicide and fungicide (see figures 1 – 3). This is a required as part of the remediation plan to achieve a successful outcome.



Figures 1 - 3. Native vegetation is colonising the banks within the active quarry area in three places. This is a high risk for continued presence of *P. cinnamomi*.



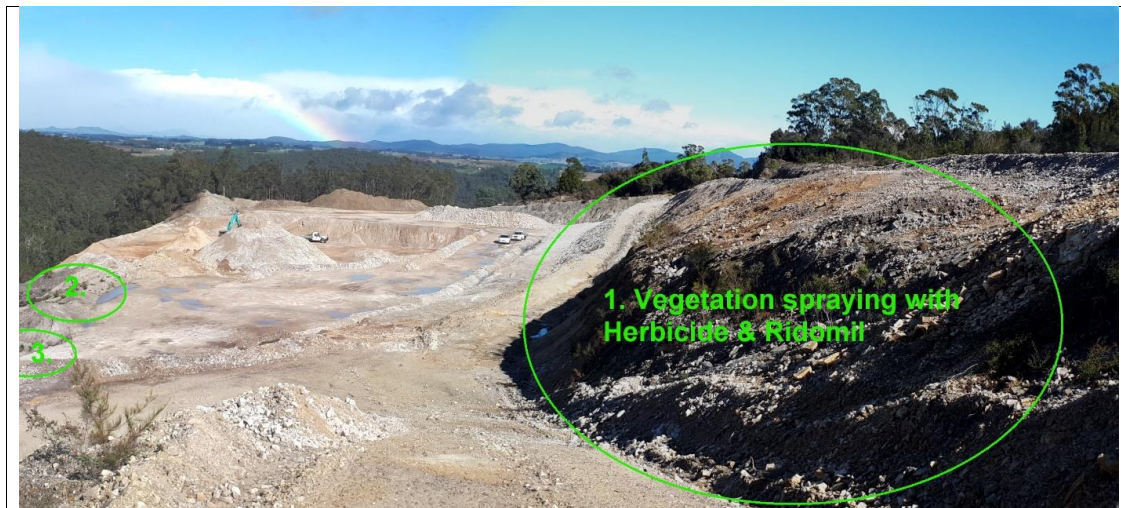
Southern edge



South western corner

Further works required:

The three sections of the quarry shown in Figure 4 and 5 (below) should be sprayed with fungicide (Ridomil – as per label directions) to kill any remaining fungal spores, and with herbicide to eliminate any vegetation which can harbour *P. cinnamomi* or give a stratum for *P. cinnamomi* infection to colonise.



Figures 4 & 5 show the three areas requiring spraying



Regards,

Sue Jennings
Assoc. Dipl. NRM
0429 337 204

sue.jenningstas@gmail.com

WEED AND PATHOGEN MANAGEMENT PLAN



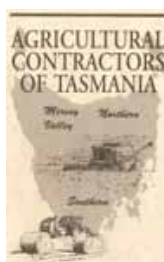
8.5. APPENDIX E: WEED AND DISEASE PLANNING AND HYGIENE GUIDELINES 2015



Tasmanian Washdown Guidelines for Weed and Disease Control



Machinery, Vehicles & Equipment Edition 1



Tasmanian Washdown Guidelines For Weed and Disease Control

**Edition 1
April 2004**

ACKNOWLEDGEMENTS

The Queensland Weed Seed Project kindly allowed their washdown procedures to be used as a basis for these guidelines. This document was prepared by Tim Rudman (Department of Primary, Industries Water and Environment), David Tucker (Forestry Tasmania) and Doug French (Agricultural Contractors Association of Tasmania) with the input from councils, industry and State government. Cover photograph David Tucker.

REVIEW OF THE GUIDELINES

The Washdown Guidelines will be reviewed in April 2005. Comments on the guidelines may be forwarded to:

David Tucker	Doug French	Tim Rudman
Forestry Tasmania,	Agricultural Contractors	Nature Conservation Branch
79 Melville St	334 Hazelwoods Lane	GPO box 44
Hobart Tas. 7000	Whitemoore Tas. 7303	Hobart Tas. 7001

DISCLAIMER

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- (i) the user seeking his/her own professional advice; and
- (ii) any advice or instruction provided in the constructors' manuals for any machinery, vehicles or equipment.

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Accordingly, all use of information, advice or data contained in this publication is at the user's risk.

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INTRODUCTION

We all have a responsibility not to spread weeds and disease when visiting or working on private or Crown land. In some cases this may be a legal requirement specified under provisions of the *Plant Quarantine Act 1997*, *Animal Health Act 1995* or as detailed in a Weed Management Plan. In other cases industries may have standard operating procedures or codes of practice governing washdown requirements for weed and disease control.

Weed seed, some insects and plant pathogens may travel almost sight unseen in mud or lodged in nooks and crannies on machinery, vehicles and other equipment. It is easy to overlook the risk of carrying weeds and diseases; the consequences however, are not so subtle. Failure to washdown can result in crop losses or permanent environmental damage, often incurring substantial cost to the land owner or manager. For example, crop-destroying diseases such as onion white rot and club root may be spread in soil adhering to farm machinery, while in the bush, the introduction of *Phytophthora* root rot may reduce the biodiversity of heathlands and potentially lead to the extinction of some plants.

These guidelines establish a standard for washdown and provide a guide to prescribing its application where codes of practice or other environmental management plans are not in place.

Always consult the land owner or manager for any specific washdown requirements and approval to proceed with any washdown procedures outlined in these guidelines.

WHEN TO WASHDOWN

Many industries have, or are developing, standard operating procedures for vehicle and machinery washdown. Consult your industry code of practice or environmental management system for determining the washdown requirements that apply.

Major developments are also subject to environmental management plans that will specify washdown requirements applying to the project.

For other situations, as a general guide washdown is advisable after:

- operating in an area affected by a weed or disease that is under containment
- transporting weeds or soil known to be infected with weed seed or a plant pathogen

or before:

- moving machinery out of a local area of operation
- moving machinery between properties
- moving vehicles or machinery to an island
- using machinery along roadsides or along river banks
- using machinery to transport soil and quarry materials
- using controlled-access vehicle tracks
- visiting remote areas where access is only by boat, helicopter or light plane

EQUIPMENT

Personal and small tool wash equipment

Portable wash baths are recommended for use when travelling in vehicles and helicopters for washing footwear and small tools. Washbaths can be made from a fish box (or other suitably sized plastic box) fitted with an open weave plastic doormat, a scrubbing brush, a pair of safety gloves, glasses, detergent or fungicide, and a container of clean water. For backpacking, a 2 litre bottle, scrubbing brush, safety gloves and glasses can be used for small tools and boot washing.

The fungicide Phytophthora Clean TM should be added to washbaths to control the spread of *Phytophthora cinnamomi* if:

- sterilising tools used for *P. cinnamomi* sampling
- entering or washing down within a *Phytophthora cinnamomi* management zone
- entering a population of threatened species that is susceptible to *P. cinnamomi*

Portable vehicle wash equipment

Where field wash down is a regular practice facilities should be obtained and carried for the purpose. Large commercial wash units are available, though in many instances small self-assembled systems will be adequate. In industries that use bushfire slip-on units, these are ideal, allowing more flexible choice of washdown sites. Small fire pumps or portable high pressure wash units are suitable. A shovel, crow bar and stiff brush are also required. Farm workshops should also have suitable wash down equipment. Where a blowdown only is required, compressors or portable blower vacs may be used along with a small brush.

Vehicle wash bays

Purpose built wash bays should be used when ever possible. These washdown facilities include effective effluent management systems to protect the environment. Commercial washdown facilities are available for vehicles and small trucks at most large towns.



Figure 1 Smithton truckwash in action (Photo: Sue Jennings)

WASHDOWN STANDARDS

General standard

For general cleaning procedures the following standard applies:

- remove only those cover plates etc that can be quickly and easily removed and replaced
- no clods of dirt or loose soil should be present after washdown. Smeared soil stains and soil firmly lodged in difficult to access areas are acceptable
- radiator, grills and the interior of vehicles should be free of accumulations of seed and other plant material

Note that some machinery, such as harvesting equipment, cannot be washed with water because of potential damage to sensitive electronic equipment. Always consult and comply with the manufacturers recommended cleaning method.

Cleaning and inspection should be undertaken in accordance with the general washdown procedure (page 8) and machinery checklists (page 9).

Custom standards

Customised washdown standards may be applied under environmental management plans or job specifications where the control of a serious weed or pathogen is required. For instance, particular disinfectants may need to be applied and greater attention to soil accumulations behind protective plates and covers may be specified. Similarly landholders and managers may wish to apply specific washdown requirements.

PROCEDURES

Small tools & portable washbaths

These are used in the management of *Phytophthora* root-rot in native vegetation or can be established as temporary washdown points to contain the spread of soil by foot traffic in other diseased areas.

1. Site the washbath just outside the infected area or at the departure point for the vehicle or aircraft.
2. Remove all loose mud and dirt from the object to be cleaned.
3. Use the recommended safety equipment if washing with a fungicide (safety gloves and glasses).
4. Part fill the washbath with clean water, a depth of about 4 cms is adequate for boot washing. Mix a solution of detergent or fungicide as required (see page 3).
5. Clean boots, gaiters and equipment with the scrubbing brush.
6. Effluent containing registered products such as fungicides must be disposed of in accordance with label recommendations.
7. A final rinse or wipe with fungicide or methylated spirits can be used for sterilisation of scientific equipment.

Selecting a field washdown site.

Field washdown of may be required to contain weeds or plant pathogens to a particular area or where machinery is moved directly between field sites. Always consult the landholder. In selecting a washdown site, consideration should be given to:

- siting the washdown at the edge, or nearby, any areas where weeds or pathogens need to be contained, choose sites where the land slopes back into an infested area or an adjacent area not susceptible to the problem

- ensuring run-off will not enter any watercourse or waterbody, a buffer of at least 30m is desirable
- avoiding sensitive vegetation or wildlife habitat eg remnant native vegetation and threatened species sites
- selecting mud-free sites (e.g. well grassed, gravel, bark or timber corded) which are gently sloped to drain effluent away from the washdown area
- allow adequate space to move tracked vehicles
- potential hazards, e.g. powerlines

Note that low loaders are not a suitable platform for washing machinery.

Where there will be large quantities of effluent or there is a risk of extensive run-off, the washdown area should be bunded and a sump constructed to safely dispose of the effluent. Take particular care where the effluent is likely to be contaminated with oils.

Mark or record washdown sites with the landowner or manager for subsequent monitoring and weed control.



Figure 2 Washing down (Photograph: D. Tucker)

General washdown procedure

Note: Do NOT apply water to harvesters or other equipment that may be damaged by water.

1. Locate washdown site and prepare the surface or construct bunding as required.
2. Safely park the vehicle free of any hazards (e.g. electrical), ensure the engine is off and the vehicle is immobilised.
3. Look over the vehicle, inside and out, for where dirt, plant material including seeds are lodged. Pay attention to the underside, radiators, spare tyres, foot wells and bumper bars.
4. Remove any guards, covers or plates if required being careful of any parts that may cause injury.
5. Knock off large clods of mud, use a crow bar if required and sweep out the cabin.
6. Use a vacuum or compressed air where available for removing dried plant material like weed seeds and chaff in radiators and other small spaces where this material lodges. Brush off dry material if no other facilities are available.
7. Clean down with a high pressure hose and stiff brush/crowbar. Use only freshwater if washing down in the field.
8. Start with the underside of the vehicle, wheel arches, wheels (including spare). Next do the sides, radiator, tray, bumper bars etc and finally upper body. Some vehicles may need to be moved during washdown eg tracked machinery.
9. Clean any associated implements, eg buckets.
10. Check there is no loose soil or plant material that could be readily dislodged or removed.
11. In wash bays, steam treat or rinse off vehicle with clean water.
12. Wash effluent away from vehicle, do not drive through wash effluent.

Machinery checklists

Trucks and vehicles

For small vehicles in the field where washdown facilities can not be provided the minimum requirement is:

all loose and large clods of dirt should be physically knocked off the vehicle at the desired washdown point before driving back to a suitable wash facility.

Systematically inspect and clean, including:

Cabin	floor, mats and under seats
Engine	radiators
	engine bay and grill
Body	hollow channels
	inside bumper bars
	crevices and ledges
	underside
Wheels	inside and outside
	between dual wheels if fitted
	spare wheel
Tray	hollow channels
	chassis

Wheeled machinery (skidders, tractors, loaders etc)

Systematically inspect and clean, including:

Cabin	floor and under seats
Engine	grill, radiator, oil cooler etc
	around sound deadening panels
	engine compartment grill
Body	chassis
	axle housing, hollow sections
	guards
	cab steps
	around fuel tank
	hollow sections in drawbars and retractable/extendable type three point linkages
	general holes, ledges, gaps and crevices in body including damaged boots, cover plates where trash may lodge
Wheels	inside and outside wheels and rims
	spaces between dual wheels
	chains if fitted
Attached equipment	buckets/ blades including teeth and adaptor plates
Hydraulic arms	crevices where trash can lodge

Bulldozers

Systematically inspect and clean, including:

Cabin	floor and under seats
	below transmission coverplates
Engine	radiator, oil cooler etc
	airfilters (for seeds)
	around engine bay
Tracks	lift inspection/coverplates to gain inside access
	idler wheels
	track frame
Body Plates	knock lose material out from belly plates and rear plates as far as is feasible without dismantling
Body	fuel cells
	battery box
Blade	check all hollow sections
	pivot points and adaptors at rear of blade where soil can compact
Tines	crevices where trash can lodge
Ripper	ripper frame support which is usually hollow
	compacted soil underneath ripper points

Excavators

Systematically inspect and clean, including:

Cabin	floor and under seats
Engine	grill, radiator, oil cooler etc
	around engine bay
Tracks	idler wheels
	track frame
	tracks
	removable track adjustor guards and lubrication points
Body Plates	glacier plate near radiator
Body	ledges and channels
Blade	check all hollow sections
	between teeth of adaptors
	wear plates
Booms	crevices
Turret pivot	under and around mechanism

Ground engaging equipment

Ploughs tillage equipment, discs, drills, seeders, posthole diggers, planting and harvesting equipment.

Always consult the landowner or manager on requirements and suitable clean down site.

Remove the bulk of the soil by knocking off and scrapping as far as practical. Depending on the type of contamination, wet or dry, use water or an air compressor.

Systematically inspect and clean, including:

Frame	hollow channels
	chassis crevices and ledges
	bearing housings
Wheels/ tyres	inside and outside
	lifting mechanism
	axles
Mechanism	holding bins
	discs, tines, cutters and shears
	behind safety guards
	conveyors

Fodder and grain production equipment.

(Rakes, headers, windrowers, conditioners, tedders, bailers etc)

Always consult the landowner or manager on requirements and suitable clean down site. Clean down may be required to control variety contamination in addition to weed and disease control. For certified crops clean down prior to leaving each crop and discharge headers 50m into next crop in accordance with the certification guidelines (see Agricultural Contractors of Tasmania Handbook) or the instructions of a Seed Certification Inspector.

Use only compressed air or a large vacuum cleaner. Cleaning with high pressure water could seriously damage harvesting equipment.

1. Blow down the outside of the machine first.
2. Remove or open easily accessed shields and covers and systematically inspect then clean.
3. For harvesters, increase the wind and run the machine at high speed.
4. Complete with a final blow down of the outside after closing covers.

Pay particular attention to:

Body and frame	Hollow channels, ledges and crevices
Cabin	in and under the cabin
Engine	radiator and grill
	around engine bay
Stone trap	if fitted
Mechanisms	elevators, slides, augers, drum and concaves
	gearboxes, pulleys
Headers	straw spreader or choppers
	grain bin, trays
	fan housing, sieves and screens
Bailers	pickup and around bale chamber and knotters area

Note: For certified crops, headers must be comprehensively cleaned which will take ½ to 1 day.

Slashers and mowers.

Slashers are major contributors to roadside weed spread through carriage of seed. Cleaning may be required after passing through significant weed infestations or prior to slashing weed free areas.

When used in dry conditions they are best cleaned by blowing down. An on-board or portable compressor can be used and a stiff broom or shovel may be helpful.

1. Disengage power take off or other cutter power system.
2. Inspect and clean, paying particular attention to:

Linkages	all places seeds may lodge
Body	underside including any sills
	safety chain
	cutters
	topside including any sills
Wheels	inside and outside
Tractor	inspect and blow down or sweep out as per washdown checklist

Water disinfection for *Phytophthora* root rot management

Where water is transported into *Phytophthora* management zones or other areas of native vegetation sensitive to *Phytophthora* root-rot the water should be disinfected to prevent the introduction of *Phytophthora* root-rot. This situation will normally only occur during fire fighting operations where water is drawn from a different catchment.

Disinfection of water is most easily undertaken using granulated pool chlorine products. Handle in accordance with the manufacturer's safety instructions and mix at a rate of:

6ml (0.05% NaOCl) per 10L water

The mixed solution should be allowed to stand a few minutes for disinfection to be completed. Fire fighting need not be delayed as there will be adequate time for disinfection on route to the fire. As chlorine is corrosive, equipment should be adequately rinsed with fresh water following use.

Note: Fire fighting foams or detergents will neutralise chlorine treatments. This will not be a problem provided that tanks do not become contaminated with foam or detergent is not added to the tanks to make "wet water". Sterilisation will occur in the tank prior to foam induction.

APPENDIX 1: CLEANING AGENTS AND DISINFECTANTS

Truck cleaning agents

These may be used to improve soil removal and to degrease. They are best limited to use in washdown stations where effluent disposal systems are in place to limit grease and detergent contamination. A number of products are on the market, including products specifically designed for fungal control.

Specific cleaning agents for *Phytophthora* root rot.

Phytophthora clean™

Phytophthora clean™ is registered for the sterilisation of equipment and machinery in Tasmania for the control of *Phytophthora cinnamomi*. It is used at a rate of 200ml per 10L of water for washing surfaces cleaned of mud, and at a rate of 1000ml per 10L water in washbaths. Solution should remain in contact with surfaces for at least 30 seconds before rinsing. It is available in 20L or 200L drums and is manufactured by SDI Group, Dandenong South (Ph: 03 9768 3368, web: www.sdiinternational.com.au). Use only in accordance with the label directions and when prescribed in the job specifications for the control of *Phytophthora* root rot.

Sodium Hypochlorite

Sodium hypochlorite is recommended for sterilising water in fire-fighting units. However it needs to be used carefully. Once mixed the compound is not stable and quickly degrades, particularly in water with a high organic content. It also corrodes metal. 2 mg/l chlorine is required to kill zoospores in water with a 1 minute exposure time.

Pure alcohol and methylated spirits

These may be used for surface sterilisation of equipment once dirt has been washed off. Its application is limited to small implements and items used in disease survey work such as sampling for *Phytophthora* root-rot.

APPENDIX 2: WASHDOWN LEDGER

[illegible]

[illegible]



**LANDSLIDE RISK ASSESSMENT
FORTHSIDE INERT LANDFILL
547 FORTHSIDE ROAD, FORTHSIDE**

Prepared for: **Treloar Transport**

Date: 29 October 2021

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Landslide Risk Assessment, Forthside Inert Landfill, Forthside

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Appendices

Appendix A	Landslide Risk Matrix
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Landslide Risk Assessment, Forthside Inert Landfill, Forthside

Version	Date	Prepared by	Reviewed by	Distribution
Original	29 October 2021	David Gibbons	Dr Wayne Griffioen	Electronic

1 INTRODUCTION

Tasman Geotechnics was commissioned by Nigel Beeke of Treloar Transport to carry out a Landslide Risk Assessment for a proposed expansion of the existing inert landfill at 547 Forthside Road, Forthside.

The landfill is located within the bounds of a quarrying operation covered by two contiguous mining leases (1704P/M and 8M/2015) with a collective area of about 19ha. Quarrying commenced on the site in the 1950s, and landfill activities commenced on worked out areas of the quarry in 2010. The space available for the sorting and stockpiling of materials for recycling and reuse has largely been exhausted, hence the need for an expansion of the laydown area.

The proposal for the expansion of the landfill is detailed in an Environmental Effects Report (EER) prepared for Treloar Transport (reference: Forthside Inert Landfill Environmental Effects Report, Version 1, dated 2 July 2020).

An assessment of the Landslide Risk at the site is required as part of the Planning Application process as there are "Low/Medium" landslide hazard bands mapped at the site.

Our scope of work consisted of:

- Reviewing available reports and maps;
- Carrying out a site walkover to note geomorphological features associated with landslide activity;
- Conducting a Landslide Risk Assessment.

The assessment is consistent with the Landslide Risk Assessment guidelines published by the Australian Geomechanics Society (2007).

2 BACKGROUND INFORMATION

2.1 Planning Scheme

The Tasmanian Planning Scheme is effective in Devonport since 18 November 2020.

Table 6.2 'Use classes' provides the following definition for *Recycling and Waste Disposal*:

Use of land to collect, dismantle, store, dispose of, recycle or sell used or scrap material. Examples include a recycling depot, refuse disposal site, scrap yard, vehicle wrecking yard and waste transfer station

We therefore assume the site is considered to be in the Recycling and Waste Disposal use class.

The landslip hazard code is C15. Clause C15.3 'Definition of terms' shows that Recycling and Waste Disposal is considered a *hazardous use*. Clause C15.3 defines a landslip hazard area as land which is:

- (a) *shown on an overlay map in the relevant Local Provisions Schedule, as within a landslip hazard area, which is classified into one of four landslip hazard bands; or*
- (b) *identified in a report for the purposes of C15.2.1 (b)*

Clause C15.5.1 of the scheme stipulates that the objective for uses, including critical, hazardous or vulnerable use, is that they can:

achieve and maintain a tolerable risk from exposure to a landslip for the nature and intended duration of the use.

There are no acceptable solutions.

The performance criteria state that:

Landslide Risk Assessment, Forthside Inert Landfill, Forthside

P1.1

A use, including a critical use, hazardous use, or vulnerable use, within a landslide hazard area achieve and maintain a tolerable risk from exposure to landslide, having regard to:

- (a) *the type, form and duration of the use; and*
- (b) *a landslide hazard report that demonstrates that:*
 - i. *any increase in the level of risk from landslide does not require any specific hazard reduction or protection measure; or*
 - ii. *the use can achieve and maintain a tolerable risk for the intended life of the use.*

P1.2

If landslide reduction or protection measures are required on land beyond the boundary of the site, the consent in writing of the owner of that land must be provided for that land to be managed in accordance with the landslide reduction or protection measures.

There are additional performance criteria for hazardous uses:

P3

In addition to the requirements in clause C15.5.1 P1.1, a hazardous use within a landslide hazard area must achieve and maintain a tolerable risk, having regard to:

- (a) *the health and safety of people;*
- (b) *any impact on property;*
- (c) *any impact on the environment;*
- (d) *the advice contained in a landslide hazard report; and*
- (e) *any advice from a State authority, regulated entity or a council.*

Although tolerable levels of risk for property loss are rarely quoted in literature, AGS (2007d) suggests a Moderate risk profile as a tolerable level of risk for low-rise residential buildings on existing slopes as well as existing landslides. The tolerable risk for a landfill would presumably be no lower than for residential housing.

AGS (2007c) suggests the tolerable loss of life individual risk should be 10^{-5} /annum for new constructed slopes, new development, or existing landslide, and 10^{-4} /annum for existing slopes or existing development.

For the proposed landfill expansion, the following tolerable levels of risk are adopted;

- Risk to property: Moderate,
- Risk to life: 10^{-5} /annum.

2.2 Regional Setting

The site is located on the crest of a broadly east-west orientated ridge which rises to a maximum elevation of about 260m (AHD), about 2km east of the River Forth and about 5km south of the township of Forth. Access is via Forthside Road, a no-through road which terminates a short distance south of the quarry.

The ridge is asymmetric, with slopes on the southern side ($\sim 30^\circ$) generally steeper than those on the northern side ($\sim 20^\circ$).

The quarry site is surrounded by Eucalypt forest on all sides. Porcupine Hill rises to a maximum elevation of 309m just south of the site.

2.3 Geology

The surface geology for the site is shown on the Mineral Resources Tasmania Digital Geological Atlas, 1:25,000 Series, Kindred Sheet as Mesoproterozoic aged sedimentary rocks described as

“Dominantly quartzite”. Other Proterozoic rocks are mapped northeast and southwest of the site, and Porcupine Hill (to the south) is capped with Ordovician aged Moina Sandstone.

An extract of the MRT map is presented on Figure 1. The mine lease boundaries and relevant parts of the site are highlighted on Figure 1 (and all subsequent figures).

2.4 Landslide Mapping

The MRT Landslide Inventory Map (Devonport Sheet) shows no landslides mapped at or near the site. The nearest landslide to the site shown on the Inventory Map is approximately 1.5km southeast of the site, immediately west of Palooka Road in a different geological and geomorphological setting.

2.5 Landslide Susceptibility

For the most commonly occurring soils on the North-West coast of Tasmania, MRT have identified two scales of landslides:

- Deep-seated rotational landslides; and
- Shallow slides or debris flows.

Landslide susceptibility maps for both scales of landsliding have been developed by MRT, and published map sheets are available which do include the site. However, neither the Deep-Seated Landslide Susceptibility map (Devonport sheet) nor the Shallow Slide and Flow Susceptibility map (Devonport sheet) show any susceptible areas at the site, even though some of the site slopes are relatively steep.

It should be noted that for the deep-seated landslide modelling the oldest modelled units were Permian aged sedimentary rocks and MRT expressly stated *“Older geological units were not modelled”*. For the shallow slide modelling, MRT specify **only** the following units as having been modelled: *“Tertiary basalt and sediments, Cambrian basalts, basaltic colluviums, basaltic landslides”*. In the first case (deep-seated landslides) the site geology is older than Permian, and in the second case (shallow slides and debris flows) the mapped units at the site do not appear in the list of units that were modelled.

Accordingly, the absence of susceptible zones on the map sheets at the site should not be taken to imply that the susceptibility to landslide was modelled and found to be nil; instead the landslide susceptibility at the site has not been modelled at all.

2.6 Rockfall Susceptibility

In addition to landslides, MRT also developed susceptibility maps for rock falls. Two types of processes were included by MRT: rock fall in the strict sense of the word, and topples. Source areas were based on the angle of repose for dolerite talus (42°) and the runout paths were modelled assuming a travel angle between 30° and 34°.

Because the creation of rock fall susceptibility maps were based solely on slope angle and ignoring the geology, there are some areas of rock fall susceptibility mapped at the site. An extract of the MRT Rockfall Susceptibility map (Devonport sheet) is shown on Figure 2.

The slopes angles used in the rock fall analysis at the site were based on older 1:5,000 scale topographic contours from TheLIST, and subsequent quarrying activities at the site have produced local modifications to the site topography, removing some of the rock fall hazards.

2.7 Landslide Hazard Bands

Low and Medium Landslide Hazard Bands are mapped at the site and form the basis of the requirement for a landslide risk assessment under the planning scheme (as described in Section 2.1). In this instance, the Landslide Hazard Bands are derived from the modelled rock fall susceptibility and hence have the same spatial distribution. An extract of the Landslide Hazard Band mapping is shown on Figure 3.

2.8 Previous Reports

A search on the MRT website for previous investigations did not identify any reports about land stability at or near the site.

2.9 Proposed Development

A detailed description of the landfill operation is contained in the EER report. Briefly, the operation involves the stockpiling and sorting of waste materials (such as from house demolitions) on a relatively flat area at about 250mRL (AHD) at the eastern end of the site, and later disposal of the sorted materials into a landfill at lower elevations west of the stockpile/laydown area. Material is rehandled from the laydown area to the landfill via truck, and is not simply dozed off the edge. Suitable materials are taken off site for reuse/recycling rather than being put into the landfill.

The landfill portion of the site is proposed to be constructed in ~2m high lifts from a base at about 215mRL to an upper surface at about 230mRL, which we gather is in accordance with the current practice.

In terms of the former quarry operation, the stockpile/laydown area is a mined out area with the slopes falling away to the south, east and north. The northern side of the landfill area is a former quarry highwall. The active quarry (operated on a campaign basis) is located northwest of the landfill.

The relatively flat area used for stockpiling/sorting is broadly oval shaped, and about 90m wide by 150m long. Only the southern portion of the area is proposed to be actually used for stockpiling activities; this is denoted as 'laydown' on the figures and is about 60m wide. Within this area is a small zone of landslide hazard band.

The EER report indicates that the proposal assumes a 10 year project life, although the site could potentially be used as an inert landfill for longer than the initial 10 years.

3 SITE VISIT

The field investigation was conducted on 7 October 2021 by an Engineering Geologist from Tasman Geotechnics and involved the inspection of the laydown and landfill areas, and the quarrying operation more generally. Dip and dip directions were measured on selected bedding and joint surfaces.

The site observations are discussed below and the site layout is shown in Figure 4.

4 SITE OBSERVATIONS

The landfill operation is located at the eastern end of the quarry site and is accessed via a single lane gravel track that traverses the ridge crest from an access off Perry Road. The western part of the site is the active quarry, although the quarry operates on a campaign basis and was not operating on the day of the inspection.

The laydown area is almost entirely flat, with a low bench on the northern side the only exception. Stockpiled material was present on some of the area, with pile heights of no more than about 2m. Some of the material had clearly been stockpiled for an extended period, with vegetation growing on it. No natural soil was present on the laydown area and rock was evident in the floor and in low cuts and exposures around the periphery. The rock was a generally thinly bedded quartzite, with lesser quartz-mica schist and phyllite. The most prominent rock fabric (which we interpret as bedding) was typically dipping towards the south or southeast, generally at around 45° - 60°, with local steepening or changes in orientation presumably associated with folding. The published map sheet does not show bedding orientations at the site but does show a metamorphic foliation with a similar orientation; we assume this is the same fabric interpreted differently. Several joint sets were measured, with significant variability but overall broken into three sets:

- One set dipping at about 55° towards 030°;
- One set almost vertical, striking N/S to NNE/SSW, and
- One set with a shallow dip to the south.

The joints were generally planar rough and clean. The rock was generally fresh to slightly weathered, and assessed as Moderate to High Strength.

No cracking or slumping around the crest of the laydown area was observed. The former topographic feature that presumably gave rise to the modelled rock fall hazard within the laydown area has long since been mined off and hence the hazard has been entirely eliminated. A similar patch of hazard band northeast of the laydown area has similarly been removed. The slopes east of the laydown area are unmodified, but do not form part of the proposed working area.

On the flanks of the ridge there is typically 0.5 – 1.0m of gravelly soil, which is readily erodible. Shallow steep-sided erosional channels are present on the slopes where runoff flows. The southern side of the ridge is cataclinal, i.e. it dips with a similar orientation to the strata. The northern side is anticlinal, and has a flatter slope.

At the base of the slope (on the northern side of the landfill), several small wedge failures and one small possible debris slide were observed. Whilst not presenting a significant risk to the site or personnel working there, these features serve as a reminder that where the slopes are parallel to a pervasive rock fabric, failures are more likely to occur.

No subsurface investigation or laboratory testing was undertaken.

5 LANDSLIDE RISK ASSESSMENT

5.1 General

Risk assessment and management principles applied to slopes can be interpreted as answering the following questions;

- What might happen? (HAZARD IDENTIFICATION).
- How likely is it? (LIKELIHOOD).
- What damage or injury might result? (CONSEQUENCE).
- How important is it? (RISK EVALUATION).
- What can be done about it? (RISK TREATMENT).

The risk is a combination of the likelihood and the consequences for the hazard in question. Thus both likelihood and consequences are taken into account when evaluating a risk and deciding whether treatment is required.

The qualitative likelihood, consequence and risk terms used in this report for risk to property are given in Appendix A and are based on the Landslide Risk Management Guidelines, published by Australian Geomechanics Society (AGS, 2007). The risk terms are defined by a matrix that brings together different combinations of likelihood and consequence. Risk matrices help to communicate the results of risk assessment, rank risks, set priorities and develop transparent approaches to decision making.

5.2 Geotechnical Model

The geotechnical model for the laydown area consists of fresh to slightly weathered Mesoproterozoic sedimentary rocks, with bedding dipping towards the south. The area has formerly been mined and is relatively flat.

5.3 Potential Hazards

Based on the site observations and available information discussed in the sections above, the following landslide hazards are identified for the site:

Rock fall. There is no credible likelihood of rock fall in the laydown area.

More broadly, the rock contains a pervasive planar south dipping bedding (or tectonic) fabric and several joint sets, causing it to break into relatively small tabular fragments. The removal of vegetation and steepening of the slopes by quarrying activity increases the likelihood of rock fall around quarry highwalls.

The likelihood of rock falls on the site generally is assessed to be Almost Certain where highwalls are present, but particularly on the southern side of the quarry and, in the context of the landfill, on the northern side of the area being filled. Despite this, any rock falls are likely to be relatively inconsequential and are essentially an operational issue familiar to quarry operators. Good practices such as periodic wall and crest inspections, mechanical scaling of loose materials, leaving catch berms, using windrows and not parking machinery or walking underneath identified hazardous zones should be standard quarry practice.

Mass failure of highwall (>1000m³). Past quarrying activities at the site have steepened the slopes on the northern side of the landfill. Nevertheless, there is no evidence of mass wall failure at the site. The placement of the landfill provides toe support to the wall and continues to reduce the likelihood of mass wall failure. In the absence of further excavation mass wall failure is conceivable but is assessed to be Unlikely, and the likelihood should reduce over time with placement of the landfill.

Failure of laydown crest. The laydown area will have heavy machinery moving around on it, and material will be stockpiled on the area. Although the stockpiles are relatively small, small scale failure of the crest is assessed as Possible, particularly on the southern side of the laydown area where the dip of the strata is unfavourable. If waste material is stockpiled on the crest and the crest fails, some material could be lost over the crest from where it may be very difficult to recover.

Other landslide hazard bands are located outside of the investigated area. However, it is our assessment that there are no landslide hazards to the working area associated with these hazard bands.

The identification of the potential hazards considers both the site and nearby properties, and is necessary to address stability issues that may negatively impact upon the site and influence the risk to property.

5.4 Risk to Property

The following table summarizes the risk to property of the landslide events in relation to the proposed development as described in Section 2.5, **assuming recommendations in Section 6 are incorporated.**

Table 2. Landslide risk profiles

Scenario	Likelihood	Consequence	Risk Profile
Rock fall	Almost Certain during landfill operations	Insignificant if good quarrying practices are followed	Low
Mass failure of highwall	Unlikely during landfill operations	Insignificant if good quarry practices are followed	Very Low
Failure of laydown crest	Possible if material is stockpiled at or very near the crest	Minor: Could reduce working area and/or cause minor environmental harm.	Moderate
	Unlikely if material is not stockpiled at or very near the crest	Insignificant	Very Low

The assessment shows that the proposed development presents a Low to Very Low level of risk **provided the recommendations listed in Section 6 are followed.**

5.5 Risk Evaluation

As noted in Section 2.1, the performance criteria require that use in a landslip hazard area can achieve and maintain a tolerable risk from exposure to a landslip for the nature and intended duration of the use. The proposed tolerable levels of risk were presented in Section 2.1.

Risk to Property

The risk to property is assessed to be Low, assuming material is not stockpiled all the way to the crest of the laydown area, or Moderate if it is. If the Moderate risk profile is adopted as the tolerable level of risk, then the risk assessment shows that the use can achieve and maintain a tolerable risk from a landslip in terms of risk to property in either case.

Risk to Life related to the exposure of people at the site to the landslide hazards.

At the site is only occupied on average 1 day per week (total), the likelihood of a failure of the crest at the laydown area is assessed at 10^{-4} /annum and the chance of survival is Very High (Vulnerability = 0.05), the assessed risk to life is $0.05 \times 10^{-4} \times 1 \div 7 = 7.1 \times 10^{-7}$ /annum, i.e. less than the tolerable risk to life (10^{-5} /annum).

It is our assessment that specific hazard reduction or protection measures are not required, although the recommendations in Section 6 should be followed.

With regard to performance criteria P1.2, it is our assessment that landslip reduction or protection measures are **not** required on land beyond the boundary of the site, and hence P1.2 is also satisfied.

With regard to performance criteria P3, the health and safety of people and any impact on property have already been considered in this report. We have identified no potential impacts on the environment associated with landslide risk apart from the potential for loss of material over the crest of the laydown area from where it may be difficult to recover. The environmental impact would be minor given the likely quantities of material, the type of material and the loss would be onto areas previously disturbed by quarrying rather than undisturbed areas. The likelihood of this may be reduced by leaving a buffer between the edge of the stockpile and the crest (see Section 6).

It is our assessment that the performance criteria (P1.1, P1.2 and P3) can be satisfied for Clause C15.5.1, assuming that P3 (e) *any advice from a State authority, regulated entity or a council* is considered. We are unaware of any such advice in relation to this clause.

6 DISCUSSION & RECOMMENDATIONS

In order to ensure the proposed development does not change the risk profile above Low for the site, it is recommended that the following limitations be enforced:

- The Quarry Code of Practice should be followed at all times
- A buffer of at least 5m width should be maintained between the laydown area stockpiles and the crest, particularly on the southern side of the laydown area (see Figure 4)
- Benches should be kept clear of debris to maintain catch capacity
- Windrows should be used to stop material from rolling onto working areas from the highwall
- People and machinery should not linger under highwalls, i.e. machinery servicing and pre-start checks, parking etc. should be done well away from the highwall
- Batters, berms and crests should be periodically (e.g. quarterly) inspected for damage, cracking or slumping

Landslide Risk Assessment, Forthside Inert Landfill, Forthside

- Benches should be shaped to be self-draining and not permit pooling of water
- During placement of landfill, attention should be paid to ensure materials are adequately compacted and shaped to shed water and minimize pooling and infiltration of runoff



Important information about your report

These notes are provided to help you understand the limitations of your report.

Project Scope

Your report has been developed on the basis of your unique project specific requirements as understood by Tasman Geotechnics at the time, and applies only to the site investigated. Tasman Geotechnics should be consulted if there are subsequent changes to the proposed project, to assess how the changes impact on the report's recommendations.

Subsurface Conditions

Subsurface conditions are created by natural processes and the activity of man.

A site assessment identifies subsurface conditions at discrete locations. Actual conditions at other locations may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time.

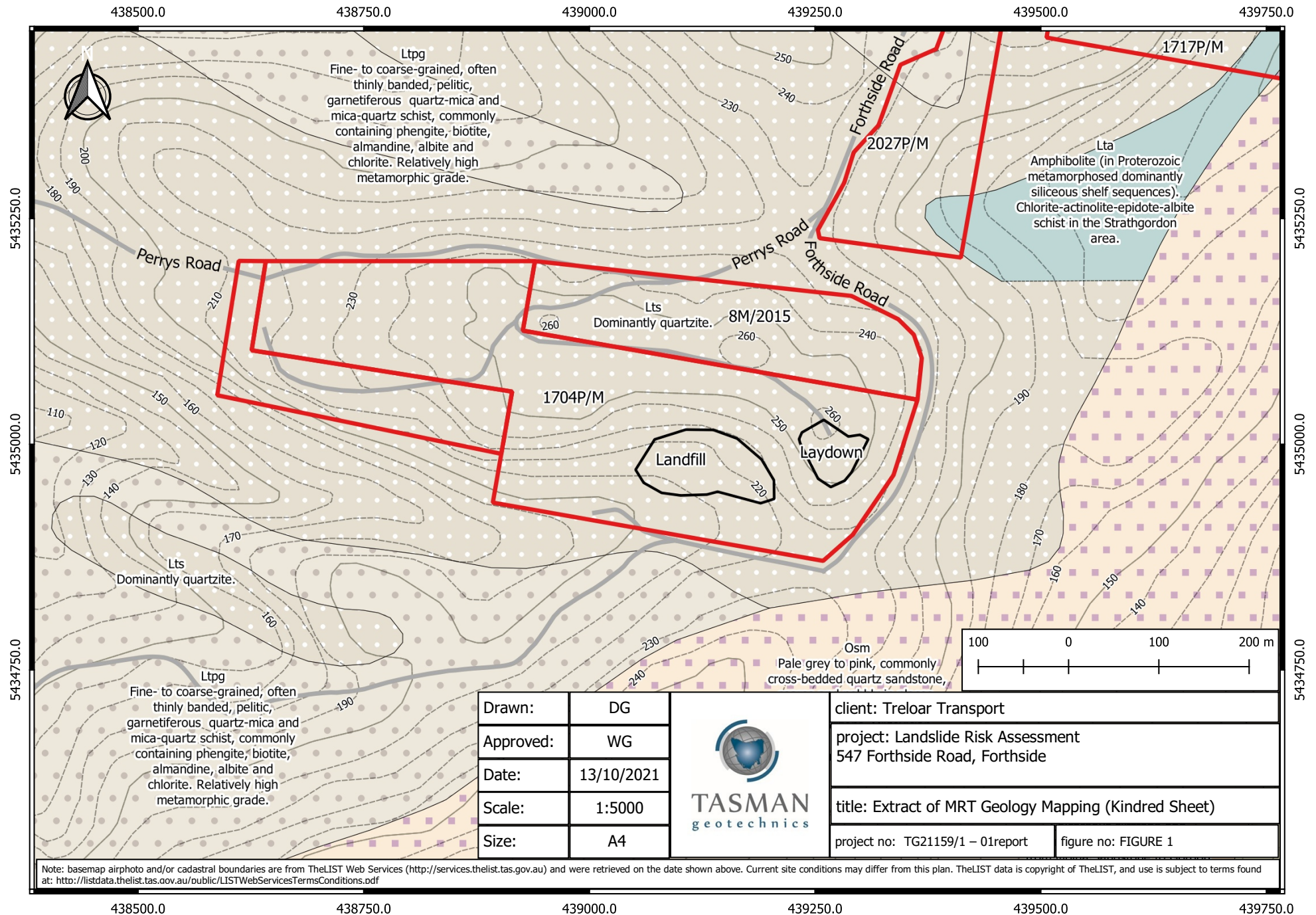
Nothing can be done to change the conditions that exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, the services of Tasman Geotechnics should be retained throughout the project, to identify variable conditions, conduct additional investigation or tests if required and recommend solutions to problems encountered on site.

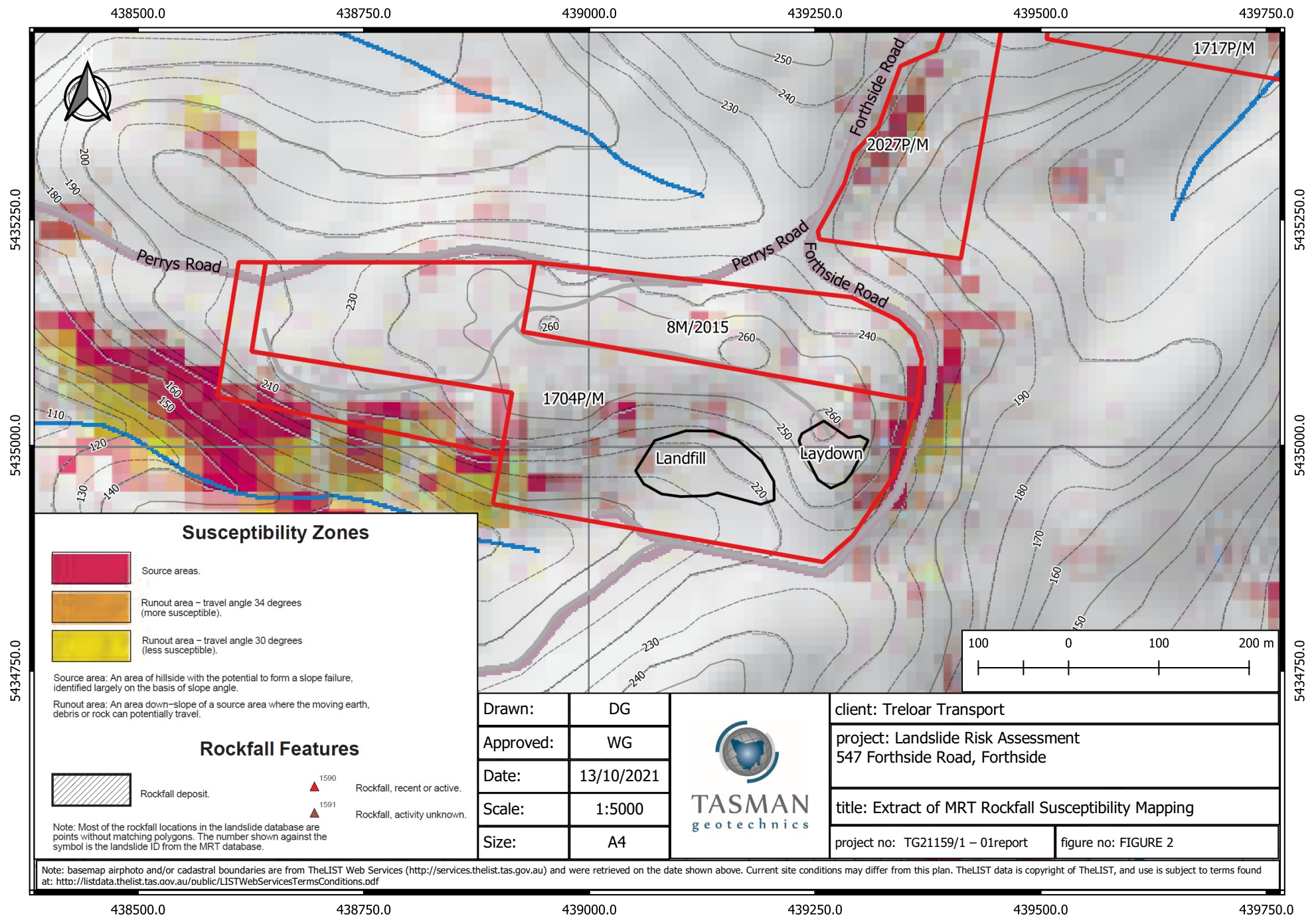
Advice and Recommendations

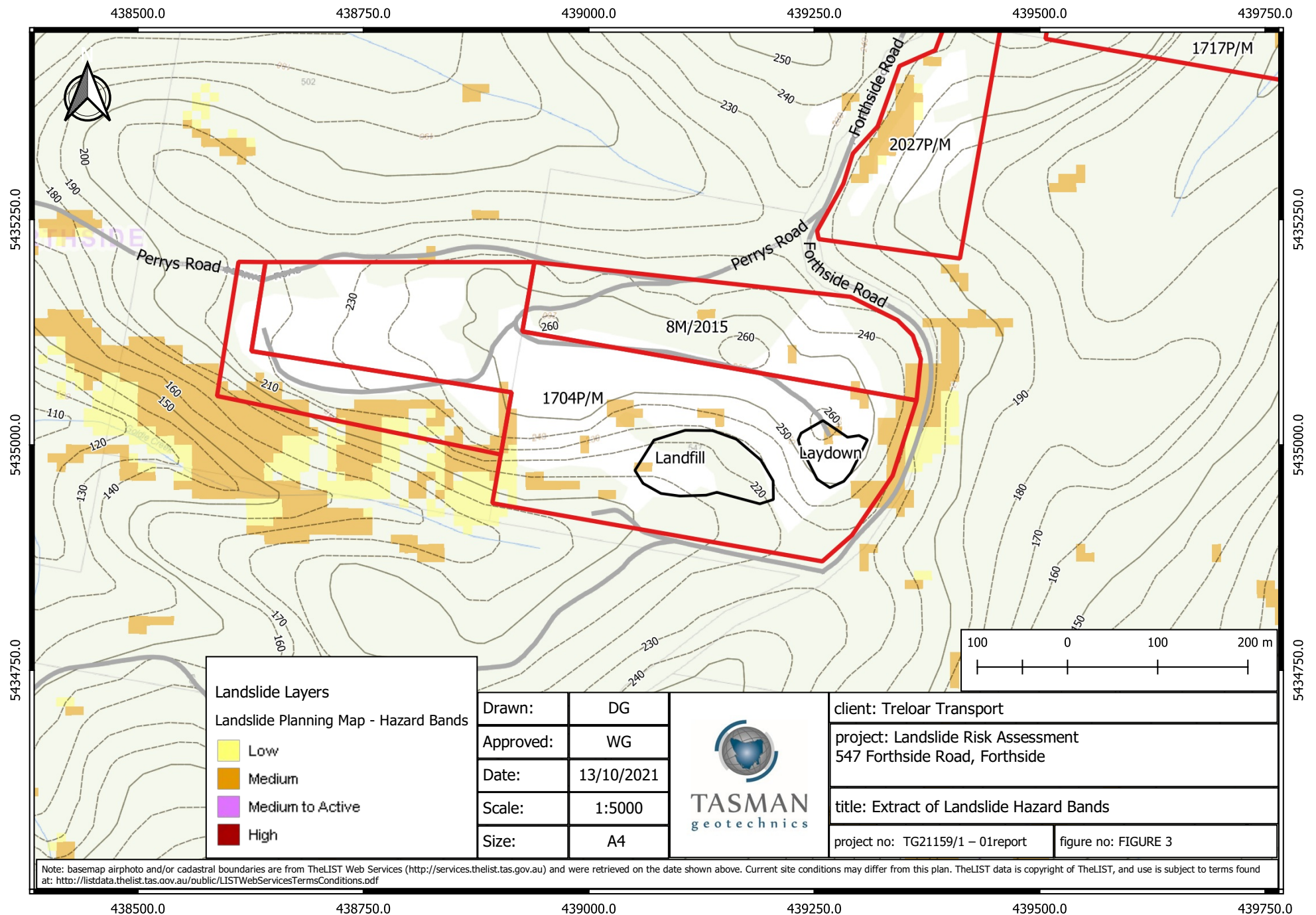
Your report contains advice or recommendations which are based on observations, measurements, calculations and professional interpretation, all of which have a level of uncertainty attached.

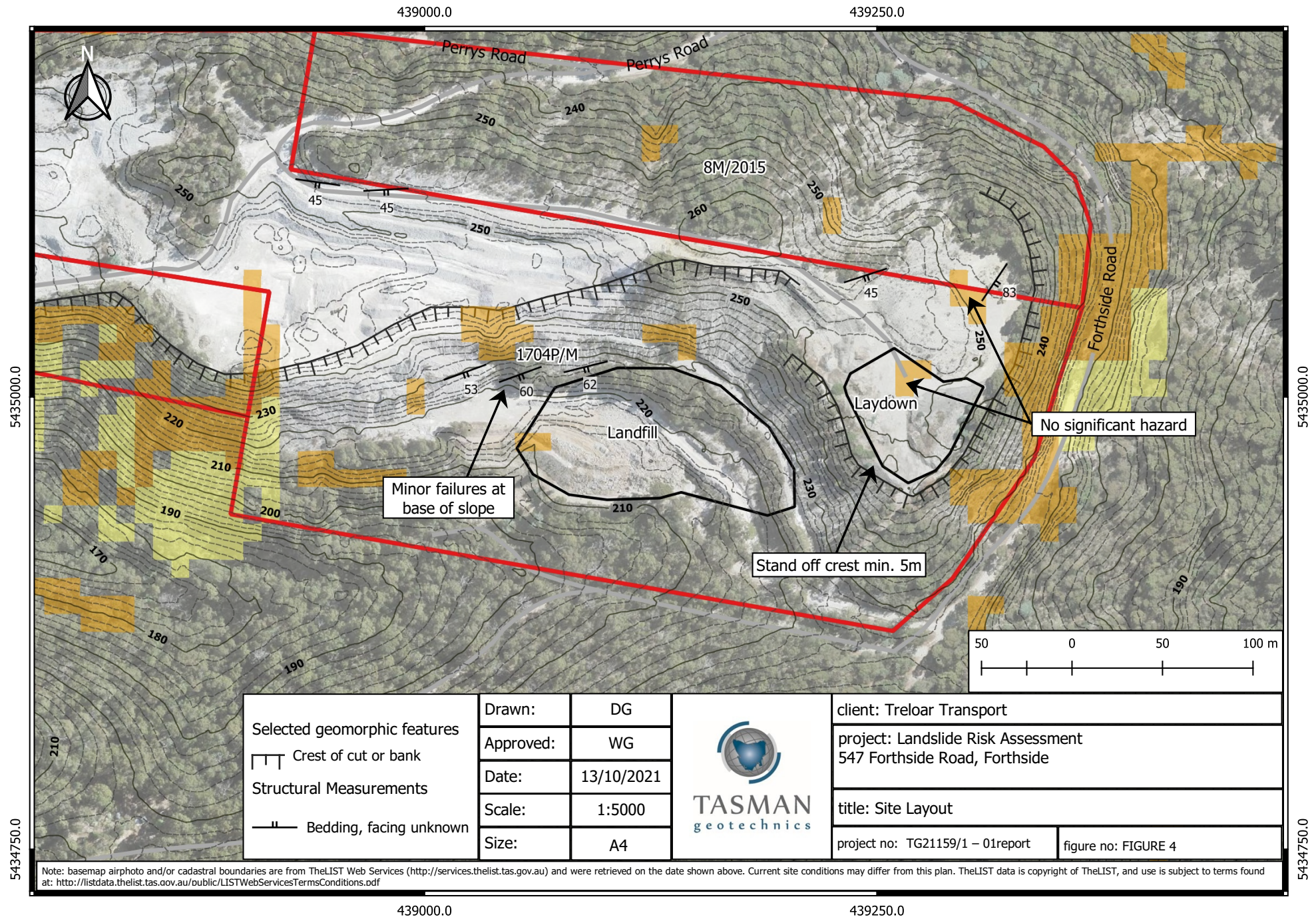
The recommendations are based on the assumption that subsurface conditions encountered at the discrete locations are indicative of an area. This can not be substantiated until implementation of the project has commenced. Tasman Geotechnics is familiar with the background information and should be consulted to assess whether or not the report's recommendations are valid, or whether changes should be considered.

The report as a whole presents the findings of the site assessment, and the report should not be copied in part or altered in any way.









Landslide Risk Assessment, Forthside Inert Landfill, Forthside

Appendix A
Landslide Risk Matrix



Terminology for use in Assessing Risk to Property

These notes are provided to help you understand concepts and terms used in **Landslide Risk Assessment** and are based on the “Practice Note Guidelines for Landslide Risk Management 2007” published in *Australian Geomechanics Vol 42, No 1, 2007*.

Likelihood Terms

The qualitative likelihood terms have been related to a nominal design life of 50 years. The assessment of likelihood involves judgment based on the knowledge and experience of the assessor. Different assessors may make different judgments.

Approximate Annual Probability	Implied indicative Recurrence Interval	Description	Descriptor	Level
10^{-1}	10 years	The event is expected to occur over the design life	Almost Certain	A
10^{-2}	100 years	The event will probably occur under adverse conditions over the design life	Likely	B
10^{-3}	1000 years	The event could occur under adverse conditions over the design life	Possible	C
10^{-4}	10,000 years	The event might occur under very adverse conditions over the design life	Unlikely	D
10^{-5}	100,000 years	The event is conceivable but only under exceptional circumstances over the design life	Rare	E
10^{-6}	1,000,000 years	The event is inconceivable or fanciful for the design life	Barely Credible	F

Qualitative Measures of Consequence to Property

Indicative Cost of Damage	Description	Descriptor	Level
200%	Structure(s) completely destroyed and/or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequential damage.	Catastrophic	1
60%	Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequential damage	Major	2
20%	Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequential damage.	Medium	3
5%	Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works	Minor	4
0.5%	Little damage.	Insignificant	5

The assessment of consequences involves judgment based on the knowledge and experience of the assessor. The relative consequence terms are value judgments related to how the potential consequences may be perceived by those affected by the risk. Explicit descriptions of potential consequences will help the stakeholders understand the consequences and arrive at their judgment.

Qualitative Risk Analysis Matrix – Risk to Property

Likelihood		Consequences to Property				
	Approximate annual probability	1: Catastrophic	2: Major	3: Medium	4: Minor	5: Insignificant
A: Almost Certain	10 ⁻¹	VH	VH	VH	H	L
B: Likely	10 ⁻²	VH	VH	H	M	L
C: Possible	10 ⁻³	VH	H	M	M	VL
D: Unlikely	10 ⁻⁴	H	M	L	L	VL
E: Rare	10 ⁻⁵	M	L	L	VL	VL
F: Barely credible	10 ⁻⁶	L	VL	VL	VL	VL

NOTES:

1. The risk associated with Insignificant consequences, however likely, is defined as Low or Very Low
2. The main purpose of a risk matrix is to help rank risks and set priorities and help the decision making process.

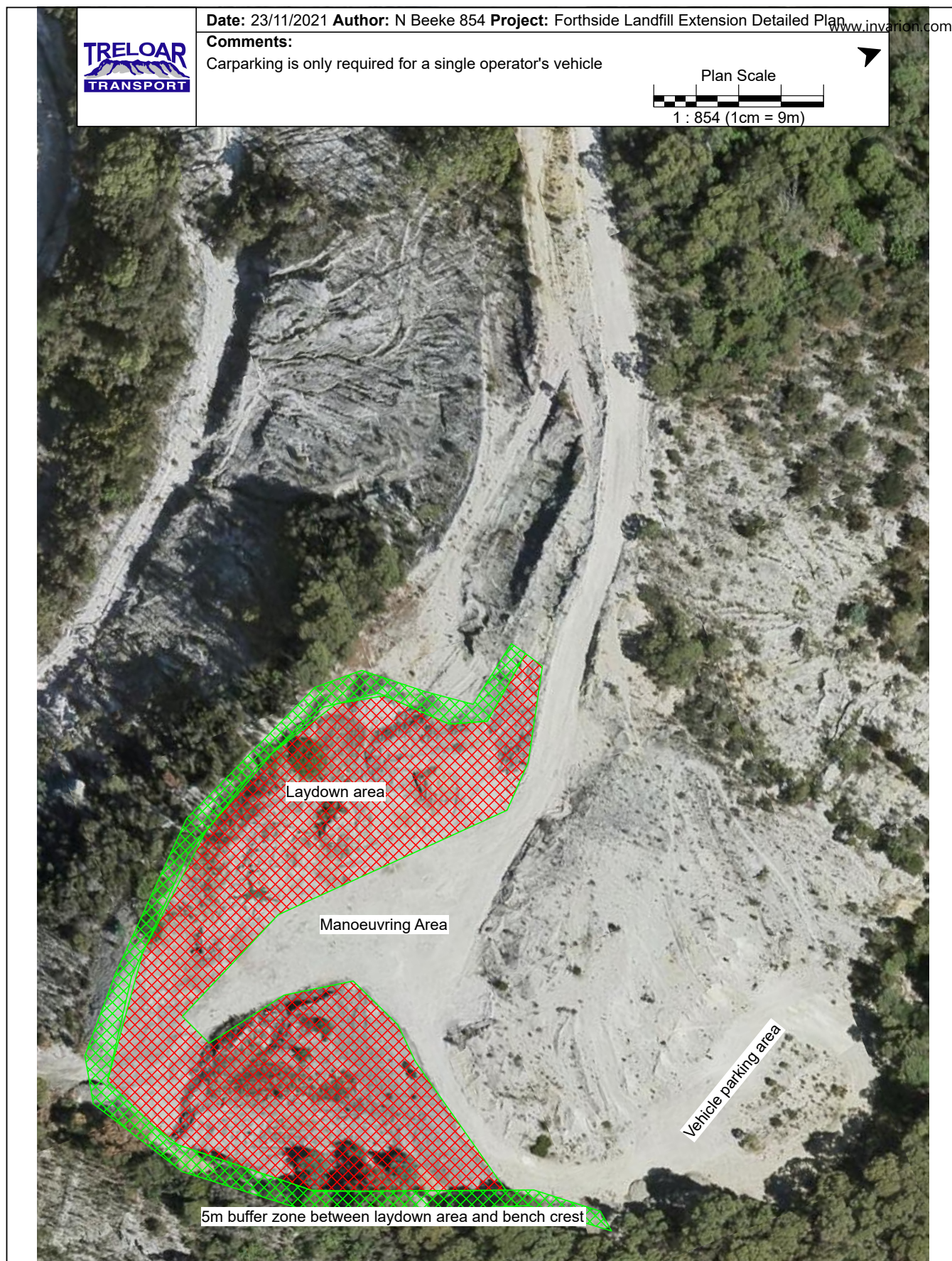
Response to Risk

In general, it is the responsibility of the client and/or regulatory and/or others who may be affected to decide whether to accept or treat the risk. The risk assessor and/or other advisers may assist by making risk comparisons, discussing treatment options, explaining the risk management process, advising how others have reacted to risk in similar situations and making recommendations. Attitudes to risk vary widely and risk evaluation often involves considering more than just property damage (eg environmental effects, public reaction, business confidence etc).

The following is a guide to typical responses to assessed risk.

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





RECEIVED
27 JAN 2021

Brett Russell
C/- PO Forth
Tas 7310
23/01/2022

The General Manager
Devonport City Council

Dear Sir/Madam

Re: PA2021.0193 Expansion of Landfill

As a resident of 38 plus years and co-owner of land PID 6382548, laying adjacent to Treloar Transport (TT) landfill, I thank you for inviting a representation to express my following concerns (environmental) regarding the above PA.

1. PERMIT CONDITIONS:

Are existing Permit Conditions Environmental No 7694 going to apply to expansion/extension of landfill if approved? Considering that it is an extension of existing landfill, rather than a "new" landfill site, I presume they would. Can you please confirm?

2. SURFACE WATER MANAGEMENT:

Considering that landfill extension increases the total footprint of landfill, it would be logical to assume that there would be increased water run off/volume to settling pond PH1. TT's 2010 landfill EER indicates that a 200m³ settling pond would be installed. Would it be better to increase the volume of this pond to cater for the increased water run-off from landfill and also the water flow from the quarry (north) to this settling pond, taking also into account climate change and forecast increased severity of rain events? Aerial photos in EER 2022 show no intermediate settling ponds at the western end of existing landfill benches that were going to be installed (EER 2010). Also, recently it was brought to my attention that settling pond PH1 wasn't functioning, i.e. the pond wall has washed out, was full of gravel and the original installed volume was probably less than 100m³. My concerns are that if settling pond PH1 isn't adequate it may result in undesirable flows into Goldie Creek which meanders across our land (ref. Tasmap Kindred 4243).

3. PHYTOPHTHORA CINNAMOMI (PC):

The close proximity of our land to existing and proposed landfill raises my concern regarding PC contamination. No testing report for PC in the landfill sites is apparent in the 2022 ER. There is reference to PC in TT quarries and the moving of PC soil to "lower area", presumably landfill, from quarries (Sue Jennings report, 2018 EER and 2022 EER). I feel it would be environmentally prudent to know the status of PC within the proposed landfill and the existing landfill as they are adjoining. Has vegetation rehabilitation ceased in the existing landfill due to PC contamination?

4. FINAL LANDSHAPE:

Landfill Sustainability Guide 2004 (LSG) mentions that steep slopes must be battered to a maximum of 1 vertical to 3 horizontal (1V:3H). TT indicate that in both 2022 and 2010 EER's that they will place their fill in a series of terraces 7m wide with batter slopes between terraces at 1V: 3H and they also provide a drawing (Fig. 4 after page 26 2010 EER) to indicate landfill profile. I feel that TT have achieved little of

the above, with some batter slopes of 1V:2H to 1V:1.5H and terrace widths well under 7m. Presumably the LSG mentions this sloping to achieve a better environmental outcome with regard to stability, rehabilitation and erosion. I bring this to the EPA's attention, if they do grant approval, this won't continue in the landfill expansion. Maybe a permit condition be applied to ensure LSG recommended batter slopes will be adhered to.

5. RECYCLE/REUSE AREA:

This area to the east in the landfill extension has scant information on what materials will be imported there, what activities will take place and where that area will be accessed from (no traffic flow plan within landfill extension provided in ERR). Sue Jennings mentions in her report of a green waste area in the eastern part of the quarry, which may be within the proposed landfill extension. As green waste is not permitted in the inert landfill, where would it be moved to? Is green waste suitable to be stored in quarries (ML's). Treated timber unloaded in existing landfill could possibly be recycled/sold to the public from TT's Hillcrest Site. Hoping vehicle access to recycle/reuse area doesn't involve going past any PC areas above quarry, indicated in Sue Jennings report.

6. WEDGE TAILED EAGLE (WTE):

Sadly, no recent WTE assessment has been provided. These magnificent raptors are often observed soaring overhead, sometimes as pairs, in the Porupine Hill area recently. I note the North Barker WTE survey (provided for TT's quarry expansion) is dated 2017, heading towards 5 years ago.

7. PUBLIC CONSULTATION:

There was no letter sent to me (local resident) from TT in relation to discussions and consultations of the proposed landfill extension. Why not?

Whilst I'm not opposing the landfill extension if LSG recommendations and existing Permit Conditions Environmental No. 7694 are followed, I'm hoping for a better environmental outcome than has been shown in the existing landfill up until now, as per sections 2, 3 and 4 in my submission.

Thanking DCC and EPA for the opportunity to lodge a submission. Any queries regarding this submission, feel free to correspond.

Yours sincerely,



Brett Russell

PCE 10044 (r1)

1/19

PERMIT PART B

PERMIT CONDITIONS - ENVIRONMENTAL No. 10044

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity: **The operation of an inert landfill (ACTIVITY TYPE: Inert Waste Depots)
FORTHSIDE LANDFILL, 547 FORTHSIDE ROAD
FORTHSIDE TAS 7310**

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

Acting under Section 25(5)(a)(i) of the EMPCA, the Board of the Environment Protection Authority has required that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality: **DEVONPORT**
Permit Application Reference: **PA2021.0193**
EPA file reference: **256500**

Date conditions approved: 8 March 2022

Signed:



DELEGATE FOR THE BOARD OF THE ENVIRONMENT
PROTECTION AUTHORITY

DELEGATE FOR THE BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

8 March 2022

PCE 10044 (r1)

2/19

DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

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Attachments

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Attachment 2: Landfill site plan (modified: 24/02/2022 11:19).....	1 page

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Schedule 1: Definitions

In this Permit Part B:-

Aboriginal Relic has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Capping means the placement of one or more layers to form a permanent covering above landfilled waste and includes a reference to such a layer.

Classification And Management Of Contaminated Soil For Disposal means the document *Information Bulletin No. 105 Classification and Management of Contaminated Soil for Disposal, version 3 2018*, published by the Environment Protection Authority and includes any subsequent versions of this document.

Clean Fill has the meaning described Section 3(1) of EMPCA, with contaminant levels set by the Director as limits for 'fill material' in *Information Bulletin No.105*.

Control Location (Noise) means a location chosen to represent the general ambient sound without contribution from noise sources at the activity.

Controlled Waste has the meaning described in Section 3(1) of EMPCA.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DRP means Decommissioning and Rehabilitation Plan.

EMPCA means the *Environmental Management and Pollution Control Act 1994*.

Environmental Harm and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

Inert Waste means waste that does not undergo environmentally significant physical, chemical or biological transformations and has no potentially hazardous content and is not contaminated with non-inert material, such as putrescible waste, and includes clean fill.

Information Bulletin No. 105 means the document titled *Information Bulletin No. 105 - Classification and Management of Contaminated Soil for Disposal*, Version 3, 2018, by the EPA, and includes any subsequent version of this document.

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Landfill Sustainability Guide means the document of this title published by the Department of Primary Industries, Water and Environment in September 2004, and includes any subsequent versions of this document.

Leachate means any liquid that is either released by or has percolated through waste.

Liquid Waste means any waste that is in liquid form or is substantially comprised of free liquids or is not spadeable (able to be lifted and moved in heaps with a spade).

Noise Sensitive Premises means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

Pollutant has the meaning ascribed to it in Section 3 of EMPCA.

Putrescible Waste means waste containing materials that are capable of rapid biological decay or rotting.

Recycling means a set of processes (including biological) for converting recovered materials that would otherwise be disposed of as wastes, into useful materials and/or products.

Stormwater means water traversing the surface of The Land as a result of rainfall.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

- 1 part of Property ID 6382521, Certificate of Title 242032/1, bound by the coordinates as shown at **Attachment 1**.

Waste has the meaning ascribed to it in Section 3 of EMPCA.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Water Sensitive Urban Design means the design of water infrastructure to minimise impacts on ecosystems while maximising efficient water use.

Weed And Disease Guidelines means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document.

Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits

- 1** The activity must not exceed the following limits :
 - 1.1** 12,000 tonnes per year of waste received (not including material for recycling).
 - 1.2** 15,000 tonnes per year of waste received (total)

General

G1 Access to and awareness of conditions and associated documents

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 Incident response

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G3 No changes without approval

- 1** The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:
 - 1.1** a change to a process used in the course of carrying out the activity; or
 - 1.2** the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
 - 1.3** a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G4 Change of responsibility

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person succeeding him or her as the person responsible for the activity, before such cessation.

G5 Change of ownership

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

G6 Complaints register

- 1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
 - 1.1 the date and time at which the complaint was received;
 - 1.2 contact details for the complainant (where provided);
 - 1.3 the subject matter of the complaint;
 - 1.4 any investigations undertaken with regard to the complaint; and
 - 1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.
- 2 Complaint records must be maintained for a period of at least 3 years.

G7 Authorised filling area

- 1 Deposition of waste at the landfill must be confined to the authorised filling area, marked as 'Current and proposed landfill footprint' at **Attachment 2**.
- 2 The maximum height of waste 'lift' (layer of waste deposited) must not exceed 2 metres in height.

G8 Permitted waste types

Unless otherwise approved in writing by the Director, no wastes may be deposited or stored on The Land, other than inert wastes.

G9 Non-permitted waste types

- 1 The following waste types must not be accepted for disposal on The Land:
 - 1.1 controlled waste;
 - 1.2 liquid waste; and
 - 1.3 putrescible waste, including green waste.

Atmospheric**A1 Control of dust emissions**

Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land.

A2 Covering of vehicles

Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they travel to The Land or leave The Land or travel on public roads. Effective control measures may include tarpaulins or load dampening.

Decommissioning And Rehabilitation**DC1 Progressive rehabilitation**

- 1 Progressive rehabilitation must be carried out during the operational phase of the activity and in accordance with the following:
 - 1.1 rehabilitation of each cell must commence immediately after completion of capping of the cell; and
 - 1.2 rehabilitation must include planting or seeding compatible with the proposed end use of The Land.

- 2 Maintenance and monitoring of rehabilitated areas must continue until the potential for environmental harm resulting from the deposition of waste in those areas has been mitigated to the satisfaction of the Director.

DC2 Temporary suspension of activity

- 1 Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.
- 2 During temporary suspension of the activity:
 - 2.1 The Land must be managed and monitored by the person responsible for the activity to ensure that emissions from The Land do not cause serious environmental harm, material environmental harm or environmental nuisance; and
 - 2.2 If required by the Director a Care and Maintenance Plan for the activity must be submitted, by a date specified in writing by the Director, for approval. The person responsible must implement the approved Care and Maintenance Plan, as may be amended from time to time with written approval of the Director.
- 3 Unless otherwise approved in writing by the Director, if the activity on The Land has substantially ceased for 2 years or more, rehabilitation of The Land must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

DC3 Decommissioning and Rehabilitation Plan

- 1 At least 12 months prior to the planned cessation of waste deposition or by a date specified in writing by the Director a Decommissioning and Rehabilitation Plan for the activity must be prepared in accordance with the Acceptable Standards provisions of Section 5 of the *Landfill Sustainability Guide* and must specify, without limitation, the following:
 - 1.1 the closure date;
 - 1.2 redundant site structures and equipment to be removed;
 - 1.3 details relating to interim cover and final capping;
 - 1.4 details of signs to be erected to inform the public that the site has closed;
 - 1.5 perimeter fences to be installed or maintained and other security measures to be implemented to prevent unauthorised access to waste deposition areas on The Land;
 - 1.6 post-closure management procedures for the leachate collection and containment system;
 - 1.7 post-closure maintenance procedures for stormwater drains and landfill capping;
 - 1.8 intended final profile of The Land;
 - 1.9 revegetation plans;
 - 1.10 proposed post-closure groundwater and surface water monitoring program; and
 - 1.11 any other details requested in writing by the Director.

DC4 Notification of cessation

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

DC5 Rehabilitation upon cessation

- 1 Unless otherwise approved in writing by the Director, following permanent cessation of the activity land disturbed or used in the carrying out of the activity must be rehabilitated in accordance with:
 - 1.1 the measures set out in the Decommissioning and Rehabilitation Plan for The Land approved in writing by the Director; or
 - 1.2 where an approved Decommissioning and Rehabilitation Plan is not available, the Acceptable Standards provisions of Section 5 of the *Landfill Sustainability Guide*.

DC6 Post-Decommissioning and Rehabilitation Report

- 1 Following decommissioning and rehabilitation of the Land to a level consistent with the approved DRP, a Post-Decommissioning and Rehabilitation Report must be submitted to the Director for approval. This report must include:
 - 1.1 A description of decommissioning and rehabilitation works completed;
 - 1.2 Any available monitoring data or other evidence which demonstrates that the land is in a stable and non-polluting state;
 - 1.3 Any supporting reports such as post-decommissioning environmental site assessments; and
 - 1.4 Details of any recommended ongoing management measures such as maintenance or monitoring.
- 2 The person responsible must implement all recommended ongoing management measures, unless otherwise approved by the Director.

Effluent Disposal**E1 Perimeter drains or bunds**

- 1 Perimeter cut-off drains, or bunds, must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.
- 2 Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

E2 Design and maintenance of settling ponds

- 1 Sediment settling ponds must be designed and maintained in accordance with the following requirements:
 - 1.1 ponds must be designed to successfully mitigate reasonably foreseeable sediment loss which would result from a 1 in 20 year storm event;
 - 1.2 discharge from ponds must occur via a stable spillway that is not subject to erosion;
 - 1.3 all pond walls must be stable and treated with topsoil and vegetated or otherwise treated in such a manner as to prevent erosion; and

- 1.4** sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off The Land by surface run-off.

E3 Stormwater discharge

- 1** Stormwater must be prevented as far as practicable from mixing with deposited waste.
- 2** Polluted stormwater, not leachate, that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
- 3** All stormwater that is discharged from The Land must not carry sediment or pollutants such as litter, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside The Land.

E4 Contamination of stormwater

Unless otherwise approved by the Director, in the event that stormwater is contaminated by leachate, measures must be implemented immediately to prevent pollutants from discharging beyond the boundary of The Land.

E5 Firefighting wastewater

In the event of a fire, potentially contaminated wastewater arising from firefighting must be treated on The Land to the satisfaction of the Director or removed from the site by a person holding all necessary approvals for such transport.

Hazardous Substances**H1 Storage and handling of hazardous materials**

- 1** Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:
 - 1.1** stored within impervious bunded areas, spill trays or other containment systems; and
 - 1.2** managed to prevent unauthorised discharge, emission or deposition of pollutants:
 - 1.2.1** to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
 - 1.2.2** to groundwater;
 - 1.2.3** to waterways; or
 - 1.2.4** beyond the boundary of The Land.

H2 Spill kits

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

H3 Handling of hazardous materials - mobile

- 1** Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant on The Land, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:
 - 1.1** to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
 - 1.2** to groundwater;
 - 1.3** to waterways; or

- 1.4 beyond the boundary of The Land.
- 2 Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

Monitoring

M1 Samples and measurements for monitoring purposes

- 1 Any sample or measurement required under these conditions must be taken and processed in accordance with the following:
 - 1.1 sampling and measuring must be undertaken by a person with training, experience, and knowledge of the appropriate procedure;
 - 1.2 the integrity of samples must be maintained prior to delivery to a testing facility;
 - 1.3 sample analysis must be conducted by a testing facility accredited by the National Association of Testing Authorities (NATA), or a testing facility approved in writing by the Director, for the specified test;
 - 1.4 details of methods employed in taking samples and measurements and results of sample analysis, and measurements must be retained for at least three (3) years after the date of collection; and
 - 1.5 sampling and measurement equipment must be maintained and operated in accordance with manufacturer's specifications and records of maintenance must be retained for at least three (3) years.

M2 Settlement pond water monitoring requirements

- 1 Unless otherwise specified in writing by the Director, surface water monitoring of the settlement pond must be undertaken at the location marked **PH1** at **Attachment 2** (at the settlement pond immediately prior to discharge from The Land, grid reference **439021E, 5434939N**).
- 2 Monitoring must be undertaken in accordance with **Table 1: Surface Water Monitoring**, with the parameters listed in Column 1 sampled or tested at the location PH1 at the frequencies listed in Column 3.

2.1 Table 1: Surface Water Monitoring

Column 1: Parameter	Column 2: Unit	Column 3: Frequency
pH	-	6 monthly
Conductivity	µS/cm	6 monthly
Total Dissolved Solids (TDS)	mg/L	6 monthly
Turbidity (NTU)	mg/L	6 monthly
Total Suspended Solids (TSS)	mg/L	6 monthly
Alkalinity (CaCo3)	mg/L	6 monthly
Total nitrogen	mg/L	6 monthly
Ammonia-N	mg/L	6 monthly
Nitrate-N	mg/L	6 monthly
Total phosphorus	mg/L	6 monthly

- 3 The results of surface water monitoring must be submitted to the Director:
 - 3.1 by 30 September each year; and

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- 3.2** within 21 days of results received where Turbidity (NTU) has exceeded 50 NTU during dry weather discharge, or 100 NTU during wet weather discharge.

M3 Signage of monitoring points

With the exception of open water sampling, all monitoring points must be clearly marked to indicate the location and name of the monitoring point.

M4 Reporting of waste tonnage

- 1** The person responsible must submit to the Director a report on the quantity of waste (measured as tonnes using a methodology approved by the Director) disposed of at the landfill during each financial year. The report must be submitted by 30 September each year and must, as a minimum, contain details of:
 - 1.1** the total quantity of waste received; and
 - 1.2** the total quantity of waste disposed of at the facility; and
 - 1.3** the source of waste received, broken down into the following categories:
 - 1.3.1** municipal waste, defined as waste arising from domestic premises and Council activities;
 - 1.3.2** commercial and industrial waste, defined as the component of the waste stream originating from wholesale, retail or service establishments and the waste stream arising from industrial processes and manufacturing operations;
 - 1.3.3** construction and demolition, defined as those materials in the waste stream which arise from construction, refurbishment or demolition activities and includes bricks, tiles, concrete, steel, glass, plastics, and soil or naturally occurring excavated material; and
 - 1.3.4** clean fill.
 - 1.4** the method by which the quantity disposed of has been calculated.

Noise Control

N1 Noise emission limits

- 1** Noise emissions from the activity, when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level, must not exceed:
 - 1.1** 35 dB(A) between 0700 hours and 1800 hours (Daytime) (notwithstanding any limits to operating hours specified elsewhere in these conditions).
- 2** Noise emissions from the activity must not be audible at any noise sensitive premises in other ownership during the evening time (1800 hours to 2200 hours) or night time (2200 to 0700 hours).
- 3** Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the background noise levels by at least 5 dB(A).

N2 Noise survey requirements

- 1** Unless otherwise approved in writing by the Director, a noise survey must be completed and submitted in accordance with guidance provided by the Director:
 - 1.1** within six (6) months after issue of these conditions; and

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- 1.2 within six (6) months after any change to the activity which is likely to substantially alter the character or increase the volume of noise emitted from The Land; and
- 1.3 where the Director is of the opinion that a noise survey must be completed within a specified timeframe.

N3 Noise survey method and reporting requirements

- 1 Noise surveys must be undertaken in accordance with a survey method approved in writing by the Director, as may be amended from time to time with written approval of the Director.
- 2 Without limitation, the survey method must address the following:
 - 2.1 measurements must be carried out at day, evening and night times (where applicable) at each location; and
 - 2.2 measurement locations, and the number thereof, must be specified, with one location established as a control location (noise).
- 3 Measurements and data recorded during the survey must include:
 - 3.1 operational status of noise producing equipment and throughput of the activity;
 - 3.2 subjective descriptions of the sound at each location;
 - 3.3 details of meteorological conditions relevant to the propagation of noise;
 - 3.4 the equivalent continuous (L_{eq}) and L_1 , L_{10} , L_{50} , L_{90} and L_{99} A-weighted sound pressure levels measured over a period of 10 minutes or an alternative time interval approved by the Director;
 - 3.5 one-third octave spectra over suitably representative periods of not less than 1 minute; and
 - 3.6 narrow-band spectra over suitably representative periods of not less than 1 minute.
- 4 A noise survey report must be forwarded to the Director within 30 days from the date on which the noise survey is completed.
- 5 The noise survey report must include the following:
 - 5.1 the results and interpretation of the measurements required by these conditions;
 - 5.2 a map of the area surrounding the activity with the boundary of The Land, measurement locations, and noise sensitive premises clearly marked on the map;
 - 5.3 any other information that will assist with interpreting the results and whether the activity is in compliance with these conditions and EMPCA; and
 - 5.4 recommendations of appropriate mitigation measures to manage any noise problems identified by the noise survey.

N4 Noise complaints

In the event that a noise complaint is received in relation to the activity, the complaint must be reported to the Director within 24 hours.

Operations**OP1 Hours of operation**

- 1 Unless otherwise approved in writing by the Director, the landfill facility must not be open for the reception of waste outside the hours of 0700 hours to 1700 hours Monday to Friday and 0800 hours to 1200 hours on Saturday.
- 2 Notwithstanding subclause 1 of this condition, the activity must not be carried out on Sundays or public holidays that are observed statewide (Easter Tuesday excepted).

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- 3 The hours of operation must be posted on a sign, which must be erected and maintained at the entrance to The Land.
- 4 Access to The Land must be through a gate that must be secured to prevent unauthorised access when The Land is unattended.

OP2 Site staff

- 1 While The Land is open for reception of waste, The Land must be attended by a person or persons whose duties must include supervising the management of waste deposition and ensuring compliance with these conditions.
- 2 Waste must not be received unless the person referred to in subclause 1 is satisfied that all the waste is inert waste.

OP3 Signage

- 1 Signs must be erected and maintained in legible condition to convey the following important operational and safety information:
 - 1.1 all drivers are responsible for ensuring that remnant waste and mud are not carried onto public roads;
 - 1.2 hours of operation and tipping fees (to be installed at the gate or gatehouse);
 - 1.3 wastes that are accepted at the landfill;
 - 1.4 items accepted for recycling and the locations within The Land where recyclable items should be deposited for collection / processing; and
 - 1.5 contact staff / organisation and relevant telephone numbers to report any fire or other emergency on The Land.

OP4 Weed and Pathogen Management Plan

- 1 Unless otherwise approved in writing by the Director, the activity must be undertaken in accordance with the *Weed and Pathogen Management Plan, Porcupine Hill Quarry*, prepared by Treloar Transport, Version 1 dated 21 August 2018 ('Weed and Pathogen Management Plan 2018'), as submitted to EPA Tasmania, or in accordance with any subsequent revisions or alterations of that document as required and approved in writing by the Director.
- 2 The Weed and Pathogen Management Plan 2018, or any subsequent revisions or alterations of that document, must be consistent with the Weed and Disease Guidelines, or any subsequent revisions of that document.

OP5 Materials received for recycling

- 1 Materials received on The Land for recycling must not be disposed in the landfill except where the following circumstances exist:
 - 1.1 materials have become contaminated and cannot be recycled; and
 - 1.2 reasonable efforts have been made to remove the contamination; and
 - 1.3 written approval has been received from the Director.

OP6 Waste capping

- 1 Unless otherwise approved by the Director areas to which intermediate cover has been applied must have final capping applied within 2 years unless further waste deposition occurs within 90 days.
- 2 Unless otherwise approved by the Director, final capping must comply with Table 5.1 of the *Landfill Sustainability Guide*.

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OP7 Machinery washdown

Prior to entering The Land, machinery must be washed in accordance with the Weed and Disease Guidelines, or any subsequent revisions of that document.

OP8 Litter management

- 1** Measures must be implemented and maintained throughout the operational life of the landfill to control and monitor the escape of litter from The Land.
- 2** Litter control measures, for example mobile litter fences of sufficient height to capture airborne litter, must be employed around and close to active landfilling areas. Fences must be regularly cleared of litter in order to maintain their effectiveness (i.e. the fences must remain permeable to wind).
- 3** Waste compaction and covering must be carried out immediately after waste deposition if wind conditions are such that litter cannot be contained within the active landfill area.

Schedule 3: Information

Legal Obligations

LO1 EMPCA

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO2 Storage and handling of dangerous goods, explosives and dangerous substances

- 1** The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:
 - 1.1** *Work Health and Safety Act 2012* and subordinate regulations;
 - 1.2** *Explosives Act 2012* and subordinate regulations; and
 - 1.3** *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

LO3 Aboriginal relics requirements

- 1** Aboriginal relics, objects, sites, places and human remains regardless of whether they are located on public or private land, are protected under the *Aboriginal Heritage Act 1975*.
- 2** Unanticipated discoveries of Aboriginal heritage must be reported to Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible.

LO4 Underground Storage Tanks

The operation and management of underground petroleum storage system must be in accordance with *Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations 2020*.

Other Information

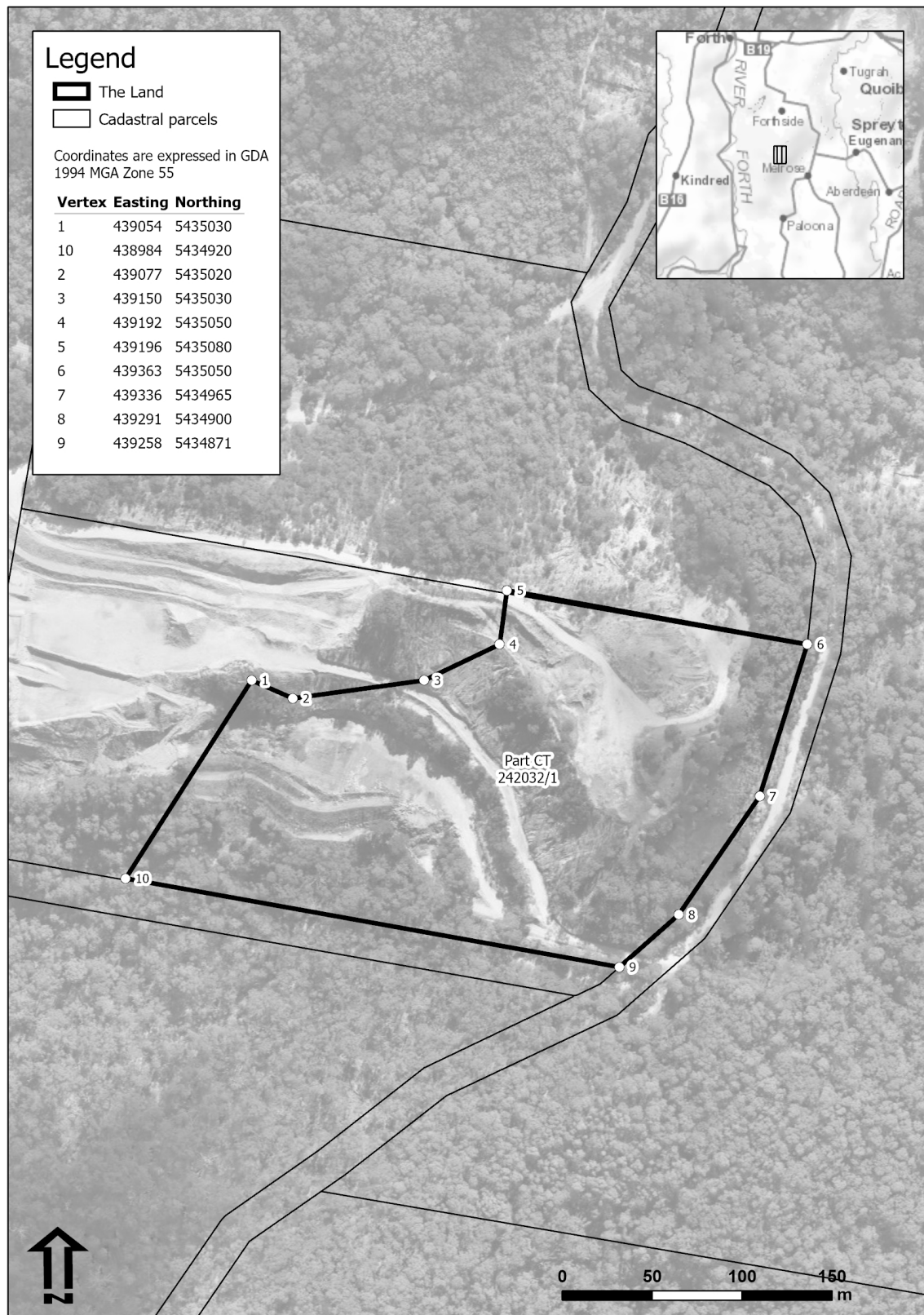
OI1 Waste management hierarchy

- 1** Wastes should be managed in accordance with the following hierarchy of waste management:
 - 1.1** waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;
 - 1.2** waste should be re-used or recycled to the maximum extent that is practicable; and
 - 1.3** waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.

OI2 Notification of incidents under section 32 of EMPCA

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning **1800 005 171** (a 24-hour emergency telephone number).

Attachment 1: The Land



Attachment 2: Landfill site plan



DELEGATE FOR THE BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

8 March 2022