

Application for a resource consent - Form 9 APP230649603



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Application for a resource consent - Form 9

Reference	APP230649603	Submitted	16 Jun 2023 08:42
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Introduction

Use this form to apply for a resource consent under [Section 88](#) and [Schedule 4](#) of the Resource Management Act 1991.

Information required

Information required to complete this application includes:

- Description of activity and Assessment of Environmental Effects (AEE).
- Site plans and drawings.
- Record of title, less than 3 months old.
- Signed affected party approval forms and plans, if required.
- Any other documentation relevant to your proposal.

Note that other information may be requested once your application has been checked by our team.

Privacy

The information you provide is official information and is used to help process your application. The information is held and used in accordance with the Local Government Official Information and Meetings Act 1987 and the [Privacy Act 2020](#). This means that your information may be disclosed to other people who request it in accordance with the terms of these Acts. Under the [Privacy Act 2020](#) you have the right to see and correct any personal information that Council may hold about you.

Fees

A fixed fee is set for certain activities, while other fees are charged on a time basis for processing and inspection purposes. Please consult [Council's fee schedule](#) before submitting your application.

Declaration

By continuing with this application you certify that: Yes

- The information you provide is true and correct to the best of your knowledge.
- You undertake to pay all costs related to this application.

Resource Consents Property Information

Property screens coming up.

On the next screen there is a property lookup section that directly links to the CODC Property Database. Your property details will populate correctly in this form if you have received your Record of Title (ROT) before 1 July. If you have received a Record of Title (ROT) after this date OR you wish to select multiple properties, please skip the next screen and proceed to the "New Property" screen.

Documents - Please do not load duplicates

In the upcoming screens there are multiple places to load documents, please do not load documents more than once.

Property ID

Address

House Number

Street

Suburb

Area Description

Owner

Legal Description

Location

Property Type

Status

Property Selected Id

Valuation Number

Assessment Number

Property Ward

Rates Account Identifier

Rates Account Number

Annual Rates Assessment Amount

Capital Value

Land Value

Value of Improvements

Resource Consents New Property

Please **ONLY** fill out this screen if your property Record of Title (ROT) has been received after 1 July OR you wish to add multiple/extra properties.

Details required for New Property

Property Address	Bendigo Loop Road
Valuation Number	
Record of Tile Number	993471
Legal Description	Lot 1 DP 561457
Comments	
What is your role in this application?	Agent acting on behalf of the applicant

Agent details

An agent acts on behalf of the applicant in the submission and processing of the application.

Organisation	Brown & Company Planning Group
First name	Maddy
Last name	Familton
Phone number	0278409158
Email address	office@brownandcompany.co.nz

Note that the owner will also receive a copy of this application.

Postal address:	PO Box 1467, Queenstown 9348
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Confirm that you have approval to act on behalf of the applicant	Yes
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The applicant is the person(s) or organisation making the application.

Applicant details

Is this applicant an individual or an organisation?	Business / organisation
Organisation	TKO Properties Limited
Contact Person	
First name	Shanon
Last name	Garden
Phone number	027 239 2226
Email address	shanon@infraconltd.co.nz
Postal address:	82 Centennial Avenue, Alexandra 9320

Authority to apply on behalf

Confirm that the applicant is authorised to apply on behalf of the organisation Yes

Activity or works proposed

Application type Subdivision consent
Short description of your proposal Comprehensive residential development and subdivision at Rocky Point

Provide a detailed description in the Assessment of Environmental Effects (AEE) or other document.

Assessment of Environmental Effects (AEE)

Refer to the [guidelines for Assessment of Environmental Effects](#).

[A. Application & AEE.pdf](#) (1 mb)

Assessment of the activity

You may need to provide an assessment of the activity against the following provisions:

- The matters set out in [Schedule 4 of the Resource Management Act 1991](#).
- Any relevant objectives, policies, or rules in a document.
- Any relevant requirements, conditions, or permissions in any rules in a document.
- Any other relevant requirements in a document (e.g. in a national environmental standard or other regulation).

Please do not load the same document that you loaded for AEE above

Other activities

Describe any other activities that are part of the proposal to which the application relates

Other applications

Are you required to apply for any other resource consents for this project? Yes
Provide a brief summary of the other consents required Regional Consents
Have you applied for a building consent for this project? No

Pre-application information

Have you discussed this proposal with Council staff prior to this application? Yes, a pre-application meeting
Name(s) of Council staff involved Adam Vincent
Date of discussion 01/12/2022

Affected party approvals

All affected property owners, including trustees where properties are held in a trust, must sign written approval forms AND a copy of your plans.

- If an affected party does not give approval to your proposal this may impact on the way that the application is processed.
- Council's duty planner can provide you with advice on which parties may be affected by your proposal.

[Download an affected party approval template form.](#)

Do you need affected party approval?

No

Reason

No affected parties

Plans

Refer to the [guidelines for plan documents](#) and check that the plans comply.

Plans required may include:

- Site plan and drawings.
- Floor plans and elevations for any proposed buildings.
- Subdivision plan.
- Scheme plan.

[C. Scheme Plans.pdf](#) (6 mb)

Record of title

A record of title (less than 3 months old) is required for all applications. All consent notices, survey plans and encumbrances must be included. Where relevant a sale and purchase agreement or lease agreement can support the record of title.

To easily get a Record/Certificate of title go to [Land Record Search | Toitū Te Whenua - Land information New Zealand \(linz.govt.nz\)](#).

[B. Title.pdf](#) (244 kb)

[B. Consent Notice 6707980.5.pdf](#) (45 kb)
[B. Consent Notice 7988472.6.pdf](#) (129 kb)
[B. Consent Notice 12117575.4.pdf](#) (221 kb)

Expert reports

Other information such as expert landscape, traffic or economic reports may be required for some proposals.

[D. Archaeological Assessment.pdf](#) (15 mb)
[E. Landscape Assessment.pdf](#) (1 mb)
[F. Landscape Attachments & Plans.pdf](#) (182 mb)
[G. Wastewater Suitability Report.pdf](#) (9 mb)
[H. Ecological Assessment.pdf](#) (47 mb)

Other documentation - please do not upload documents already loaded

Provide any other relevant documentation.

Other documentation



APPLICATION FOR RESOURCE CONSENT

For a comprehensive residential
development at Rocky Point

Rocky Point, Cromwell

15 June 2023



BROWN&COMPANY
P L A N N I N G G R O U P

**APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 OF THE RESOURCE
MANAGEMENT ACT 1991**

APPLICANT AND PROPERTY DETAILS

Applicant's name:	TKO Properties
Address for Service:	C/- Morgan Shepherd Brown & Company Planning Group PO Box 1467, QUEENSTOWN 9348 morgan@brownandcompany.co.nz 03 4092258
Address for invoicing:	82 Centennial Avenue Alexandra 9320 shanon@infraconltd.co.nz
Site Address:	Rocky Point
Legal Description:	Lot 2 DP561457
District Plan Zone:	RuRA2
Plan Designations, Limitations or Overlays:	Rocky Point Recreation Zone – Landscape Protection Area and a Development Area Outstanding Natural Landscape Transecting High Voltage Transmission Lines
Activity Status:	Discretionary

Prepared for: *TKO Properties Limited*

Date: *16 June 2023*

Prepared by: *Morgan Shepherd*

Reviewed by: *Jeff Brown*

Declaration

The Council relies on the information contained in this application being complete and accurate. The Applicant must take all reasonable steps to ensure that it is complete and accurate and accepts responsibility for information in this application being complete and accurate.

If signing as the Applicant, I/we hereby represent and warrant that I am/we are aware of all of my/our obligations arising under this application including, in particular but without limitation, my/our obligation to pay all fees and administrative charges (including debt recovery and legal expenses) payable under this application as referred to the Fees Information section.

If signing as agent of the Applicant, I/we hereby represent and warrant that I am/we are authorised to act as agent of the Applicant in respect of the completion and lodging of this application and that the Applicant is aware of all of his/her/its obligations arising under this application including, in particular but without limitation, his/her/its obligation to pay all fees and administrative charges (including debt recovery and legal expenses) payable under this application as referred to the Fees Information section.

I hereby apply for the resource consent(s) for the Proposal described above and I certify that, to the best of my knowledge and belief, the information given in this application is complete and accurate.



.....
for Brown & Company Planning Group
on behalf of

TKO Properties Limited

16 June 2023

ATTACHMENTS

- A** An assessment of effects on the environment in accordance with the Fourth Schedule to the Act.
- B** Records of Title
- C** Scheme Plan
- D** Archaeological Assessment
- E** Landscape Assessment
- F** Landscape Attachment & Plans
- G** Wastewater Disposal Report
- H** Ecological Assessment

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FOURTH SCHEDULE
ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

1. A DESCRIPTION OF THE PROPOSAL

1.1. Scope of this Document

This Assessment of Effects on the Environment (**AEE**) is submitted in fulfilment of the applicant's duties under the Resource Management Act 1991 (**RMA**). The AEE addresses matters relating to this land use consent application to the Central Otago District Council (**CODC** or **the Council**) for the proposal.

This AEE has been prepared in accordance with the requirements of section 88 and the Fourth Schedule of the RMA and provides all information necessary for a full understanding of the proposal and the effects it will have on the environment. To this end, the AEE contains the following information:

- A description of the site and surrounding locality;
- Development and consent history;
- A description of the proposal;
- Relevant provisions of the Central Otago District Plan (**CODP**);
- An assessment of effects on the environment;
- Section 104D Assessment;
- Part 2 RMA considerations;
- Section 95A Assessment.

It is noted that the applicant also owns the 130ha "Bendigo Hills" site immediately to the south (Lot 2 DP561457). The applicant is making a separate, and parallel, application to add four lots to the previously consented six lots across that title. A number of the technical assessments provided in support of this application cover both this subject site and the Bendigo Hills site. This is seen as appropriate to give due consideration to the wider area, promote a consistent approach to land development, and enhance overall outcomes.

1.2. The site and locality

The Rocky Point site is a 68.7ha rural property near Bendigo Station, currently undergoing subdivision. It is bordered by Tarras Cromwell Road (SH8) and Lake Dunstan to the west. Bendigo Loop Road runs across the north of the property and provide access. To the east is the established "Chinaman's Terrace / Bendigo viticulture area. Running across the south of the property, extending northeast is the ~1200ha Bendigo Scenic Reserve. It is of varied topography with flatter plateau and steeper slopes. Vegetation is predominantly grass and shrubland. Existing farm tracks cross the site, and an existing transmission line runs through the site.

The site is shown in *Figure 1* below.



Figure 1. Site location (outlined in black & yellow)

A field survey/inspection was undertaken by Chris Jennings in November 2022. Four archaeological sites that are primarily related to the operation of the historic Morven Hills Station, and later Bendigo Station were recorded on the site as seen in **Figure 2** below.



Figure 2. Sites recorded during November 2022 field survey

The recorded sites are detailed in the Archeological Assessment (**Attachment D**) and summarised as follows:

- G41/771 – Earth bank feature
- G41/772 – Stone retaining wall
- G41/773 – Earth bank feature
- G41/774 – Sluicing Area

As discussed in the Landscape Assessment (**Attachment E**) the site occupies a part of the lower reaches of the Dunstan Ranges and presents a highly complex landscape character. The Landscape Assessment breaks the site landscape into identifiable components as follows:

- The rolling flats – the lower part of the site adjacent to Bendigo Loop Road which has sparse vegetation cover and minor rocky outcrops.
- Kanuka escarpments – relatively steep land flanking the rolling flats with a series of small ridges and gullies with exposed ridges on the upper portion.
- Elevated rocky knoll – steeply rising landform with a consistent cover of kanuka amongst broken rock forms, rock outcrops and an unmodified craggy landscape which occupies the northern portion of the site and the eastern 'bookend' of the Dunstan Range and its confluence with Lake Dunstan.
- Minor ridgelines and gullies – located above the kanuka escarpments where the landform transitions to a large series of ridges and gully. Kanuka cover is less and there are open portions of the landscape covered in a mix of native and exotic grasslands.
- Upper valley – this component crosses the site east to west, connecting the Plateau to a smaller flat area on the eastern boundary of the site, sitting between two significant large elevated rocky knolls and a hillocky landform. The valley is largely screened from wider views by enclosing landform to the north and south and the vegetation cover is sparse.
- The plateau – a substantial natural plateau located on the western edge of the site which is bordered by two densely vegetated kanuka gullies. An access track and transmission lines run across the plateau.
- Minor southern valley – a small relatively flat valley located to the south of the upper valley and enclosed by rising land to the south. Contains open areas of grass and sweeps of kanuka and no evidence of human modification aside from grazing.
- Elevated rocky knolls – significant landscape features located on the southern portions of the site. Steeply rising faces clad in continuous kanuka cover with rocky outcrops, ledges and striated rock form.

As summarised in the Landscape Assessment, the site retains a distinctive natural character with a low level of human modification. The site remains reasonably rugged in character with the landscape forms of gullies, minor ridges, and rocky knolls throughout the entire site providing a strong cohesive landscape that is easily identifiable. The more exposed rocky knolls and lower minor ridges have an arid and exposed natural character. Low lying areas and valleys within the site are sheltered from wide views by large rocky knolls and dense kanuka vegetation, giving some parts of the site a more locally 'enclosed' character. The predominant vegetation pattern found throughout the site is kanuka with other scrubland species and some areas of invasive weed species on the lower northern slopes. Smaller grassland species and cushion plants are found through the site where areas of the landform are more exposed such as minor ridges and flats. Human modification on the site is restricted to access tracks, transmission lines, historic kanuka clearance and fencing.

In recent years the site has been retired from grazing and is demonstrating considerable regeneration of native Kanuka.

1.3. Development and Consent History

RM210203 – consent for earthworks to establish access to Lot 1 DP 561457.

RC230031 – consent was sought for a boundary adjustment between Lots 1 and 2 DP561457 and variation to RC210148 to defer the sealing of Lakefront Terrace and provide for a staged subdivision. The boundary adjustment component has been approved and the variation is imminent.

1.4. The proposal

1.4.1 Subdivision

The proposal is to subdivide the site to create 33 new allotments as shown on the Scheme Plan (**Attachment C**) and detailed in **Table 1** below. A balance lot will comprise the residual area surrounding proposed Lots 1 – 33. This area will be owned as undivided shares in common by each private lot owner. This surrounding area will remain undeveloped and will provide open space and amenity, as well as limited recreation, for owners.

Table 1. Proposed Allotments

Allotment	Building platform	Finished Floor Level	Zone	Area	Purpose
Lot 1	750m ²	292m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	4517m ²	Residential
Lot 2	750m ²	291m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	4535m ²	Residential
Lot 3	750m ²	290m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	4015m ²	Residential
Lot 4	600m ²	296m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	2993m ²	Residential
Lot 5	600m ²	296m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	2163m ²	Residential
Lot 6	600m ²	297m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	2307m ²	Residential
Lot 7	600m ²	299m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	2065m ²	Residential
Lot 8	750m ²	296m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	1648m ²	Residential

Allotment	Building platform	Finished Floor Level	Zone	Area	Purpose
Lot 9	750m ²	301m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	1667m ²	Residential
Lot 10	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	431m ²	Residential
Lot 11	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	513m ²	Residential
Lot 12	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	402m ²	Residential
Lot 13	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	456m ²	Residential
Lot 14	750m ²	319m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	3336m ²	Residential
Lot 15	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	733m ²	Residential
Lot 16	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	692m ²	Residential
Lot 17	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	651m ²	Residential
Lot 18	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	700m ²	Residential
Lot 19	84m ²	-	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	599m ²	Residential

Allotment	Building platform	Finished Floor Level	Zone	Area	Purpose
Lot 20	750m ²	332m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	2728m ²	Residential
Lot 21	750m ²	322m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	2331m ²	Residential
Lot 22	750m ²	324m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	2869m ²	Residential
Lot 23	750m ²	324m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	2372m ²	Residential
Lot 24	750m ²	325m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area + Landscape Protection Area)	2477m ²	Residential
Lot 25	750m ²	327m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	2361m ²	Residential
Lot 26	750m ²	328m	Rural Resource Area (2) – Rocky Point Recreation Zone (Development Area)	3068m ²	Residential
Lot 27	750m ²	331m	Rural Resource Area (2) – Rocky Point Recreation Zone (Landscape Protection Area)	6360m ²	Residential
Lot 28	750m ²	203m	Rural Resource Area (2) – Rocky Point Recreation Zone (Landscape Protection Area)	5479m ²	Communal
Lot 29	750m ²	302m	Rural Resource Area (2) – Rocky Point Recreation Zone (Landscape Protection Area)	1.524ha	Residential
Lot 30	750m ²	302m	Rural Resource Area (2) – Rocky Point Recreation Zone	1.452ha	Residential

Allotment	Building platform	Finished Floor Level	Zone	Area	Purpose
			(Landscape Protection Area)		
Lot 31	750m ²	210m	Rural Resource Area (2) – Rocky Point Recreation Zone (Landscape Protection Area)	3270m ²	Communal
Lot 32	750m ²	211m	Rural Resource Area (2) – Rocky Point Recreation Zone (Landscape Protection Area)	7700m ²	Communal
Lot 33	750m ²	205m	Rural Resource Area (2) – Rocky Point Recreation Zone (Landscape Protection Area)	3.127ha	Residential
Lot 34	-	-	Rural Resource Area (2)	-	Balance / Common
Lot 101	-	-	Rural Resource Area (2)	-	Access to be vested as road
Lot 102	-	-	Rural Resource Area (2)	-	Access to be vested as road
Lot 103	-	-	Rural Resource Area (2)	-	Access to be vested as road

The applicant proposes a staged subdivision and lots included in each stage will be determined in due course. The following staging condition is proposed:

- (x) *This subdivision may be staged. For the purposes of issuing approvals under sections 223 and 224(c) of the Resource Management Act 1991, the conditions of this consent shall be applied only to the extent that they are relevant to each particular stage proposed. This consent may be progressed in any order and all stages may be combined, providing all necessary subdivision works (such as servicing, provision of formed legal access and other works required to satisfy conditions of this consent), are completed for each stage, prior to certification being issued as necessary under section 223 and 223(c) of the Resource Management Act 1991.*

1.4.2 Building platforms and controls

The proposal includes the identification of residential building platforms on proposed Lots 1 – 33. The size of the building platforms range depending on the lot size and location within the landscape. A range of design controls will apply to any future building within the platforms as set out in the Landscape Assessment (**Attachment E**) and detailed below:

Curtilage areas are identified around the proposed building platforms and will enable residential activity which is considered appropriate. Beyond the curtilage area is a proposed Landscape and Vegetation Protection Area (LVP) which will be subject to covenants limiting clearance of indigenous vegetation and an obligation to undertake weed management and control.

General Design Controls

Architectural

- All built form is to be contained within a prescribed building platform (RBP) with the combined dwelling and garaging not exceeding the prescribed site coverage as laid out in Attachment R
- No buildings shall exceed a height of 5.5m above a specified fixed floor datum (F.F.L), nominated for each RBP. The building height shall be measured from floor level to the highest point of the roof.
- Cellars etc., may be excavated below floor levels but shall not be visible from outside the platform nor shall any dwelling datum be excavated below the specified datums in order to achieve extra height.
- Dwellings are required to have a mono-pitch roof only following the natural grade of the Rocky Point landscape. The direction of pitch of all monopitch roofs shall be guided the grade of the surrounding landform.
- The lower portion of the roof pitch (mono-pitch) shall not exceed 3m in height
- Roof colours are to have a Light Reflective Value (LRV) of less than 27% and shall be in mid-dark greys or black in colour only.
- A combined maximum of 80% glazing on northern and western elevations only is permitted.
- Exterior cladding shall be restricted to timber (LRV of less than 20), stone or steel only. Where timber is used that shall be in weatherboard (clear oil, unstained), board and batten or plywood only.
- All buildings, structures, fixed clothing lines, and other domestic landscaping and structures are to be located within the prescribed curtilage areas.
- For site coverages on RBPs of residential buildings refer to Attachment R.
- Residential buildings and accessory buildings must be of a modulated form and must not be a continuous length greater than 20 metres.

Landscape

- Other than provided for in the next point, tree planting is restricted to Kanuka only, with any existing Kanuka that is removed to be replaced with a similar area of Kanuka within the lot boundary.
- Each lot is permitted to have an area of 20m² of non – indigenous planting for the purpose of amenity or production (vegetable gardens, ornamental gardens) with species not to exceed 1.2m in height at maturity within the curtilage area.
- Boundaries are not to be fenced. It will be the case that these boundary lines often cross natural features and vegetation that warrants preservation. Surveyed boundary lines are also generally straight, running from point to point, and may not follow natural contours. So instead, Lot owners will be permitted to fence their curtilage areas.
- Fencing is permitted in traditional 7 wire fencing only (with rabbit proof mesh as required) and is only permitted within the prescribed curtilage areas for the purpose of rabbit control and pet / other containment.
- No fencing of boundaries is permitted.

- Any entry gates and wall feature at lot entries shall be in timber only and shall not exceed 1m in height and 10m in width.
- Exterior lighting shall be restricted to the RBP and all downward facing and the light source shall not be more than 1.2m above ground level.

Design Controls – Chalet Lots 10 – 13 and 15 – 19

Architectural

- All built form is to be contained within a prescribed residential building platforms (RBP) with the permitted 100% site coverage of the RBPs (all being 85m²).
- No buildings shall exceed a height of 5.5m above a specified fixed floor datum (F.F.L.), nominated for each RBP. The building height shall be measured from floor level to the highest point of the roof. Piles are excluded in this calculation and shall not exceed 900mm in height.
- All roofs shall be in gable form only (no hip roof ends permitted), with the gables running along the longer length (12m axis) on the RBPs. All gables shall have a minimum roof pitch of 30 degrees.
- Covered verandahs are permitted to extend to a maximum of 2.7m along the northern face of any chalet.
- Decking is permitted under the verandah and one end of the chalet only, extending 3m maximum from the RBP.
- Roof colours shall all be in dark grey only in Colorsteel Grey Friars or similar only.
- Exterior cladding shall be restricted to timber (LRV of less than 20) or steel only. Where timber is used that shall be in horizontal weatherboard (clear oil, unstained) or vertical board and batten only. Where steel is used for wall claddings that steel shall match the roof material in colour and form.

Landscape

- Tree planting is restricted to Kanuka only, with any existing Kanuka that is removed to be replaced with a similar area of Kanuka within the lot boundary.
- Exterior lighting shall be all downward facing and the light source shall not be more than 1.2m above ground level.
- No activities are permitted within the curtilage areas of the Chalet lots aside from path and step access to the chalets. Landscaping in the form of grasses and Kanuka only is permitted. Schist rock walls for the purpose of retaining is permitted.
- No domestic items such as heat pump machinery, clothes lines, play equipment etc. and any other items shall be located anywhere within the lot aside from a screened area to the south of each cabin not exceeding 3x3 metres outside of the RBP's and attached to the house. Screening shall be in vertical timber battens to 1.8m high, unpainted and oiled.
- No fencing, i.e., such as privacy fencing, screening or lot boundary fencing is permitted on any chalet lot.
- Retaining walls are permitted but must be in horizontally stacked schist only.
- Paths shall be in compacted gravels only.

Communal Lots – Lots 28, 31 & 32

Architectural

- All built form is to be contained within the prescribed building platforms (BPs) with buildings not to exceed 80% site coverage
- No buildings shall exceed a height of 5.5m above the specified fixed floor datums (F.F.L), nominated for each No building on Lot 31 and Lot 32 shall exceed a height of 6.5m above the specified fixed floor datums (F.F.L), nominated for each BP. The building height shall be measured from floor level to the highest point of the roof.
- Cellars etc., may be excavated below floor levels but shall not be visible from outside the platform nor shall any datum be excavated below the specified datums in order to achieve extra height.
- All structures shall be simple gable form with no hip roofs.
- Lean-to form and verandahs are permitted
- Roof colours are to have a Light Reflective Value (LRV) of less than 27% and shall be in mid-dark greys or black in colour only and shall be in corrugated iron, in mid to dark greys or in weathered (aged) corrugated iron.
- Exterior cladding shall be restricted to timber (LRV of less than 20), stone or steel only. Where timber is used that shall be in weatherboard (clear oil, unstained), board and batten or plywood only.
- On Lot 28, communal buildings and accessory buildings must be of a modulated form and must not be a continuous length greater than 20 metres.

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Landscape

- Tree planting is restricted to Kanuka only, with any existing Kanuka that is removed to be replaced with a similar area of Kanuka within the lot boundary.
- The treatment of exterior 'public' areas are to kept relatively simple in form and character, with ground treatment in grass, gravel and flat flag stone only, steps in stone or concrete and retaining walls in horizontally laid local schist.
- Carpark areas shall be in gravel or asphalt surface only.
- Exterior lighting shall be all downward facing and the light source shall not be more than 1.2m above ground level.
- Boundaries are not to be fenced. It will be the case that these boundary lines often cross natural features and vegetation that warrants preservation. Surveyed boundary lines are also generally straight, running from point to point, and may not follow natural contours. So instead Lot owners will be permitted to fence their curtilage areas.
- No fencing of boundaries is permitted.
- Landscape structures such as outdoor fires and shade shall be recessive colours, steel or timber and shall be located within the curtilage areas.
- Each communal lot is permitted to have an area of 30m² of non – indigenous planting for the purpose of amenity or production (vegetable gardens, ornamental gardens) with species not to exceed 1.2m in height within the building platform.

1.4.3 Vegetation clearance and compensation planting

The proposal requires clearance of small stands of kanuka and individual tress, and areas of cushionfield, grassland vegetation and exotic herbfield to allow the construction of accessways and identification of building platforms.

The table below summarises the proposed vegetation clearance:

Component	Total			Species to be removed		
	Length	Width	Area	Kanuka	Cushionfield	Exotic herbfield and exotic grassland
Building platforms and curtilage areas	n/a	n/a	42186 m ²	4178m ²	26823m ²	11185m ²
Access road upgrades	622m	5.5m	3425m ²	795m ²	1870m ²	760m ²
Right Of Ways	452m	4.5m	2034m ²	-	1764m ²	270m ²
Driveways	280m	3.5m	980m ²	392m ²	105m ²	483m ²
Wastewater disposal fields (Lots 10 – 19)			1050m ²	-	1050m ²	-
Wastewater disposal fields (Lots 1 – 9, 20 – 33)			Contained within curtilage areas on each lot and so included above			
Total				5365m ²	31612m ²	12698m ²

In total, approximately 41,000m² of kanuka shrubland and cushionfield will be removed.

It is noted that almost all of this is within the Rocky Point Recreation Zone – Development Area.

The proposal includes approximately 41,500m² of compensation planting across the site as seen in *Figure 3* below.



Figure 3. Indicative compensation planting areas outlined in yellow

The species proposed for the compensation planting areas are:

- Kowhai (*Sophora microphylla*)
- Hall's totara (*Podocarpus laetus*);
- Lancewood (*Pseudopanax crassifolius*);
- *Olearia lineata*;
- *Olearia odorata*;
- *Coprosma propinqua*;
- *Coprosma crassifolia*
- *Coprosma virescens*;
- Corokia (*Corokia cotoneaster*);
- Broadleaf (*Griselinia littoralis*);
- Kohuhu (*Pittosporum tenuifolium*); and
- Cabbage tree (*Cordyline australis*).

The compensation planting will be undertaken in stages, as development is undertaken, in accordance with a Vegetation Management Plan which will be required by condition of consent.

1.4.4 Communal residential activities

It is proposed that Lots 31 and 32 (located near Bendigo Loop Road) and Lot 28 are created for the purpose of communal residential activity, leisure activities, accommodation facilities and temporary activities, to be utilised by the future residents, friends and family.

1.4.5 Access

The proposal includes the construction of a new accessway extending from Bendigo Loop Road and traversing across the site. The access point is approximately 100m from the eastern boundary of the site as detailed in the Scheme Plan (**Attachment C**). The route avoids rock outcrops and minimises earthworks volumes and extents.

This route is modified from that originally identified in Schedule 19.16: Concept Plan – Rocky Point Recreation Zone. Further engineering design work has assessed it to be more direct/shorter, safer, and less impactful on natural features.

The intent is to construct an access road which is 5.5m wide leading from Bendigo Loop Road to a cul-de-sac head at the top of the site. Due to the steep mountainous terrain, and the preference to minimise earthworks, some sections of road will exceed 1:6. It is expected that these sections will be asphalted. No road exceeds 1:5. The road will additionally have asphalt in areas of high wear, and the remainder may either be asphalt or two coat chip seal, but this will be subject to final design.

Proposed Lot 101 contains the main accessway (20m legal width and 5.5m carriageway) and is proposed to be vested as road. Proposed Lots 102 and 103 extend up the site to provide access to proposed Lots 10 – 28. Private driveways will be constructed at the time a future building is established; however these are required to be no more than 3m in width and unsealed.

1.4.6 Earthworks

Earthworks are required for the proposed roading construction, approximate volumes are detailed in the table below.

Component	Road type	Length (m)	Cut (m³)	Fill (m³)
Main Access Road	Road to vest	1500	15000	15000
Access to Lots 1-7	Shared	175	1000	0
Access to Lot 30 and Bendigo Station	Shared	400	7000	1500

The total volume of earthworks is approximately 39,500m³ across the site and these will be undertaken in accordance with an Environmental Management Plan (EMP) which will be required by way of condition.

In addition to the earthworks required for the roading, earthworks will be undertaken on the future lots to create level building platforms to ensure they are ready to build upon by future owners. The general 're-contouring' of the sites is shown on the Landscape Plans (**Attachment F**), and it is anticipated that full earthworks drawings will be prepared as part of a detailed engineering acceptance application.

1.4.7 Infrastructure / Servicing

Wastewater

Mt Iron Geodrill prepared a Wastewater Disposal Report (**Attachment G**) to assess the suitability for onsite domestic wastewater and stormwater disposal. In summary, the reports concludes:

- Wastewater disposal for proposed Lots 1 – 7 and 21 – 33 can be managed onsite;
- Wastewater disposal for proposed Lots 8 – 20 will be managed using a communal reticulation system as the sites are considered to be unsuitable for onsite disposal given the smaller lot sizes proposed and shallow rock depth in that area.

The Wastewater Disposal Report includes an indicative concept design for the communal reticulated system (a total of five disposal beds, 10m wide and 20m long with a minimum of 1m spacing between

each bed) which requires the installation of a sewer treatment plant on the northwestern side of Lot 8 and a disposal area to the northwest and downslope of proposed Lots 1 & 2 as seen in *Figure 4* below.

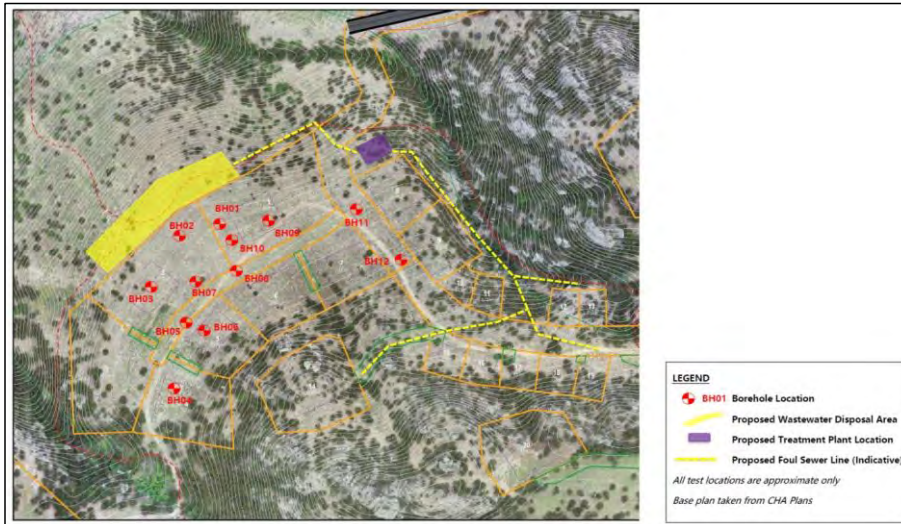


Figure 4. Proposed treatment plant and communal wastewater disposal area location

Stormwater

As discussed in the Wastewater Disposal Report the lots have limited suitability for soak pits due to a combination of low permeability soils and depth to rock. The stormwater from each lot could either be directed to a soak pit or to a semi-reticulated system.

Stormwater runoff from the site should mimic that of the pre-development scenario, including 1% AEP and allowance for climate change in accordance with NZS4404:2010. It is anticipated that a condition of consent will require detailed design of the stormwater systems be supplied prior to 223.

Water supply

Domestic water will be supplied via the Chinaman's Terrace water scheme. The applicant has a water right of 500,000L/day from the scheme which is allocated to Rocky Point and Bendigo Hills (the applicant's neighbour site). Water will be extracted from the scheme at the existing header tanks located in proposed Lot 5 of Bendigo Hills and reticulated to Rocky Point.

It is anticipated that a services company or other legal entity will be established to manage the combined Bendigo Hills and Rocky Point water supply.

Power and telecommunications

Power and telecommunications services are available and have sufficient capacity to cater for the proposal. The services will be installed in underground.

2. RESOURCE MANAGEMENT MATTERS

The site is shown on Planning Map 41D of the Central Otago District Plan and is located within the Rural Resource Area 2 (**RuRA(2)**) and subject to the Rocky Point Recreation Zone as per Schedule 19.16 Concept Plan – Rural Resource Area (2) as seen in *Figure 5* below.

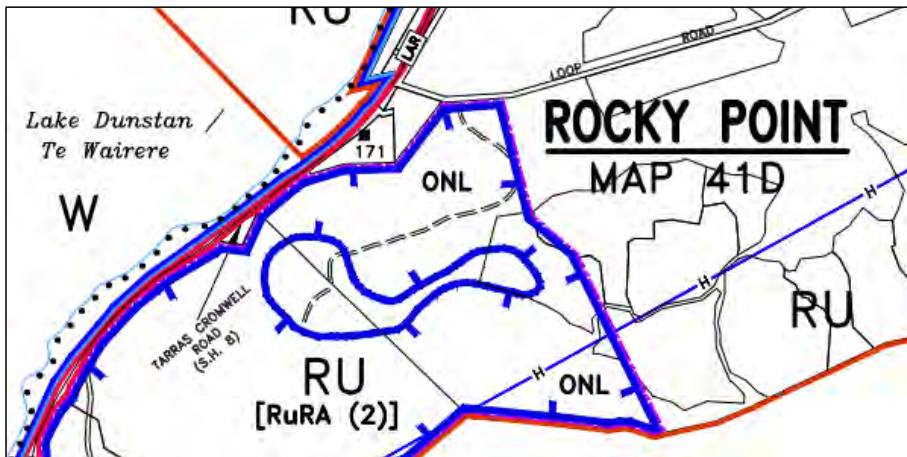


Figure 5. Planning Map 41D – Rocky Point

The majority of the site is within the Outstanding Natural Landscape (ONL) classification with the exception of the 'Development Area'¹ identified in Schedule 19.16 as seen in *Figure 6* below.

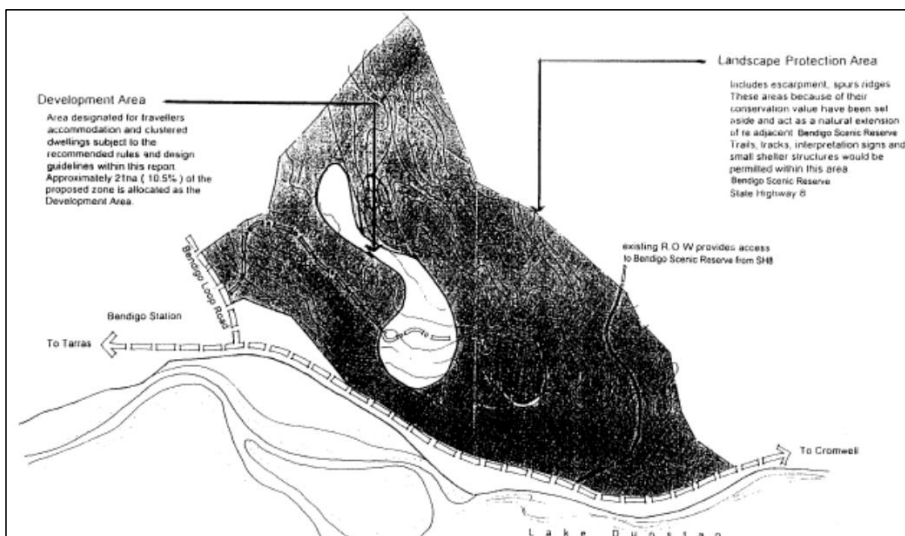


Figure 6. Schedule 19.16: Concept Plan – Rural Resource Area (2), Rocky Point Recreation Zone

The proposed activity is assessed under the relevant activity rules and standards (in *Tables 2 and 3* below).

Table 2. CODP Activities

¹ Area designated for travellers accommodation and clustered dwellings subject to the recommended rules and design guidelines within this report. Approximately 21ha (10.5%) of the proposed zone is allocated as the development area.

Rule	Activity	Activity status / Consent required?
Section 4 – Rural Resource Area		
4.7.1(i)	Compliance with Standards Any activity that is not listed as either a controlled, discretionary (restricted), discretionary, non-complying activity or prohibited activity and that complies with the rules and standards set out in Sections 12 to 15 of this plan, and the standards set out in section 4.7.6 is a <u>permitted activity</u>.	Permitted – the proposal is assessed against the relevant standards set out in Sections 12 – 15 below.
4.7.2(i)	Residential Activity Residential activity in areas identified as “Rural Residential” ([RR]), Rural Resource Area (1) and Rural Resource Area (2) on the planning maps or located on a residential building platform consented under Rule 4.7.3(vii) or located on a residential building platform identified on a plan of subdivision that has been granted subdivision consent prior to 28 May 2011 and which is set in a condition of consent subject to a consent notice is a controlled activity provided the following standards are complied with: (a) General Standards The relevant standards set out in 4.7.6 are complied with. (b) Residential Activities per Site There shall be no more than one residential activity on the relevant certificate of title unless additional residential activity is required to accommodate people working on the property and their families. (c) Access No additional formed accesses are to be created to any State Highway. (d) Separation Distances Where the dwelling is not located on a building platform established by way of resource consent the following separation distances to any existing dwelling, any dwelling under construction, any registered building platform established by way of resource consent, or any urban area shall apply; Rural-Residential - 50 metres Rural Resource Area (1) - Not applicable Rural Resource Area (2) - Not applicable Elsewhere in Rural Resource Area - Not applicable (e) Visibility ... <i>Rural Resource Area (2)</i> The dwelling, other residential buildings and accessory buildings are not to be visible from State Highway 8 and Lake Dunstan. Note: This rule only applies to Rural Resource Area (1) that applies in the Bendigo area – see Maps 41D & E, 48 and 52 and to Residential Resource Area (2) that applies at Rocky Point in the Bendigo area – see Maps 41D & E. (f) Colour and Finish of Buildings ... <i>Rural Resource Area (2)</i> The following colour and finish of buildings (including accessory buildings) shall apply;	Yes – Controlled activity consent is required for the residential activity on proposed Lots 10 – 13, 15 – 19 and 21 – 24 which are not visible from State Highway 8 and Lake Dunstan.

Rule	Activity	Activity status / Consent required?
	All buildings shall be finished in any of the following materials: i. Timber (vertical and horizontal) ii. Plaster/Adobe iii. Schist iv. Corrugated iron: Desert Sand, Lichen, Sandstone Grey, Kauri, Grey Friars, New Denim Blue, (Coloursteel colours). Detailing around verandahs, posts windows and doors may differ. The exterior walls of all buildings shall be finished in the colour range of browns, dark greens and greys. v. Roofing shall be finished in any of the following: Unpainted natural products, ie, timber shingles, slate or corrugated iron in one of the following colours: Iron sand, Lignite, kauri, Grey Friars, New Denim Blue (Coloursteel colours), turf. ...	
4.7.2(ii)	Subdivision (a) Except as otherwise provided in (b) below and Rule 4.7.4(iii), subdivision shall be a controlled activity provided the following standards are complied with: i. Minimum Allotment Sizes Minimum allotment sizes shall be as follows; ... In the area identified as "Rural Resource Area (2)" [(RuRA(2))] on planning maps – any application for subdivision consent shall include a minimum area of 1 hectare within which land can be further subdivided to create allotments and units as follows: (a) For residential purposes – sufficient area to meet open space and bulk and location rules. (b) For travellers accommodation – minimum area 2000m² with sufficient area to meet open space and bulk and location rules. ... iii. Concept Plans In the area identified as "Rural Resource Area (2)" on the planning maps subdivision shall comply with the concept plan attached as Schedule 19.16. iv. Maximum Number of Allotments for Residential Activities The maximum number of allotments on a plan of subdivision likely to accommodate a residential activity shall be as follows: Rural Residential – 5 Rural Resource Area (1) – 16 Rural Resource Area (2) – No limit Rural Resource Area (3) – 12	Yes – Controlled activity consent is required for the proposed subdivision (contained within the Development Area) as the proposed allotment sizes (for residential purposes) are sufficient area to meet open space and bulk and location rules. The lots proposed outside of the Development Area do not "comply" with the concept plan in Schedule 19.16 and are assessed under Rule 4.7.4(iii) below.

Rule	Activity	Activity status / Consent required?
	v. Access Formed No additional accesses are to be created to any State Highway.	
4.7.2(iii)	Retail Activity – Rural Selling Place Except as provided for in Rule 4.7.2(v) Retail Activity – Winery (Off Licence) and Rule 4.7.4(iv) Retail Activity – Winery, retail activity shall be a <u>controlled activity</u> provided that this is restricted to a "rural selling place" that is defined as a rural retail facility that is EITHER: (a) Ancillary to the growing of produce on the site and may in addition offer for sale any of the following goods: 1. Fresh fruit and vegetable and nursery plants, whether grown on the property or not. 2. Processed fruit and vegetable products, including dried fruit and vegetables, jams, sauces, preserves, juices and other cold drinks (excluding alcoholic beverages). 3. Nuts, honey and eggs. 4. Fertilisers, manure and garden mixes. OR (b) Ancillary to the marking of art and craft products on the site and offers for sale any art and craft products produced in the Central Otago District whether made on the property or not AND IN EACH CASE – the retail activity complied with Rule 12.7.1 and provided that the sale of beverages (excluding alcoholic beverages) and snack foods is permitted in conjunction with the operation of a rural selling place.	No – Controlled activity consent is not required as the proposal does not include Retail Activity.
4.7.2(v)	Retail Activity – Winery (Off Licence) The sale of wine for consumption off the site (excluding mail order) authorised by an off-licence in terms of the Sale of Liquor Act 1989 is a <u>controlled activity</u> provided it is ancillary to the growing of grapes or production of wine on the site.	No – Controlled activity consent is not required as the proposal does not include Retail Activity.
4.7.2(vi)	Outstanding Natural Landscapes, Outstanding Natural Features and Land in the Upper Manorburn/Lake Onslow Landscape Management Area (a) Except as otherwise provided for in (b) below any new bladed/excavated fence line, new fire break, new fertiliser bin, new stock yards, or fire fighting water ponds within any area identified as an outstanding natural landscape, outstanding natural feature or as land in the Upper Manorburn/Lake Onslow Landscape Management Area as shown on the planning maps is a <u>controlled activity</u>. (b) Rule 4.7.2(vi)(a) shall not apply to: i. Reviewable land that has been freeholded under Part 2 of the brown Pastoral Land Act 1998 subsequent to the operative date of this plan; and ii. Unrenewable occupation licence land that has been designated for disposal as fee simple under Part 3 of the Crown Pastoral Land Act 1998 subsequent to the operative date of this plan; and iii. Freehold land listed in Schedule 19.6.3.	No – Controlled activity consent is not required as Bendigo Station is listed in Schedule 19.6.3 as it was freeholded under a tenure review process and therefore Rule 4.7.2(vii)(a) does not apply.

Rule	Activity	Activity status / Consent required?
4.7.2(vii)	Accommodation Facilities Accommodation facilities in areas identified as "Rural Residential" (RR), Rural Resource Area (1) and Rural Resource Area (2) on the planning maps or located on a residential building platform identified on a plan of subdivision that has been granted subdivision consent prior to 28 May 2011 and which is set in a condition of consent subject to a consent notice and that do not exceed that required to accommodate 6 persons on a commercial fee paying basis is a <u>controlled activity</u> provided the following standards are complied with: (a) General Standards The relevant standards set out in 4.7.6 are complied with. (b) Access No additional formed accesses are to be created to any State Highway. (c) Separation Distances Where the accommodation facility is not located on a building platform established by way of resource consent the following separation distances to any existing dwelling, any dwelling under construction, any building platform established by way of resource consent, or any urban area shall apply; RuRA(1) & (2) and elsewhere in the RuRA – not applicable	Yes – Controlled activity consent is required to enable each lot to accommodate up to 6 persons on a commercial fee paying basis.
4.7.3(i)	Breach of Standards Any activity that fails to comply with the following rules: 4.7.2(i)(d) Separation Distances 4.7.2(ii)(a)(ii) Separation Distances for Dwellings 4.7.2(vii) Accommodation Facilities 4.7.6A Bulk and Location Requirements (a), (b), l, (f), (h) (i) and (k) 4.7.6C Tree Planting 4.7.6F Storage 4.7.6H Signs is a <u>discretionary (restricted) activity</u>.	Yes – Restricted Discretionary activity consent is required as the proposal enables a maximum height of 5.5m within each building platform which breaches Standard 4.7.6A(f) (which requires a max height of 5m).
4.7.3(ii)	Any activity that fails to comply with Rule 4.7.6A Bulk and Location (g) is a <u>discretionary (restricted) activity</u>.	No – Restricted Discretionary activity consent is not required.
4.7.3(iii)	Any activity that does not comply with Rule 4.7.6D Visual Effects of Buildings is a <u>discretionary (restricted) activity</u>.	No – Restricted Discretionary activity consent is not required as the future buildings will comply.
4.7.3(iv)	Any activity that fails to comply with Rule 4.7.6E Noise is a <u>discretionary (restricted) activity</u>.	No – Restricted Discretionary activity consent is not required.
4.7.3(v)	Any activity that fails to comply with Rule 4.7.6G Provision of Services is a <u>discretionary (restricted) activity</u>.	No – Restricted Discretionary

Rule	Activity	Activity status / Consent required?
		activity consent is not required.
4.7.3(vi)	Any activity that fails to comply with the following Rules; 4.7.6I. Riparian Margins or Rule 4.7.6J Earthworks For Access Tracks & Extractive Activity (a) Tracks is a <u>discretionary (restricted) activity</u> .	No – Restricted Discretionary activity consent is not required.
4.7.3(vii)	Residential Activity, Residential Building Platform & Accommodation Facilities Residential activity², a residential building platform and/or accommodation facilities that do not exceed that required to accommodate 6 persons on a commercial fee paying basis and that are not provided for in Rule 4.7.2(i)³, 4.7.2(ia)⁴ and Rule 4.7.2(vii)⁵ is a <u>discretionary (restricted) activity</u> provided the following standards are complied with: (a) General Standards The relevant standards set out in 4.7.6 are complied with. (b) Residential Activities per Site There shall be no more than one residential activity on the relevant certificate of title unless additional residential activity is required to accommodate people working on the property and their families. (c) Access No additional formed accesses are to be created to any State Highway (d) Separation Distances Where the dwelling is not located on a building platform established by way of resource consent a 50m separation distance to any existing dwelling, any dwelling under construction, any residential building platform established by way of resource consent, or any urban area shall apply.	Yes – Restricted Discretionary activity consent is required for the proposed Residential Activity, Residential Building Platforms and Accommodation Facilities on proposed Lots 1 – 9, 14, 20, 25 – 33 which are visible from State Highway and/or Lake Dunstan.
4.7.4(i)	Any activity that fails to comply with the following rules: 4.7.2(i) Residential Activities (b), (c), (e) and (f) 4.7.2(vi) Outstanding Natural Landscapes, and Land in the Upper Manorburn/Lake Onslow Landscape Management Area 4.7.2(vii)(b) Accommodation Facilities 4.7.3(vii)(b)-(d) Residential Activity, Residential Building Platform & Accommodation Facilities 4.7.6A Bulk and Location Requirements (c) and (d) 4.7.6B Traffic Generation and Characteristics of Activities 4.7.6J Earthworks for Access Tracks & Extractive Activity Any application made relating to a breach of Rule 4.7.2(ia)(a) – (c), (e) and (f) will generally be publicly notified.	Yes – Discretionary activity consent is required for the future Residential Activities that contravene Rule 4.7.2(i)(e) as they are visible from State Highway 8 and Lake Dunstan (Lots 1 – 9, 14, 20, 25 – 33).

² **Residential activity:** means a use of land and buildings by people for the purpose of living accommodation in a household unit and includes a dwelling. It includes accessory buildings, sleepouts, leisure activities associated with needs generated principally from living on the site; home occupation as defined; and homestay as defined.

³ Residential activity in areas identified as Rural Residential, Rural Resource Area (1) and Rural Resource Area (2) on the planning maps.

⁴ Residential activity in Rural Resource Area (3)

⁵ Accommodation facilities in areas identified as Rural Residential, Rural Resource Area (1) and Rural Resource Area (2) on the planning maps.

Rule	Activity	Activity status / Consent required?
4.7.4(vii)	Commercial Recreational Activity Commercial recreational activity that: (a) Involves the use of motorised equipment or vehicles as part of the activity, or (b) Uses motorised vehicles and/or aircraft for access to the activity over private land, or (c) Generates more than 30 vehicle movement equivalents per day on public roads is a <u>discretionary activity</u> .	No – Discretionary activity consent is not required as the proposal does not include Commercial Recreational Activity.
4.7.4(iii)	Subdivision Except as otherwise provided for in Rule 4.7.2(ii)(b) subdivision that: (a) Creates an allotment that fails to comply with any of the standards set out in Rules 4.7.2(ii)(a)(iii) to (vii), OR (b) Creates allotments with an average allotment area of no less than 8 hectares and a minimum allotment area of no less than 2 hectares in an area not identified on the planning maps as Rural-Residential, Rural Resource Area (1) or Rural Resource Area (2) or Rural Resource Area (3), OR (c) Creates allotments that are not in accordance with Rule 4.7.2(ii)(a)(i) in an area identified on the planning maps as Rural Resource Area (3), OR (d) Involves land that is subject to or potentially subject to, the effects of any hazard as identified on the planning maps, or land that is or is likely to be subject to material damage by erosion, falling debris, subsidence, slippage, or inundation from any source, (e) Is not in accordance with a development concept plan incorporated in a consent granted under Rule 4.7.3(ix) in the Rural Resource Area (4), is a <u>discretionary activity</u> .	Yes – Discretionary activity consent is required for the proposed lots that are outside the Development Area and therefore not in accordance with the Concept Plan.
4.7.5(iii)	Subdivision Except as otherwise provided for in Rule 4.7.2(ii)(b), subdivisions that creates: • an allotment or allotments with an average area less than 2 hectares in areas identified as "Rural Residential" ([RR]) on the planning maps or • an allotment or allotments with an average area less than 8 hectares and/or with an area less than 2 hectares in an area in the Rural Resource Area not identified on the planning maps as Rural Residential ([RR]); or • an allotment that breaches Rule 4.7.2(ii)(a)(i)⁶ as it relates to Rural Resource Area (1), or Rural Resource Area (2) or Rural Resource Area (5); or • an allotment in excess of 160 allotments used for residential activity in Rural Resource Area (5)	N – Non-Complying activity consent is not required as the proposal allotments comply with Rule 4.7.2(ii)(a)(i).

⁶ In the area identified as "Rural Resource Area (2)" ([RuRA(2)]) on planning maps – any application for subdivision consent shall include a minimum area of 1 hectare within which land can be further subdivided to create allotments and units as follows:

- (a) For *residential purposes* – sufficient area to meet open space and bulk and location rules.
- (b) For *travellers accommodation* – minimum area 2000m² with sufficient area to meet open space and bulk and location rules.

Rule	Activity	Activity status / Consent required?
4.7.5(iv)	Retail activity not provided for by Rule 4.7.2(iii) or Rule 4.7.4(iv) is a non-complying activity.	No – Non-Complying activity consent is not required as the proposal does not include Retail Activity.

Table 3: CDDP Standards

Rule	Standard	Status if breached	Consent Required?
Chapter 4 – Rural Resource Area			
4.7.6.A	Bulk and Location Requirements Buildings and any area used for storage purposes (including the stockpiling of materials) that is not enclosed or partly enclosed by a building shall be located to conform with the following standards. (a) Yards Except as provided for in (c) below, a minimum side and rear yard of 25 metres and a front yard of 10 metres for buildings used for residential activity and/or an accommodation facility except on land subject to the Rural Residential notation; and a minimum yard of 10 metres for all other buildings and buildings used for residential activity and/or an accommodation facility on land subject to the Rural Residential notation shall be provided to all adjoining property boundaries (including roads) provided that a minimum yard of 20 metres shall be provided to all State highways and Arterial Roads listed in Schedule 19.7. Note: See also Rule 4.7.6A(h) and Rule 12.7.7. (b) Open Space in Rural Resource Area (2) Every dwelling, or travellers accommodation unit shall have an open space of not less than 45m² in area with a minimum dimension of 5 metres. Such open space is to be located adjacent to the lounge and/or dining area and is to be for the exclusive use of the occupants. This rule shall not apply to apartments or travellers accommodation units located entirely at or above the first floor level. A landscaped area of 500m² is to be provided on the same site occupied by travellers accommodation. This area shall be planted in trees and shrubs or otherwise landscaped. (c) Water bodies No building shall be located within 20 metres of the bank of: any stream or river - any wetland identified in Schedule 19.6.1 - any lake (excluding irrigation dams within a farm property) 0.5 hectares or greater in area	Discretionary	Yes – consent is required as the proposal enables 5.5m maximum building heights. All other standards will be complied with.

Rule	Standard	Status if breached	Consent Required?												
	... (e) Separation Distances from Water Races and Irrigation Pipelines i. On slopes of 0-12 degrees no buildings, excavations or tree planting shall be permitted within 6 metres of the water's edge of a water race or irrigation pipeline. ii. On slopes of 13-20 degrees no buildings, excavations or tree planting shall be permitted within 7 metres of the water's edge of a water race or irrigation pipeline. iii. On slopes of greater than 20 degrees no buildings, excavations or tree planting shall be permitted within 10 metres of the water's edge of a water race or irrigation pipeline. iv. No fences shall be erected within 6 metres of a water race or irrigation pipeline except for those which cross the race/pipeline and then a gate will be included across any access berm or tracks. (f) Height Except in the area shown as Rural Resource Area (1) on the planning maps where the maximum height shall be 5 metres, as Rural Resource Area (2) on the planning maps where the maximum height for dwellings shall be 5 metres and for travellers accommodation the maximum height shall be 7 metres, and as Rural Resource Area (4) on the planning maps where the maximum height for travellers accommodation, conference facility and golf club house shall be 15 metres and the maximum height for all other buildings shall be 10 metres, the maximum height is as follows: <table><tr><th><u>Landscape Category</u></th><th><u>Dwellings and buildings accessory to dwellings</u></th><th><u>Other Building including buildings accessory to farming activities</u></th></tr><tr><td>Outstanding Natural Landscape (ONL)</td><td>5.5m</td><td>6m</td></tr><tr><td>Significant Amenity Landscape (SAL)</td><td>6m</td><td>7.5m</td></tr><tr><td>Other Rural Landscapes (ORL)</td><td>7.5m</td><td>10m</td></tr></table> (g) Transmission Lines Separation from high voltage transmission lines that are part of the transmission network shall be accordance with Rule 12.7.8 (pg 12:25). (h) Road Intersections No structure (excluding post and wire fences), building or stockpile of materials shall be sited in that triangle of land formed by the straight line between two points	<u>Landscape Category</u>	<u>Dwellings and buildings accessory to dwellings</u>	<u>Other Building including buildings accessory to farming activities</u>	Outstanding Natural Landscape (ONL)	5.5m	6m	Significant Amenity Landscape (SAL)	6m	7.5m	Other Rural Landscapes (ORL)	7.5m	10m		
<u>Landscape Category</u>	<u>Dwellings and buildings accessory to dwellings</u>	<u>Other Building including buildings accessory to farming activities</u>													
Outstanding Natural Landscape (ONL)	5.5m	6m													
Significant Amenity Landscape (SAL)	6m	7.5m													
Other Rural Landscapes (ORL)	7.5m	10m													

Rule	Standard	Status if breached	Consent Required?
	measured 15 metres in each direction from the intersection point of the legal road boundaries. (i) n/a (j) n/a		
4.7.6.B	Traffic Generation and Characteristics of Activities (a) Home stay or accommodation facilities on a property shall not exceed that required to accommodate 6 persons on a commercial fee paying basis. (b) No more than 3 persons shall be engaged in any activity of a commercial, industrial or manufacturing nature except in areas identified as "Rural Residential" ([RR]) on the planning maps. For the purpose of this rule, farming, horticulture, viticulture, network utilities and forestry activities are excluded from an activity of a commercial, industrial or manufacturing nature. Within areas identified as "Rural Residential" ([RR]) on the planning maps no person shall be engaged in any activity of a commercial, industrial or manufacturing nature. For the purpose of this rule, farming, horticulture, viticulture, network utilities and forestry activities are excluded from an activity of a commercial, industrial or manufacturing nature. (c) No activity shall involve the attraction of the public to a site for community related services or events other than for temporary activities.	Discretionary	No – consent is not required as the proposal is restricted to accommodation facilities for up to 6 persons per site. The proposal does not involve the attraction of the public for community related services or events other than for temporary activities (permitted activities).
4.7.6.C	Tree Planting (a) No trees shall be planted on a property in such a manner that they obstruct the vision of motorists on the road or cause the root system to have an adverse effect on the road surface. (b) No trees shall be planted adjacent to any road in a position that will shade the carriageway between the hours of 1000 and 1400 on the shortest day of the year where the speed limit is above 50km/hour and the topography is not already preventing direct sunlight onto the carriageway. (c) No trees shall be planted in those areas of land identified in Rule 4.7.6A(h) Road Intersections and Rule 4.7.6A(i) Airport Protection Zone, above, or that on maturity will project into the surfaces described in Schedules 19.8 and 19.8A. (d) No evergreen trees with dark green, blue and gold foliage (ie. conifers, in particular species from the Pinus genus) or species with wilding spread and self seeding capabilities shall be planted in the areas identified as Rural Resource Area (1) or Rural Resource Area (2) on the planning maps. (e) No tree shall be planted on a property in such a manner that it is likely to have an adverse effect on the existing electricity network.	Restricted Discretionary	No – consent is not required as the proposal does not include tree planting that contravenes this standard.

Rule	Standard	Status if breached	Consent Required?
4.7.6D	Visual Effect of Buildings and Structures (a) All buildings including new, relocated and repainted buildings and structures (excluding post and wire fences; bird netting and support structures, wind machines, pivot irrigators and sprinklers and other equipment and fixtures incidental to agriculture, horticulture and viticulture), are subject to the following: i. Finish All buildings shall be finished in any of the following materials: (i) Timber/Composite Weatherboard (vertical and horizontal). (ii) Plaster/Adobe/Rammed Earth/Masonry Products/Concrete. (iii) Stone. (iv) Coloured steel excluding unpainted zincalume and unpainted corrugated iron. (v) Weathered corrugated iron (vi) Brick ii. Colour: Exterior Walls, Accents and Trim The exterior walls, accents and trim for all buildings and structures shall be in a colour or colours selected from the following colour palette, provided that the colours of exterior walls shall be in a low sheen: Browns, greens, grey blue, greys, terracotta, tussock and dark reds provided that such colours shall have a Reflectivity Value (RV) of less than 38%. iii. Colour: Roofs The roofs of all buildings shall be in a low sheen in any colour that has a RV of less than 32% or shall be unpainted natural products such as timber shingles or slate. (b) All buildings and structures (excluding post and wire fences, bird netting and support structures, wind machines, pivot irrigators and sprinklers and other equipment and fixtures incidental to agriculture, horticulture and viticulture) shall not protrude onto a skyline or above a terrace edge when viewed from a public road or other public place at a distance not exceeding 2kms from the building or structure.	Restricted Discretionary	No – consent is not required as all future buildings will comply with this standard given the proposed design controls (that will form consent notice conditions on each title).
4.7.6E	Noise (a) All activities shall be conducted so as to ensure the following noise limits are not exceeded at any point within the notional boundary of any dwelling, resthome or hospital, or at any point within any Residential Resource Area or any Rural Settlements Resource Area: On any day 7:00am to 10:00pm 55 dBA L10	Restricted Discretionary	No – consent is not required as the proposal will comply with the noise limits.

Rule	Standard	Status if breached	Consent Required?
	10:00pm to 7:00am the following day 40 dBA L10 70 dBA Lmax		
4.7.6G	Provision of Services (a) Effluent Disposal Any site intended to accommodate a household unit or any activity that generates human effluent shall be either connected to an existing sewerage scheme at the owners cost (provided that the scheme has the capacity to accommodate the waste generated) or if such a scheme is not available the site shall be capable of effective disposal of effluent safely within the site. (b) Water Supply At the time of subdivision or prior to the issue of building consent to erect a residential building, the owner shall provide a safe and adequate water supply. This water supply shall be obtained from a source which is protected from contamination by animal sources and the normal activities that may cause contamination occurring or likely to occur within the catchment. The water will be of a quality which does not require any form of treatment, shall be adequate in quantity (approximately 300 litres per person per day) and where the supply is obtained outside the boundaries of the property, secured by permanent agreements and easements. The final product must meet the Ministry of Health Standards as defined in Drinking Water Standards for New Zealand 2000. (c) Access, Loading and Manoeuvring Access, loading and manoeuvring requirements shall be provided in accordance with Rule 12.7.1 page 12:13 and Rule 12.7.3 page 12:17. (d) Parking Parking shall be provided in accordance with Rule 12.7.2 (pg 12:16) and Table 12.3 (pg 12:25).	Restricted Discretionary	Yes – consent is required as Lots 8 – 20 are unable to accommodate onsite wastewater disposal and a communal system is therefore proposed. The proposal can comply with (b), (c) and (d).
4.7.6J	Earthworks for Access Tracks and Extraction Activities (a) Tracks ⁷ Where any earthworks are required for or in connection with the formation or construction of any road, track, landing, firebreak, fenceline, or utility service line, the following design standards shall be met: (i) All formation surfaces with an inwards crossfall shall be drained by a watertable; and (ii) Cutoffs or culverts shall be constructed or installed so as to prevent scour, gullyng or other erosion of the formed or constructed surface and to adequately	Discretionary	No – the proposed earthworks for the construction of the road can comply with this standard.

⁷ Intersections with public roads are to be constructed in accordance with the standards set out in Rule 12.7.1 page 12:13. Where bridges, culverts or bed disturbances are associated with activities subject to Rule 4.7.6J(a) compliance with regional rules in Chapter 13 of the Regional Plan : Water shall be met or appropriate consents obtained.

Rule	Standard	Status if breached	Consent Required?
	provide for fish passage when such fish passage is appropriate and practicable; and (iii) All areas of fill including any formation surface overlying fill shall be compacted; and (iv) Fill batters shall be constructed and vegetated to a standard that is adequate to mitigate any adverse visual effects when viewed from any State highway and to avoid batter erosion or failure; and (v) Adverse effects on any stream, river or lake or permanently wet wetland are avoided, remedied or mitigated; and (vi) Any cut or fill batter is no more than 2 metres in height or depth (provided that this may be exceeded for 10% or less of the total track length to a maximum 3 metres).		
4.7.5.K A	Clearance of Indigenous Vegetation i. Clearance of indigenous vegetation on land not listed for protection under Schedule 19.6.1 and subject to Rule 4.7.6K, where the vegetation – (a) comprises more than 10 hectares of snow tussock grassland (<i>Chionochloa rigida</i>), or half a hectare or more of other indigenous vegetation on one site; or (b) involves any species listed as threatened in Schedule 19.6B, and the clearance affects a site containing any such species as identified on the planning maps; or (c) is more than 1080m above sea level; is a discretionary (restricted) activity. Provided that this rule shall not apply to: i. Clearance of indigenous trees that have been windthrown or are dead standing as a result of natural causes and have become dangerous to life or property. ii. Clearance of indigenous vegetation on land that has been freeholded under Part 2 of the Crown Pastoral Land Act 1998. iii. The Greenland Recommended Area for Protection on Little Valley Station apart from the land subject to Conservation Covenant No. 5013375.2 (Otago Land Registry). And provided that i(b) of this rule as above shall not apply to: iv. Grazing, v. Oversowing and topdressing. And provided that i(a) and (c) of this rule as above shall not apply to: iv. Direct drilling associated with existing pasture. v. Clearance of matagouri. ii. For the purpose of this rule "clearance" is defined as the felling, clearing, or modification of any indigenous vegetation by cutting, mechanical crushing, spraying,	Discretionary	No – consent is not required as Bendigo Station is listed in Schedule 19.6.3 as it was freeholded under a tenure review process and therefore this rule does not apply.

Rule	Standard	Status if breached	Consent Required?
	burning and any activity causing disturbance to the soil.		
4.7.6.L	Outstanding Natural Landscapes, Outstanding Natural Features and Land in the Upper Manorburn/Lake Onslow Landscape Management Area 1. No activity shall have the effect of: (a) Erecting any structure (excluding post and wire fences) or building, or (b) Cutting new roads, new tracks, new landings, or new utility service lines, or (c) Excavating material in excess of 20m³ and/or disturbing any land 50m² in area or greater in any one hectare in any continuous period of 5 years but excluding cultivation of areas previously cultivated (for the avoidance of doubt this does not apply to the maintenance of roads, tracks, landings, fire breaks and other works), or (d) Establishing woodlots, production forestry or shelter belts, or (e) Subdivision of land (except for the purpose of creating reserves or conservation areas), within any area identified as an outstanding natural landscape, outstanding natural feature or land in the Upper Manorburn/Lake Onslow Landscape Management Area as shown on the planning maps except as provided for by Rules 4.7.5(vi), 13.7.6 and 13.7.8. 2. Rule 4.7.6L(1) shall not apply to: 1. reviewable land that has been freehold under Part 2 of the Crown Pastoral Land Act 1998 subsequent to the operative date of this plan; and 2. unrenovable occupation licence land that has been designated for disposal as fee simple under Part 3 of the Crown Pastoral Land Act 1998 subsequent to the operative date of this plan; and 3. freehold land listed in Schedule 19.6.3⁸. 4. The area identified as Rural Resource Area (3) on the planning maps to the extent that: i. Rule 4.7.6L(1)(a) shall not apply to any dwelling and any accessory building authorised in terms of Rule 4.7.2(ia). ii. Rule 4.7.6L(1)(a) shall exclude unpainted post and wire fences only and stacked schist or stone fences that shall not exceed a height of 1.2 metres. iii. Rule 4.7.6L(1)(b) shall not apply to underground services or to the cutting of new roads or tracks as shown on the	Discretionary	No – consent is not required as Bendigo Station is listed in Schedule 19.6.3 as it was freehold under a tenure review process and therefore Rule 4.7.6L does not apply.

⁸ Bendigo Station is listed in Schedule 19.6.3 as it was freehold under a tenure review process, and there has been an alternative statutory means to identify and address the values of these landscapes and features (conservation covenant).

Rule	Standard	Status if breached	Consent Required?
	concept plan attached as Schedule 19.20 or to any water tank that is finished in natural tones to blend with the landscape. iv. Rule 4.7.6L(1)(c) shall not apply to earthworks involving up to 450m² of cut or fill per site provided that the maximum height of cut or fill is to be 0.75m unless lined with schist or to earthworks required to construct a building platform or to form access to a building platform as shown on the concept plan attached as Schedule 19.20 or where a building platform is located in the Development Zone shown on the concept plan attached as Schedule 19.20 (in compliance with Rule 4.7.2(ia)(a); no rocks over 2m³ (as visible above natural ground level) are to be removed or otherwise modified except to construct a building platform or to form access to a building platform as shown on the concept plan attached as Schedule 19.20 or where a building platform is located in the Development Zone shown on the concept plan attached as Schedule 19.20 (in compliance with Rule 4.7.2(ia)(a)); all un-walled cut or fill slopes are to be recontoured to blend with the surrounding natural landform and to provide for successful revegetation; all retaining walls are to be lined with schist; and a geotechnical report is required with respect to any earthworks for identified (numbered) building platform 4 and its associated access as shown on the concept plan attached as Schedule 19.20. v. Rule 4.7.6L(1)(e) shall not apply to any subdivision authorised in terms of Rule 4.7.2(ii)(a)(i), 4.7.2(ii)(a)(iii) and 4.7.2(b)(i), (ii), (iv), (v) and (vi). 5. n/a 3. For the purpose of Rule 4.7.6L(2)(a) reviewable land shall be deemed to be "freeholded" when the holder's acceptance of a substantive proposal takes effect under section 60 of the Crown Pastoral Land Act 1998. 4. For the purpose of Rule 4.7.6L(2)(b) unrenovable occupation licence land shall be deemed to be "designated for disposal as fee simple" when the Commissioner of Crown Land's adoption of a substantive proposal takes effect under section 89 of the Crown Pastoral Land Act 1998. 5. n/a 6. n/a		
Chapter 12 – District Wide			

Rule	Standard	Status if breached	Consent Required?
12.7.1	Access to and from roads is a permitted activity provided it is in accordance with the following standards: (i) Construction and Maintenance All vehicular accesses from a road shall be designed, constructed and maintained to ensure that: 1. They are able to be used in all weather conditions. 2. They have no adverse impact upon road drainage systems. 3. Stormwater and detritus (including gravel and silt) do not migrate on to the road. 4. They intersect with the property boundary within 15 degrees of a right angle. (ii) Sight distances Clear visibility along the road in both directions from intersections and vehicular access shall comply with Table 12.1. (iii) Access to Rural State Highways and Arterial Roads In addition to the requirements of (i) and (ii) above design and construction of access to rural State highways and arterial roads shall comply with the following standards: (a) The access shall be sealed to the same standard as the adjacent road carriageway. (b) Where the speed limit is 100 kph, spacing between accesses shall be not less than 200 metres (regardless of the side of road on which they are located), and no vehicle access shall be constructed within 100 metres of road intersections AND spacing between intersections (ie road intersections) shall be not less than 800 metres. (c) Except as provided for in (d) below, width of vehicular access ways at the property boundary are to be no greater than 6 metres. (d) Heavy vehicular accesses shall be designed and constructed to: i. A minimum width of nine metres. ii. Carry the volume and weight of traffic likely to use the access. iii. Ensure heavy vehicles do not have to cross the road centre line when making a left turn. iv. Ensure the surface is constructed to the same standard as the adjacent road carriageway. v. Have sufficient width to accommodate the swept path of the largest vehicle anticipated to use it. (e) Driveways shall not be parallel to and level with roads within 20 metres of the road reserve. (f) Figures 12.2 and 12.3 on pages 12:32 and 12:33 establish the minimum design standards for access determined by activity type.	Permitted	No – permitted activity standards will be complied with.

Rule	Standard	Status if breached	Consent Required?
	(g) Access to State highways shall be to Transit New Zealand design specifications. Breach of Standards Any activity that does not comply with the standards stated in Rule 12.7.1(i)-(vii) shall be considered as a <u>discretionary (restricted)</u> activity.		
12.7.2	Parking (i) Every activity shall make sufficient provision for vehicular parking in accordance with Table 12.3 (page 12:30) and the minimum dimensions stated in Figures 12.7 and 12.8 on pages 12:36 and 12:37 other than on roads provided that in the Business Resource Area no on-site parking is required except where the gross floor area of any building is 300m² or more. Vehicles shall not be required to undertake more than one reverse manoeuvre when manoeuvring out of any parking space to depart the site. (ii) Construction of parking areas to accommodate in excess of 3 carspaces including vehicle access and turning spaces, shall be constructed in accordance with the following standards; a. Parking areas shall be formed and sealed or otherwise constructed, so as not to create a dust nuisance or permit vehicles to carry deleterious materials such as mud, stone, chip or gravel onto the road or footpath. b. Stormwater originating from the parking areas shall be disposed of to an approved outfall either within the confines of the site or by pipe (of adequate diameter given the size of the parking area), to a road channel or stormwater drain. c. Traffic safety is to be ensured by: 1. Vehicles using the parking area being prevented from entering or leaving the site except by the vehicle access and crossing provided. 2. The parking area and turning spaces shall be laid out with sufficient manoeuvring space so that access can be obtained to the required parking space without the necessity for reversing onto or off the site. 3. Any part of the parking area which cannot be used for the parking shall be landscaped. d. Privacy of neighbours is to be protected by ensuring that where the parking area adjoins a residential property, a solid fence, no less than 1.5 metres in height, shall be erected and maintained by the developing owner provided that the height of the fence shall be reduced at access points to enable adequate visibility on adjoining roads. e. Queuing space is to be provided within the site for vehicles entering or leaving a private or public carpark on the following basis:	Restricted Discretionary	No – the proposal can comply with this standard.

Rule	Standard	Status if breached	Consent Required?
	1. No less than 6 metres length in both directions for carparks of 20-100 car capacity. 2. No less than 15 metres length in both directions for carparks of greater than 100 car capacity. f. Any lighting associated with the parking area shall be directed to avoid adverse effects on adjoining properties or roads. g. All areas of carparking in excess of 100m² shall provide a strip of not less than 1.5 metres in width adjacent to any boundary that is not built up to except where a solid fence has been erected. h. The strip referred to in (g) shall not be paved and shall create the opportunity for landscaping to provide visual enhancement or screening. Landscaping shall not impede traffic visibility and shall be maintained in a healthy and tidy condition at all times.		
12.7.4	Noise Construction noise within the district which is ancillary to the principal use of the site shall not exceed the recommended limits in and shall be measured and assessed in accordance with the provisions of NZS 6803P:1984 The Measurement and Assessment of Noise from Construction, Maintenance, and Demolition Work. Discretionary adjustments provided in Clause 6.1 shall be mandatory within the district. Construction noise is permitted to occur only between the hours of 7:00am and 6:00pm within an urban area (as defined on page 18:11). Exemptions Noise limits in any part of the plan shall not apply: (i) In any area to activities of a limited duration necessary for the production (but not processing) of primary products. (ii) In any part of the district where the noise source is a warning device used by emergency services. (iii) In any Residential Resource Area to activities of a normal domestic nature including recreational activities, such as sporting events, that do not involve powered motorsport, powered aviation, gunfire or amplified music. (iv) Where a carnival, show, display, field-day or exhibition with a duration less than five days occurs no more than four times in any period of a year. (v) To other temporary activities.	Restricted Discretionary	No – consent is not required as the proposal will comply with construction noise limits.
12.7.6	Lightspill Standard No activities shall result in greater than 10 lux spill (horizontal and vertical) of light onto any adjoining property or road, measured at the boundary of a road or the notional boundary of a neighbouring property, provided that this rule shall not apply to headlights of moving vehicles or vehicles that are stationary for less than 5 minutes or to street lighting.	Restricted Discretionary	No – consent is not required as the proposal will not enable activities that result in greater than 10 lux spill.

Rule	Standard	Status if breached	Consent Required?
	The amount of light that may be spilled onto a neighbouring property may be increased by not more than 100%, in cases where the activity on that neighbouring property is not residential.		
12.7.8	Transmission Lines No building shall be erected within 12 metres from the centreline and 12 metres from the outer edge of the support structure of a high voltage transmission line that is part of the transmission network and is designed to operate at or over 110kV provided that this rule does not apply to:	Restricted Discretionary	No – the proposal does not include building platforms that are within 12m from the transmission lines onsite.

2.1.1. Summary of consents required

In summary, the following consents are required for the proposal:

- **Controlled** activity consent pursuant to Rule 4.7.2(i) for Residential Activity that complies with standards (ie. not visible from State Highway 8 or Lake Dunstan);
- **Controlled** activity consent pursuant to Rule 4.7.2(ii) for subdivision in RuRA(2) and in accordance with the Concept Plan in Schedule 19.16;
- **Controlled** activity consent pursuant to Rule 4.7.2(vii) to enable Accommodation Facilities (up to 6 fee paying guests) on each lot;
- **Restricted Discretionary** activity consent pursuant to Rule 4.7.3(i) for a breach to the maximum height standard (4.7.6A(f) to enable 5.5m high buildings on all lots);
- **Restricted Discretionary** activity consent pursuant to Rule 4.7.3(vii) for Residential Activity, Residential Building Platforms and Accommodation Facilities that are visible from State Highway 8 and/or Lake Dunstan;
- **Discretionary** activity consent pursuant to Rule 4.7.4(i) for Residential Activity that fails to comply with Rule 4.7.2(i)(e) (ie. visible from State Highway or Lake Dunstan);
- **Discretionary** activity consent pursuant to Rule 4.7.4(iii)(a) for a subdivision that does not comply with a Concept Plan (ie. allotments outside the Development Area);
- **Discretionary** activity consent pursuant to Rule 4.7.4A to exceed the 5m maximum height standard;
- **Restricted discretionary** activity consent pursuant to Rule 4.7.6G for the communal wastewater system which results in disposal outside the site (for some lots).

Other consents:

- The applicant applies for any other consents necessary to enable the proposal.

Overall, resource consent is required for a **Non-Complying** activity.

3. WHERE IT IS LIKELY THAT AN ACTIVITY WILL RESULT IN ANY SIGNIFICANT ADVERSE EFFECT ON THE ENVIRONMENT, A DESCRIPTION OF ANY POSSIBLE ALTERNATIVE LOCATIONS OR METHODS FOR UNDERTAKING THE ACTIVITY:

No significant adverse effects on the environment will arise, and no other alternatives were considered.

4. AN ASSESSMENT OF THE ACTUAL OR POTENTIAL EFFECT ON THE ENVIRONMENT OF THE PROPOSED ACTIVITY:

4.1. Introduction

This assessment of effects on the environment addresses:

- The permitted baseline and existing environment;
- Landscape effects;
- Ecological effects;
- Archaeological and cultural effects;
- Servicing effects;
- Positive effects; and
- Summary of effects on the environment.

4.2. Permitted/Consented Baseline and existing/receiving environment

When determining the actual and potential effects of an application for resource consent, the permitted baseline allows a comparison of the potential adverse effects of the proposal against what is permitted as of right under the District Plan (the permitted baseline) and what could lawfully be undertaken on the land by way of any existing consents (the existing environment).

4.2.1. Permitted Baseline

Section 104(2) of the Resource Management Act states that when forming an opinion on whether there are adverse effects from an activity on the environment, the consent authority may disregard adverse effects if the plan explicitly permits that certain activity.

Any activity that is not listed as either a controlled, discretionary (restricted), discretionary, non-complying or prohibited activity and that complies with the rules and standards set out in Sections 12 – 15 of the District Plan and the standards in Section 4.7.6 is a permitted activity. Of relevance to the proposal, the following development/activities are enabled on the site as of right:

- Farming activity;
- Tree planting;
- Horticulture, orchard and vineyard planting;
- Earthworks for the formation of roads and tracks provided the design standards are met (eg. Cut and fill batter is no more than 2m in height etc);
- Extraction and excavation of material that does not exceed 2000m² or a quantity of 3000m³; and

- Temporary activities⁹ where no more than three persons are engaged in the activity.

4.2.2. Existing Environment

The existing environment includes the Rocky Point Recreation Zone which provides for a Development Area which is designated for travellers accommodation and clustered dwellings with no minimum allotment size.

4.3. Landscape effects

Baxter Design Group (BDG) has prepared a Landscape Assessment (**Attachment E**) of the potential effects associated with the proposed subdivision, associated accessways and development.

The assessment includes a visual assessment from a range of public view points as summarised below:

- 5km north-northeast of the site (Tarras – Cromwell Road): future buildings within building platforms 25, 26, 28, 29 and 30 may potentially be visible and the scale of potential adverse effect is very low – negligible.
- 3.8km and 2.5km north-northeast of the site (Tarras – Cromwell Road): future buildings within building platforms 28, 29 and 30 may potentially be visible and the scale of potential adverse effect is very low.
- 1.2km north of the site (Tarras – Cromwell Road): future buildings within building platforms 28 and 29 may potentially be visible and the scale of potential adverse effect is very low.
- 800m north of the site (Tarras – Cromwell Road): future buildings within building platforms 29 – 33 may potentially be visible and the scale of potential adverse effect is low.
- 2.6km west of the site (Mount Pisa Road and Luggate – Wanaka Highway): future buildings within building platforms 1 – 9, 14, 20 and 27 may potentially be visible and the scale of potential adverse effect is very low.
- 2.5km west of the site (Mount Pisa Road and Luggate – Wanaka Highway intersection): future buildings within building platforms 1 – 9, 28 – 30 may potentially be visible and the scale of potential adverse effect is very low.
- 1.1 – 1.3km east of the site (Lake Dustan): future buildings within building platforms 31 – 33 may potentially be visible and potential adverse effect is low.
- 250m north of the site (Bendigo Loop Road): future buildings within building platforms 31 and 32 may potentially be visible and potential adverse effect is low.

With respect to landscape character, the proposal sites within a wider landscape that contains both highly natural and slightly modified landscape elements. As discussed in the Landscape Assessment the proposal introduces a low level of change into the landscape character and does not degrade the quality of the surrounding environment, with the scale of the development appearing as a logical

⁹ means any land use or structure of a temporary nature and includes: building, scaffolding and false work, storage yards, workshops and buildings or uses of similar character where such activities are incidental to a building or construction project or filming on the site; sporting events, galas, market days, carnivals, shows and similar events; temporary military training activities; activities undertaken pursuant to a prospecting or exploration permit in terms of the Crown Minerals Act 1991.

extension of existing residential development to the south, which has been successfully absorbed into the landscape (acknowledging what the Rocky Point Recreation Zone – Development Area anticipates).

With respect to landscape amenity, the scale, form and topography of the higher areas of the site enable the proposal to be visually absorbed into the landscape, avoiding the lower more visible slopes of the Dunstan Range foothills. The proposal will complement the character and quality of the site and surroundings through the location of the building platforms and proposed design controls.

In summary the proposal has been carefully designed to ensure the bulk of the development is contained within the Development Area which is excluded from the ONL and anticipates clustered dwellings, or sensitively located in areas outside the Development Area that reduce or eliminate adverse effects from Lake Dunstan (in comparison with where they could alternatively be located within the Development Area). Given the placement of the proposed building platforms, the overall low density scale of development and proposed design controls which go above and beyond the District Plan standards, the proposal mitigate of avoids adverse landscape and visual amenity effects on the ONL and therefore protects the values of it.

Overall, adverse effects from the proposal on landscape are low and considerate appropriate with respect to the Rocky Point Recreation Zone.

4.4. Ecological effects

Beale Consulting has prepared an Ecological Assessment (**Attachment H**) to assess the effects of the proposal on the ecological values of Rocky Point¹⁰.

As discussed in the Ecological Assessment, the level of ecological effect on kanuka scrub and shrubland and grey shrubland is low when considering the ecological value and magnitude of effect together. The level of ecological effect on the cushionfield is very high. This is attributed to a high ecological value assigned to the species, due to the 'At Risk-Declining' threat classification and due to a high score assigned to the magnitude of effect. As such, compensation measures are proposed to address the residual adverse effects caused by the permanent loss of cushionfield vegetation.

In addition to the above and as discussed in the Ecological Assessment, the habitat types occurring on the property support large populations of Kowarau geckos¹¹ and McCann's skink¹² and therefore a Lizard Survey Report was undertaken by Dr Mandy Tocher (contained within the Ecological Assessment). Both lizard species make use of the cushionfields for cover for at least some parts of the year and therefore the removal of cushionfield will disturb lizard habitat. A Lizard Management Plan (LMP) will be prepared to detail how any potential adverse effects of the proposal will be appropriately avoided, minimised, mitigated or compensated for. The level of ecological effect is assessed to be low and high based on a moderate magnitude of effect on two species of lizards with assigned low and high ecological values respectively.

Given the residual adverse effect of the proposal on indigenous vegetation and lizards (relating to the permanent loss of cushionfield vegetation and the reduction in habitat of lizards which are classified as At Risk – Declining), that cannot be avoided, remedied or mitigated the applicant proposed biodiversity compensation. The proposed compensation consists comprise a diverse assemblage of native plants that occur naturally in the Dunstan Ecological District but are generally lacking in abundance at a local level and will therefore increase the diversity of the homogenous kanuka shrubland through active enrichment as detailed in Section 1.4.3 above.

¹⁰ The assessment of ecological values and ecological significance of the affected indigenous vegetation and habitats of indigenous fauna was undertaken in accordance with the criteria set out in the Environment Institute of Australia and NZ (EIANZ) Guidelines for Ecological Impact Assessment (2018) and as set out in Schedule 4 of the Partially Operative Regional Policy Statement 2019 and Proposed Regional Policy Statement.

¹¹ Classified by the Department of Conservation as "At Risk – Declining"

¹² Classified by the Department of Conservation as "Not Threatened"

It is noted that the proposed development and associated vegetation removal is contained largely within the Development Area. The applicant seeks to achieve this in the most sensitive way, minimising impact, and ensuring appropriate and effective compensation.

To ensure the best possible outcome plantings will be established from local seed sources, propagated by an established nursery, and planted with proper planting techniques. The plantings will be established and subject to aftercare management measures to ensure high survival rates, so they become self-sustaining and contribute to natural regenerative processes in the medium to long term.

Property-wide monitoring and ongoing control of invasive plant species and pests, including property wide hedgehog control is also proposed, to be carried out in perpetuity as additional biodiversity compensation. The ecological assessment observes that the proposed compensation measures:

“will achieve a positive ecological outcome and is the best practicable means of addressing the adverse residual effects of the development on the cushionfield plant communities.”¹³

Overall, given the considered location of proposed building platform to avoid ecological impacts where possible, proposed consent conditions and proposed compensation planting ecological effects from the proposal, will be no more than minor.

4.5. Archaeological and cultural effects

An Archaeological Assessment (**Attachment D**) was undertaken by Chris Jennings of the University of Otago (Southern Pacific Archaeological Research). Although the wide Bendigo area exhibits numerous archaeological sites associated with historic gold mining industry, there are few sites in the vicinity of the site that have been recorded. The sites that were identified during site survey are considered to be associated with activities that relate to early colonial European occupation in the mid-1800s. These are primarily related to the historic farming operations with the exception of the sluicing area which is likely to be associated with exploratory alluvial gold mining activity in the region.

Two of the identified sites being G41/771 (earth bank feature) and G41/772 (stone retaining wall) are located within proposed lots as seen in **Figure 7** below.

¹³ Ecology Impact Assessment. Pg. 29.



Figure 7: Location of archaeological features within proposed lots

The formation of the main accessway and provision of access to proposed Lot 2 will likely require the removal of the low earth feature G41/771. Part of G41/772 is located within the boundary of proposed Lot 6 and although the proposal will not affect the feature, ongoing management will be required.

The proposed alignment and formation of the accessway will likely require the partial or full removal of G41/773 (earth bank feature) and may also affect features related to G41/774 (sluicing area).

The Archaeological Assessment (**Attachment D**) makes the following recommendations for the proposal:

- A general archaeological authority under section 44 of the Heritage New Zealand Pouhere Taonga Act 2014 must be obtained from Heritage New Zealand prior to road construction and landscaping that will affect sites G41/771 and G41/773;
- Contractors should be briefed by an archaeologist on the identification of further archaeological evidence and the appropriate protocols to follow in the event of any archaeological find;
- Prior to earthworks, detailed recording should be undertaken for sites G41/771 and G41/773 and parts of G41/774 that may be affected by road construction. Recordings should include photographic recording and scaled plan drawings for both sites;
- Monitoring should be undertaken for any sites impacted by earthworks. Any subsurface features, or artefacts discovered during earthworks should be investigated and recorded by an appropriately experienced archaeologist; and
- The landowner who acquires Lot 6 should be made aware by the applicant, that the stone wall feature recorded as G41/772 is an archaeological site protected under the Heritage New Zealand Pouhere Taonga Act 2014. Furthermore, they should be informed that any plans to modify, damage or destroy the wall, will require an archaeological authority.

The applicant is prepared to volunteer the above recommendations as conditions of consent to mitigate any potential adverse effects on archaeological effects on the site.

In relation to cultural effects, as discussed in the Archaeological Assessment (**Attachment D**) although early Māori were active throughout the wider region, these sites are generally situated near larger rivers, specifically the Mata-au/Clutha River, the Kawarau River and smaller water courses such as Bendigo Creek. Based on the regional distribution of these archaeological sites it is unlikely that any Māori sites are present within the assessment area.

The applicant will liaise with Iwi and anticipates that the Iwi authorities will have the opportunity to submit on the application, which will enable a more detailed statement of cultural impacts if necessary.

4.6. Servicing effects

Access

As discussed in Section 1.4.5 above the proposed roading has been designed to avoid rock outcrops and minimises earthworks volumes and extents. Some roads will exceed 1:6 due to the steep terrain of the site and the desire to minimise earthworks, however these sections will be asphalted. Due to the north facing aspect of the site, frost is not expected to be a problem in winter.

Wastewater

As discussed in the Wastewater Disposal Report the stormwater from each lot could either be directed to a soak pit or to a semi-reticulated system. Detailed design of the communal system will be prepared as part of a detailed engineering acceptance application and private systems will be designed and submitted to Council at the time a building consent is lodged.

Stormwater

Stormwater systems will be designed to mimic pre-development scenario in accordance with NZS4404:2010. Therefore, no adverse effects are anticipated within the site, on neighbouring properties or surrounds.

Potable & Firefighting Water

As discussed in Section 1.4.7 above, adequate supply of domestic water will be supplied via the Chinaman's Terrace water scheme, held in tanks in proposed Lot 5 and then pumped around the development via underground pipes.

Consent notice conditions will require sufficient water treatment to ensure safe standards of supply and require firefighting water be provided at the time buildings are constructed on the site.

Power and telecommunications

Power and telecommunications services will be installed in underground.

Overall, any potential servicing effects arising from the proposal on the environment will be less than minor

4.7. Earthworks effects

Any required underground services will follow the existing and proposed access routes wherever possible. Trench widths required to install services will be kept to the minimum, with the appropriate separations, and will be promptly backfilled.

The earthworks will be undertaken in accordance with best practice to ensure any potential adverse effects to the surrounding environment (including sedimentation, runoff, dust etc.) are appropriately mitigated. A consent condition requiring preparation and approval of an environmental management plan prior to works commencing is proposed.

Overall, earthworks effects arising from the proposal are consistent with what could be generated as a permitted activity.

4.8. Positive effects

The proposal will provide economic benefit to the area through construction of the proposal and social benefits from the provision of rural living allotments for residents. The enabling of accommodation facilities across the site will provide for a diverse new offering of accommodation in the district without giving rise to potential adverse effects associated with travellers accommodation which is provided for in the Development Area.

The proposed compensation planting and preservation of large area of land in native vegetation outside of the proposed curtilage areas, and the introduction of weed and pest control will ensure protection and preservation of a natural environment that is greater than the permitted activities presently allow for.

Overall, the proposal is considered to represent a net benefit in effects.

4.9. Summary of effects on the environment

Overall, the proposal will result in low adverse effects on the environment when taking into account the permitted baseline and what the Rocky Point Recreation Zone provides for.

5. ASSESSMENT UNDER THE RELEVANT OBJECTIVES AND POLICIES

5.1. Central Otago District Plan

The relevant provisions of the Central Otago District Plan are provided and assessed below:

Table 4: Objectives and policies

Provision	Detail	Assessment
Section 4 – Rural Resource Area		
Objective 4.3.1	To recognise that communities need to provide for their social, economic and cultural wellbeing, and for their health and safety at the same time as ensuring environmental quality is maintained and enhanced.	The proposal provides for social wellbeing through the provision of sites for rural living while maintaining environmental quality. The proposal achieves this objective.
Objective 4.3.2	To protect the District's outstanding natural landscapes and outstanding natural features, and land in the Upper Manorburn/Lake Onslow Landscape Management Area (including landforms) from the adverse effects of inappropriate subdivision, use and development.	As discussed in the Landscape Assessment (Attachment E) the proposal does not give rise to inappropriate adverse effects, ensuring the ONL remains protected, taking into account the development anticipated within the Rocky Point Recreation Zone. The proposal achieves this objective.
Objective 4.3.3	To maintain and where practicable enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural environment, and to maintain the open natural character of the hills and ranges.	As discussed in the Landscape Assessment (Attachment E) the proposal does not give rise to adverse effects on rural amenity. The proposed low density, design controls and sensitively located building platforms maintains the character of the area, again taking

Provision	Detail	Assessment
		into account the development anticipated within the Rocky Point Recreation Zone. The proposal achieves this objective.
Objective 4.3.5	To maintain and enhance the quality of the District's water resources by avoiding, remedying or mitigating the adverse effects of land use activities adjacent to water bodies.	The proposal does not result in adverse effects on the water quality of Lake Dunstan. The proposal achieves this objective.
Objective 4.3.7	To maintain the life-supporting capacity of the District's soil resource to ensure that the needs of present and future generations are met.	The proposal does not compromise the life-supporting capacity of the District's soil. The site has a LUC class of 7 and the area being utilised for the development, mainly within an area anticipated for development, does not play a role in sustaining soil resources for present and future generations. The proposal achieves this objective.
Objective 4.3.8	To recognise and provide for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.	Preservation of indigenous vegetation is required under consent conditions. Additional indigenous vegetation will be planted as part of the proposal as addressed in detail in the Ecological Assessment (Attachment H). The proposal achieves this objective.
Objective 4.3.9	To recognise and provide for an appropriately located development which integrates farming, horticulture, recreational, visitor, residential and lifestyle development and supporting infrastructure in a sustainable manner, but avoids, remedies or mitigates potential adverse effects on: - landscape and amenity values of the rural environment; - natural and physical resources including soils, water and groundwater resources, and existing viticultural areas; - existing lifestyle amenities; - core infrastructural resources; - the functioning of urban areas.	The proposal provides for integrated and comprehensive while avoiding, remedying or mitigating potential adverse effects on ecological and landscape values. The proposal achieves this objective.
Policy 4.4.1	To recognise the District's outstanding natural landscapes and outstanding natural features and land in the Upper Manorburn/Lake Onslow Landscape Management Area which: (a) Are unique to the district, region or New Zealand; or (b) Are representative of a particular landform or land cover occurring in the Central Otago District or of the collective characteristics and features which give the District its particular character; or	As discussed in the Landscape Assessment (Attachment E), the proposed development recognises and respects the landscape it is within, taking into account the development anticipated by the Rocky Point Recreation Zone. The manner by which it achieves this is addressed in Policy 4.4.2 below.

Provision	Detail	Assessment
	(c) Represent areas of cultural or historic significance in the district, region or New Zealand; or (d) Contain visually or scientifically outstanding geological features; or (e) Have characteristics of cultural, historical and spiritual value that are significant to Kai Tahu ki Otago; (f) Have high natural character values and high landscape quality that can be distinguished from the general landscapes of the Central Otago District and provide protection for them from inappropriate subdivision, use and development.	
Policy 4.4.2	To manage the effects of land use activities and subdivision to ensure that adverse effects on the open space, landscape, natural character and amenity values of the rural environment are avoided, remedied or mitigated through: (a) The design and location of structures and works, particularly in respect of the open natural character of hills and ranges, skylines, prominent places and natural features, (b) Development which is compatible with the surrounding environment including the amenity values of adjoining properties, (c) The ability to adequately dispose of effluent on site, (d) Controlling the generation of noise in back country areas, (e) The location of tree planting, particularly in respect of landscape values, natural features and ecological values, (f) Controlling the spread of wilding trees. (g) Encouraging the location and design of buildings to maintain the open natural character of hills and ranges without compromising the landscape and amenity values of prominent hillsides and terraces.	As discussed in the Landscape Assessment (Attachment E) the proposal avoids or mitigates potential adverse effects on the open space, landscape, natural character and amenity values through appropriate building platform location, design control conditions and vegetation planting controls. The proposal achieves this policy.
Policy 4.4.3	To ensure that the development of infrastructure in the rural environment promotes sustainable management by: a. Requiring developers to contribute a fair and reasonable proportion of the costs involved, and b. Maintaining and enhancing the safe and efficient operation of the infrastructure network (including roading), while avoiding, remedying or mitigating adverse effects.	The consent holder will provide and maintain the necessary infrastructure for the development at no cost to the community. The proposal achieves the policy.
Policy 4.4.5	To assist the Otago Regional Council in it's role of maintaining and enhancing water quality, by ensuring allotments are adequate for effluent disposal requirements and encouraging the use of land management techniques that maintain and/or enhance the life supporting capacity of water.	Requirements for a full assessment of effluent disposal requirements is anticipated as a consent condition and will be completed prior to the occupation of any dwelling. The Wastewater Disposal Assessment provided by Mt Iron Geodrill (Attachment G) demonstrates that appropriate wastewater disposal options are available for the lots proposed.

Provision	Detail	Assessment
		The proposal achieves this policy.
Policy 4.4.6	To ensure that the location, construction and/or operation of land use activities and subdivision make adequate provision for the protection of the soil resource by avoiding, remedying or mitigating the adverse effects of practices which may cause: (a) Erosion, instability or loss of topsoil, (b) Loss of nutrient or incidence of soil contamination, (c) Loss of soils with special qualities, (d) A reduction in vegetation cover and moisture holding capacity, and (e) Soil compaction.	The ground works will be managed by an Environmental Management Plan which will address the matters require by the policy. Extensive indigenous vegetation will remain onsite, and proposed earthworks are limited to roading and minor works to prepare build platforms. Erosion, compaction and the loss of soils will be very limited. The proposal achieves this policy.
Policy 4.4.8	To ensure that the effects associated with some activities including (but not limited to): (a) Noise (including noise associated with traffic generation, night time operations), and vibration, (b) The generation of a high level of traffic, in particular heavy vehicles, (c) Glare, particularly from building finish, (d) A reduction in visual amenity due to excessive signage and the storage of goods or waste products on the site, (e) The generation of odour, dusts, wastes and hazardous substances, and (f) The use and/or storage of hazardous goods or substances do not significantly adversely affect the amenity values and privacy of neighbouring properties or the safe and efficient operation of the roading network.	The Rocky Point Recreation Zone anticipates significant change to the amenity values of the area, and the nearest dwellings on other properties are a sufficient distance from the development proposed that effects on their amenity values will be minimal. Design controls aid in reducing any adverse effects from glare on neighbouring properties. There will be no visible outdoor storage areas or use or storage of hazardous materials will not arise. Any effects from dust can be managed by the environmental management plan. The proposal achieves this policy.
Policy 4.4.10	To ensure that the subdivision and use of land in the Rural Resource Area avoids, remedies or mitigates adverse effects on: (a) The open space, landscape and natural character amenity values of the rural environment in particular the hills and ranges, (b) The natural character and values of the District's wetlands, lakes, rivers and their margins, (c) The production and amenity values of neighbouring properties, (d) The safety and efficiency of the roading network, (e) The loss of soils with special qualities, (f) The ecological values of significant indigenous vegetation and significant habitats of indigenous fauna, (g) The heritage and cultural values of the District, (h) The water quality of the District's surface and groundwater resources, and (i) Public access to or along the rivers and lakes of the District, particularly through the use of minimum (and average) allotment sizes.	As discussed in the Landscape Assessment (Attachment E) the proposal avoids or mitigates potential adverse effects on the character and values of the Rural Resource Area by considering the location of all building platforms and access ways and requiring strict building controls, and taking into account the effects of development anticipated by the Rocky Point Recreation Zone. As discussed in the Archaeological Assessment (Attachment D) the heritage and cultural values of the site are limited and can will be protected where possible. Ecological values will be protected or compensated for, as outlined in the ecological report (Attachment H). Water quality will be protected through on site wastewater treatment and disposal and the

Provision	Detail	Assessment
		controlled disposal of all stormwater as outlined in the Ecological Assessment (Attachment H). The proposal achieves this policy.
Policy 4.4.12	To encourage land use practices that avoid, remedy or mitigate weed infestation, in particular wilding tree spread, and the spread of pest plants and animals throughout the district.	The proposal includes consent notices to encourage land use practices to avoid and remedy the spread of weeds and pests. The ecological management plan, to include monitoring and enforcement and ongoing management of pest species, will contribute significantly to avoiding spread of wildings and other pests. The proposal achieves this policy
Chapter 12 – District Wide Rules and Performance Standards		
Objective 12.3.1	To promote the safe and efficient operation of the District's roading network.	The proposal will not compromise the safe and efficient operation of the District's roading network. The proposal achieves this objective.
Objective 12.3.2	To avoid, remedy or mitigate the adverse effects of noise on the District's amenity values and the health and wellbeing of the District's people.	Taking into account the development anticipated by the Rocky Point Recreation Zone, and the layout and form of the development, any potential effects on any persons' amenity values or health or wellbeing will be avoided, remedied or mitigated. The proposal achieves this objective.
Objective 12.3.3	To avoid, remedy or mitigate the adverse effects of signs on traffic and the general amenity values of the District while recognising that signs are a necessary adjunct to many activities.	Any signage will be minimal and will not adversely affect traffic safety or amenity values. The proposal achieves this objective.
Objective 12.3.5	To ensure that activities avoid, remedy or mitigate nuisance to adjoining properties from odour, dust, lightspill, glare and electrical interference.	The proposed layout and design of the development ensure adjoining properties will be protected from any odour, dust, lightspill, glare and electrical interference during construction and when the development is complete The proposal achieves this objective.
Objective 12.3.6	To recognise the contribution that temporary activities make to the social, economic and cultural wellbeing and health and safety of the District's people and communities while ensuring environmental quality is maintained.	Temporary activities can be undertaken on the site as of right, provided the relevant standards are complied with.
Objective 12.3.7	To ensure that activities avoid reverse sensitivity effects, avoid compromising the operation, maintenance,	No development is proposed adjacent to the transmission

Provision	Detail	Assessment
	upgrading and development of the transmission network and avoid risk to people.	network and there is no potential for adverse reverse sensitivity effects. The proposal achieves this objective.
Policy 12.4.1	To avoid, remedy or mitigate adverse effects on the safe and efficient operation of the roading network by requiring: (a) Safe and efficient access points to the roading network, and (b) Off-road loading and manoeuvring space and facilities, and (c) Off-street parking, where these are appropriate	The roading network will be accessed by the existing Bendigo Loop Road, providing safe and efficient access. The proposal achieves this policy.
Policy 12.4.2	To determine the suitability of noise generating activities in any given locality by having regard to: (a) The specific characteristics and amenity values of the locality from which the noise originates, and (b) The sound pressure level of the proposed activity, and (c) The frequency that the noisy activity takes place, and (d) The length of time that the noise continues, and (e) Any special characteristics of the noise, to ensure that the adverse effects of noise on other activities and the natural and physical resources of the locality (including cumulative effects) reflect standards acceptable to the community.	The proposal will not generate excessive noise that breaches the noise standards.
Policy 12.4.3	To recognise that noise from temporary activities can be reasonably controlled by requiring compliance with noise limits which are less stringent than those applied to other activities.	The proposal does not include any temporary activities that will generate noise exceeding the noise limits.
Policy 12.4.7	To encourage resource users to adopt management practices that avoid, remedy or mitigate the adverse effects of: (a) odour, (b) lightspill and glare, (c) dust, and (d) electrical interference, on the use and enjoyment of neighbouring properties.	The layout and design of the proposal ensures adjoining properties will be protected from any adverse effects of odour, dust, lightspill, glare and electrical interference during construction. The proposal achieves this policy
Policy 12.4.9	To enable the operation of temporary activities that promote the social, economic and cultural wellbeing, and health and safety of the District's people and communities while ensuring that any adverse effects that exceed performance standards of the District Plan are of a short duration only.	As discussed above, temporary activities can be undertaken on the site as of right, provided the relevant standards are complied with.
Policy 12.4.10	The transmission network is of national significance and nearby activities are therefore to be managed to avoid adverse effects in terms of reverse sensitivity, in terms of compromising the operation, maintenance, upgrading and development of the transmission network and in terms of ensuring that activities that are particularly sensitive to the risks associated with transmission lines are not located in close proximity to those lines.	No development is proposed adjacent to the transmission network and there is no potential for adverse reverse sensitivity effects. The proposal achieves this policy.
Chapter 13 – Infrastructure		
Objective 13.3.2	To enable the efficient operation and development of utilities including the transmission network while ensuring	All required utilities will be reticulated to lot boundaries in a

Provision	Detail	Assessment
	that effects on amenity, heritage, landscape values and public safety are avoided, remedied or mitigated.	common services trench, ensuring that effects on amenity, heritage, landscape values and public safety are avoided. The proposal achieves this objective.
Objective 13.3.4	To protect the District's outstanding natural landscapes and outstanding natural features, and land in the Upper Manorburn/Lake Onslow Landscape Management Area (including landforms) from the adverse effects of inappropriate subdivision, use and development.	As discussed in the Landscape Assessment (Attachment E) the proposal avoids or mitigates potential adverse effects of the proposal on the ONL, and the development is appropriate within the ONL, taking into account the development anticipated within the Rocky Point Recreation Zone. The proposal achieves this objective.
Objective 13.3.5	To maintain and where practicable enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural environment.	As discussed in the Landscape Assessment (Attachment E) the proposal maintains rural amenity values created by the open space, landscape, and natural character of the rural environment, taking into account the development anticipated within the Rocky Point Recreation Zone. The proposal achieves this objective.
Policy 13.4.11	To recognise that some established activities may generate noise and other effects that can disturb neighbours, by ensuring that new developments locating near such activities recognise and accept the prevailing environmental characteristics.	This is a reverse sensitivity policy. The development is located sufficient distance from boundaries to avoid any adverse sensitivities or reverse sensitivities. The proposal achieves the policy.
Chapter 16 – Subdivision		
Objective 16.3.1	To ensure that subdivision avoids, remedies or mitigates adverse effects on the safe and efficient operation of the District's roading network.	Any potential adverse effects on the roading network are avoided by the use of an existing road (Bendigo Loop Road) and intersections, and the proposed access to the development area is suitable. The proposal achieves this objective.
Objective 16.3.2	To ensure that subdivisions provide all necessary services and infrastructure without adversely affecting the public interest and the ongoing viability of those services and infrastructure.	The proposed subdivision can be adequately serviced as discussed above. The proposal achieves this objective.
Objective 16.3.3	To ensure that subdivision does not facilitate development that may potentially be at risk from hazards.	No hazards have been identified in the planning maps for this property. The proposal achieves this objective.

Provision	Detail	Assessment
Objective 16.3.4	To ensure, where appropriate, that amenity values of the District created by the open space, landscape and natural character values, and areas of significant indigenous vegetation, significant habitat of statutorily managed sports fish and game are not adversely affected by subdivision.	This is addressed in detail in objectives and policies in Chapters 4, 12 and 13 above and in the landscape and ecological assessments. The proposal achieves the objective.
Objective 16.3.5	To ensure that subdivision does not facilitate development that may compromise the life-supporting capacity of the District's water and soil resources.	The proposal involves development on a minor percentage of the site. The life-supporting capacity of the district's water and soil resources will not be compromised. The proposal achieves this objective.
Objective 16.3.6	To ensure that subdivision does not facilitate development that may adversely affect heritage and cultural values including cultural values of importance to Kai Tahu ki Otago.	It is not expected that the proposal will have effects that are incompatible with Kai Tahu ki values and this will be confirmed over the process of the application, as discussed in Section 4.4 above.
Objective 16.3.7	To ensure that subdivision contributes to the open space, recreation and reserve needs of the community.	The proposal does not impact on the open space, recreation and reserve needs of the community. The proposal achieves this objective.
Objective 16.3.8	To ensure, where appropriate, that subdivision maintains and where appropriate enhances public access: (a) To and along the margins of the District's lakes and rivers. (b) To the District's reserves and areas of public open space. (c) To sites of heritage and cultural values. (d) To sites of cultural importance to Kai Tahu ki Otago.	To the extent relevant, public access to the Bendigo Scenic Reserve is maintained. The proposal achieves this objective.
Objective 16.3.9	To ensure that the physical works involved in preparing land that is part of the subdivision avoids, remedies or mitigates adverse effects on: (a) The stability of land. (b) Water quality within natural watercourses and the stability of their margins. (c) Neighbouring properties in respect of the effects of noise, dust and vibration.	No natural water courses are affected by the proposal. Physical works involved in preparing land avoids adverse effects on land and neighbouring properties due to the distance of the works from the boundaries. No adverse effects from stability, water quality or noise, dust and vibration will arise. The proposal achieves this objective.
Objective 16.3.10	To ensure subdivisions are designed to facilitate an appropriate and co-ordinated ultimate pattern of development having regard to the particular environment within which the subdivision is located.	The development is consistent with and, overall, an improvement on the pattern of development anticipated within the Rocky Point Recreation Zone.

Provision	Detail	Assessment
		The proposal achieves the objective.
Objective 16.3.11	To ensure that subdivision in areas without reticulated foul sewage services does not facilitate development that has an adverse effect on soil, surface and groundwater resources, and public health.	The subdivision can be adequately serviced without adverse effect on soil, water resources, and public health. The proposal achieves this objective.
Policy 16.4.1	To require that all subdivisions have legal and physical access that: (a) Is of a standard that is adequate for the intended use of allotments having regard to current and likely future traffic levels and the safe and convenient movement of vehicles and pedestrians, and (b) That integrates with the existing roading network in a safe and efficient manner, except in circumstances where Council is satisfied that section 321(2) and (3) of the Local Government Act 1974 is to apply or where no new lots are to be created.	The proposed access is appropriate for the traffic level anticipated and will integrate with the existing road network in a safe and efficient manner. The proposal achieves this policy.
Policy 16.4.2	To encourage the use of existing access points to rural State highways and arterial roads to avoid or mitigate adverse effects on the safe and efficient operation of these roads.	The proposal will use an existing access point to the rural state highway, from Bendigo Loop Road. The proposal achieves this policy.
Policy 16.4.3	To require that the land to be subdivided is supplied with services and infrastructure that are adequate for the intended use of the land to be subdivided without the public interest being adversely affected.	The subdivision can be adequately serviced. The proposal achieves this policy.
Policy 16.4.4	To require that subdivisions within unreticulated areas are designed to ensure that each allotment: (a) Has the ability to adequately dispose of effluent and stormwater on site without compromising health, the life-supporting capacity of soil resources, the quality of ground and surface water resources, and the drainage and amenity values of adjoining properties: and that, (b) An adequate supply of water can be provided, where this is appropriate to the intended use of the allotment.	The proposal will ensure adequate provision for water and safe disposal of effluent and stormwater. The proposal achieves this policy.
Policy 16.4.6	To require that all physical works within subdivisions are designed and constructed in accordance with NZS 4404:1981 which is the Council's Subdivision Code of Practice unless Council determines modification of this code is necessary given the local conditions and particular circumstances affecting the subdivision.	All physical works within the proposed subdivision will be designed and constructed in accordance with NZS 4404:1991. The proposal achieves this policy.
Policy 16.4.7	To require that the design of subdivision, where relevant to the intended use, provides for the following matters: (a) Facilitates convenient, safe and efficient access to all allotments including pedestrian access where appropriate. (b) Facilitates the safe and efficient provision and operation of services and infrastructure. (c) Facilitates access to passive solar energy resources.	The various relevant components of this policy have been addressed in detail in Section 4 above, and the design of the subdivision outlined in Section 2, takes these matters into account. The proposal achieves this policy.

Provision	Detail	Assessment
	(d) Facilitates any foreseeable subsequent development or redevelopment including the economic provision of roading and network utility services. (e) Facilitates adequate provision of, or contribution to, the open space, recreational and reserve needs of the community with physical links to existing reserve areas where this is practicable. (f) Facilitates an appropriate level of access to heritage sites, natural features and water bodies where appropriate. (g) Facilitates development which keeps earthworks to a minimum. (h) Facilitates retention of the heritage values of a site or area.	

5.1.1. Conclusion – Objectives and Policies of the CODP

The proposal is consistent with and achieve the relevant objectives and policies from Chapters 4, 12, 13 and 16 of the CODP.

5.2. Regional Policy Statement, Regional Plans and other planning instruments

The Otago Regional Policy Statement (RPS) sets the direction for future management and promotion of the sustainable management of the region's natural and physical resources, as well as providing the policy context for regional plans and establishing the framework for district plans.

The Partially Operative RPS 2019 (PORPS2019) was declared partially operative on 15 March 2021. The proposed RPS 2021 (pRPS21) has been notified for submissions and further submissions and hearings are currently underway, however decisions have not yet been issued.

The relevant objectives and policies of the PORPS19 and pRPS21 are addressed in **Tables X and Y** below.

Table 5: PORPS 2019

Provision	Detail	Assessment
Chapter 1 – Resource Management in Otago is integrated		
Objective 1.1	Otago's resources are used sustainably to promote economic, social, and cultural wellbeing for its people and communities	The proposal provides for economic, social and cultural wellbeing by providing for a range of rural living, accommodation and related activities as anticipated within the Rocky Point Recreation Zone. The proposal achieves this objective.
Policy 1.1.2	Social and cultural wellbeing and health and safety Provide for the social and cultural wellbeing and health and safety of Otago's people and communities when undertaking the subdivision, use, development and protection of natural and physical resources by all of the following: a) Recognising and providing for Kāi Tahu values; b) Taking into account the values of other cultures;	The proposal provides for the social and cultural wellbeing by providing employment during the construction phase, future living opportunities and a range of accommodation and commercial activities. It is not expected that the proposal will result in effects that are

Provision	Detail	Assessment
	c) Taking into account the diverse needs of Otago's people and communities; d) Avoiding significant adverse effects of activities on human health; e) Promoting community resilience and the need to secure resources for the reasonable needs for human wellbeing; f) Promoting good quality and accessible infrastructure and public services.	incompatible with manawhenua values.
Objective 1.2	Recognise and provide for the integrated management of natural and physical resources to support the wellbeing of people and communities in Otago	The proposal provides for a comprehensive development that integrates natural and physical resources through careful design based on the Rocky Point Recreation Zone, and by appropriately managing impacts on nature conservation values and landscape values.
Policy 1.2.1	Integrated resource management Achieve integrated management of Otago's natural and physical resources, by all of the following: a) Coordinating the management of interconnected natural and physical resources; b) Taking into account the impacts of management of one natural or physical resource on the values of another, or on the environment; c) Recognising that the value and function of a natural or physical resource may extend beyond the immediate, or directly adjacent, area of interest; d) Ensuring that resource management approaches across administrative boundaries are consistent and complementary; e) Ensuring that effects of activities on the whole of a natural or physical resource are considered when that resource is managed as subunits. f) Managing adverse effects of activities to give effect to the objectives and policies of the Regional Policy Statement. g) Promoting healthy ecosystems and ecosystem services; h) Promoting methods that reduce or negate the risk of exceeding sustainable resource limits.	The proposal achieves integrated resource management.
Chapter 2 – Kāi Tahu values and interests are recognised and kaitiakitaka is expressed		
Objective 2.1	The principles of Te Tiriti o Waitangi are taken into account in resource management processes and decisions	The proposal does not undermine the principles of Te Tiriti o Waitangi and it is not expected that the proposal will have effects that are incompatible with Kāi Tahu ki values, and this will be confirmed over the process of the application.
Policy 2.1.1	Treaty obligations Promote awareness and understanding of the obligations of local authorities in regard to the principles of Te Tiriti o Waitangi, tikaka Māori and kaupapa Māori.	The proposal achieves the objectives and policies relating to Kāi Tahu values and Te Tiriti o Waitangi.
Policy 2.1.2	Treaty principles Ensure that local authorities exercise their functions and powers, by: a) Recognising Kāi Tahu's status as a Treaty partner; and b) Involving Kāi Tahu in resource management processes implementation;	

Provision	Detail	Assessment
	c) Taking into account Kāi Tahu values in resource management decision-making processes and implementation; d) Recognising and providing for the relationship of Kāi Tahu's culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taoka; e) Ensuring Kāi Tahu have the ability to: i. Identify their relationship with their ancestral lands, water, sites, wāhi tapu, and other taoka; ii. Determine how best to express that relationship; f) Having particular regard to the exercise of kaitiakitaka; g) Ensuring that district and regional plans: i. Give effect to the Ngāi Tahu Claims Settlement Act 1998; ii. Recognise and provide for statutory acknowledgement areas in Schedule 2; iii. Provide for other areas in Otago that are recognised as significant to Kāi Tahu; h) Taking into account iwi management plans.	
Objective 2.2	Kāi Tahu values, interests and customary resources are recognised and provided for	
Policy 2.2.1	Kāi Tahu wellbeing Manage the natural environment to support Kāi Tahu wellbeing by all of the following: a) Recognising and providing for their customary uses and cultural values in Schedules 1A and B; and, b) Safeguarding the life-supporting capacity of natural resources.	
Policy 2.2.2	Recognising sites of cultural significance Recognise and provide for the protection of wāhi tūpuna, by all of the following: a) Avoiding significant adverse effects on those values that contribute to the identified wāhi tūpuna being significant; b) Avoiding, remedying, or mitigating other adverse effects on the identified wāhi tūpuna; c) Managing the identified wāhi tūpuna sites in a culturally appropriate manner.	The site does not include any identified sites of cultural significance or wāhi tūpuna. The Archaeological Assessment (Attachment D) identifies general area-wide historic uses (for example oven sites located on banks of Clutha) as Māori transit through site. Specific section on Archaeological, Māori and other values. The following is all it contains if relevance to Iwi cultural values:
Policy 2.2.3	Wāhi tūpuna and associated sites Enable Kāi Tahu relationships with wāhi tūpuna by all of the following: a) Recognising that relationships between sites of cultural significance are an important element of wāhi tūpuna; b) Recognising and using traditional place names.	<i>Although early Māori were active throughout the wider region, these sites are generally situated near larger rivers, specifically the Mata-au/Clutha River, the Kawarau River and smaller water courses such as Bendigo Creek. Based on the</i>

Provision	Detail	Assessment
		<i>regional distribution of these archaeological sites it is unlikely that any Māori sites are present within the assessment area.</i> CODP identifies waahi tapu site in Part A of Schedule 19.4 – nothing is listed for Bendigo The area is not subject to a Statutory Acknowledgement and also has no specific mention in the Kāi Tahu ki Otago Natural Resource Management Plan.
Chapter 3 – Otago has high quality natural resources and ecosystems		
Objective 3.1	The values (including intrinsic values) of ecosystems and natural resources are recognised and maintained, or enhanced where degraded	The values of the ecosystem and land have been recognised as discussed in the Ecological Assessment (Attachment H). The proposed compensation planting will maintain these values. The proposal achieves this objective.
Policy 3.1.3	Water allocation and use Manage the allocation and use of fresh water by undertaking all of the following: a) Recognising and providing for the social and economic benefits of sustainable water use; b) Avoiding over-allocation, and phasing out existing over-allocation, resulting from takes and discharges; c) Ensuring the efficient allocation and use of water by: i. Requiring that the water allocated does not exceed what is necessary for its efficient use; ii. Encouraging the development or upgrade of infrastructure that increases efficiency; iii. Providing for temporary dewatering activities necessary for construction or maintenance.	The proposal can be adequately serviced in relation to fresh water. The proposal achieves this policy.
Policy 3.1.7	Soil values Safeguard the life-supporting capacity of soil and manage soil to: a) Maintain or enhance as far as practicable i. Soil biological diversity; ii. Biological activity in soils; iii. Soil function in the storage and cycling of water, nutrients, and other elements through the biosphere; iv. Soil function as a buffer or filter for contaminants resulting from human activities, including aquifers at risk of leachate contamination; v. Soil fertility where soil is used for primary production; b) Where a) is not practicable, minimise adverse effects;	Large scale productive farming or horticulture/viticulture is incompatible with preservation of the natural character/amenity, and the related ecological value, that exists across the site. However, areas of the site (ie. those outside of the identified curtilage areas) will be protected from development and this can be assured through the conditions of consent. Pest species will be managed appropriately. Heritage values are recognised and will be protected. The proposal achieves this policy

Provision	Detail	Assessment
	c) Recognise that urban and infrastructure development may result in loss of soil values. d) Control the adverse effects of pest species, prevent their introduction and reduce their spread; e) Retain the soil mantle where it acts as a repository of historic heritage objects unless an archaeological authority has been obtained.	
Policy 3.1.9	Soil erosion Minimise soil erosion resulting from activities, by undertaking all of the following: a) Using appropriate erosion controls and soil conservation methods; b) Maintaining vegetative cover on erosion prone land; c) Remediating land where significant soil erosion has occurred; d) Encouraging activities that enhance soil retention.	Where possible, vegetation cover will be maintained. The proposed compensation planting will enhance soil retention. Earthworks will be undertaken in accordance with an Environmental Management Plan to ensure best practice erosion and sediment control measures are implemented. The proposal achieves this policy.
Policy 3.1.9	Ecosystems and indigenous biological diversity Manage ecosystems and indigenous biological diversity in terrestrial, freshwater and marine environments to: a) Maintain or enhance: i. Ecosystem health and indigenous biological diversity including habitats of indigenous fauna; ii. Biological diversity where the presence of exotic flora and fauna supports indigenous biological diversity; b) Maintain or enhance as far as practicable: i. Areas of predominantly indigenous vegetation; ii. Habitats of trout and salmon unless detrimental to indigenous biological diversity; iii. Areas buffering or linking ecosystems; c) Recognise and provide for: i. Hydrological services, including the services provided by tall tussock grassland; ii. Natural resources and processes that support indigenous biological diversity; d) Control the adverse effects of pest species, prevent their introduction and reduce their spread.	Ecosystems and indigenous biological diversity are addressed in detail in the Ecological Assessment (Attachment H). The proposal maintains and enhances ecosystem health and indigenous biological diversity across the site through avoidance of vegetation removal where possible and proposed compensation planting of a range of native species. The proposal achieves this policy.
Policy 3.1.11	Natural features, landscapes, and seascapes Recognise the values of natural features, landscapes and seascapes are derived from the biophysical, sensory and associative attributes in Schedule 3.	The values of the natural features across the site and landscape have been recognised and are addressed in detail in the Landscape Assessment (Attachment E). The proposal achieves this policy.
Policy 3.1.13	Environmental enhancement Encourage, facilitate and support activities that contribute to the resilience and enhancement of the natural environment, by where applicable: a) Improving water quality and quantity;	As discussed above and within the Ecological Assessment (Attachment H), the proposal introduces a number of new (native vegetation) species to the site and

Provision	Detail	Assessment
	b) Protecting or restoring habitat for indigenous species; c) Regenerating indigenous species; d) Mitigating natural hazards; e) Protecting or restoring wetlands; f) Improving the health and resilience of: i. Ecosystems supporting indigenous biological diversity; ii. Important ecosystem services, including pollination; g) Improving access to rivers, lakes, wetlands and their margins, and the coast; h) Buffering or linking ecosystems, habitats and areas of significance that contribute to ecological corridors; i) Controlling pest species.	will contribute to the resilience and enhance of the natural environment through improved biological diversity on the site. A Vegetation Management Plan will be required by conditions of consent and includes measures to control species and maintain indigenous vegetation in perpetuity. The proposal achieves this policy.
Objective 3.2	Otago's significant and highly-valued natural resources are identified and protected, or enhanced where degraded	The District Plan does not identify areas of significant indigenous vegetation however, as discussed in the Ecological Assessment (Attachment H) the site does contain kanuka (Scrub and shrubland) and cushionfield species which are ecologically significant.
Policy 3.2.1	Identifying significant indigenous vegetation and habitats Identify areas and values of significant indigenous vegetation and significant habitats of indigenous fauna, using the attributes detailed in Schedule 4.	
Policy 3.2.2	Managing significant indigenous vegetation and habitats Protect and enhance areas of significant indigenous vegetation and significant habitats of indigenous fauna, by all of the following: a) In the coastal environment, avoiding adverse effects on: i. The values that contribute to the area or habitat being significant; ii. Indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists; iii. Taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened; iv. Indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare; v. Habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare; vi. Areas containing nationally significant examples of indigenous community types; and vii. Areas set aside for full or partial protection of indigenous biological diversity under other legislation; b) Beyond the coastal environment, and in the coastal environment in significant areas not captured by a)	

Provision	Detail	Assessment
	above, maintaining those values that contribute to the area or habitat being significant; c) Avoiding significant adverse effects on other values of the area or habitat; d) Remedying when other adverse effects cannot be avoided; e) Mitigating when other adverse effects cannot be avoided or remedied; f) Encouraging enhancement of those areas and values that contribute to the area or habitat being significant; g) Controlling the adverse effects of pest species, preventing their introduction and reducing their spread.	
Policy 3.2.3	Identifying outstanding natural features, landscapes and seascapes Identify areas and values of outstanding natural features, landscapes and seascapes, using the attributes in Schedule 3.	This is a plan making policy. Part of the site is within the identified ONL.
Policy 3.2.4	Managing outstanding natural features, landscape and seascapes Protect, enhance or restore outstanding natural features, landscapes and seascapes, by all of the following: a) In the coastal environment, avoiding adverse effects on the values (even if those values are not themselves outstanding) that contribute to the natural feature, landscape or seascape being outstanding; b) Beyond the coastal environment, maintaining the values (even if those values are not themselves outstanding) that contribute to the natural feature, landscape or seascape being outstanding; c) Avoiding, remedying or mitigating other adverse effects; d) Encouraging enhancement of those areas and values that contribute to the significance of the natural feature, landscape or seascape.	As discussed in the Landscape Assessment (Attachment E) overall, the proposal protects the values of the ONL, through the design of the subdivision and the building and landscaping controls volunteered and to be locked in via conditions of consent, and taking into account the development anticipated by the Rocky Point Recreation Zone. The proposal achieves the policy.
Chapter 4 – Communities in Otago are resilient, safe and healthy		
Objective 4.5	Urban growth and development is well designed, occurs in a strategic and coordinated way, and integrates effectively with adjoining urban and rural environments	Not relevant – the proposal does not constitute urban growth or urban development.
Chapter 5 – People are able to use and enjoy Otago's natural and built environment		
Objective 5.2	Historic heritage resources are recognised and contribute to the region's character and sense of identity	An Archaeological Assessment (Attachment D) was undertaken to understand and recognise the archaeological features and heritage values associated with the site, in fulfilment of the policy.
Policy 5.2.1	Recognising historic heritage Recognise all the following elements as characteristic or important to Otago's historic heritage: a) Residential and commercial buildings; b) Māori cultural and historic heritage values;	

Provision	Detail	Assessment
	c) 19th and early 20th century pastoral sites; d) Early surveying, communications and transport, including roads, bridges and routes; e) Early industrial historic heritage, including mills and brickworks; f) Gold and other mining systems and settlements; g) Dredge and ship wrecks; h) Coastal historic heritage, particularly Kāi Tahu occupation sites and those associated with early European activity such as whaling; i) Memorials; j) Trees and vegetation.	
Policy 5.2.3	Managing historic heritage Protect and enhance places and areas of historic heritage, by all of the following: 1) Recognising that some places or areas are known or may contain archaeological sites, wāhi tapu or wāhi taoka which could be of significant historic or cultural value; 2) Applying these provisions immediately upon discovery of such previously unidentified archaeological sites or areas, wāhi tapu or wāhi taoka; 3) Avoiding adverse effects on those values that contribute to the area or place being of regional or national significance; 4) Minimising significant adverse effects on other values of areas and places of historic heritage; 5) Remedying when adverse effects on other values cannot be avoided; 6) Mitigating when adverse effects on other values cannot be avoided or remedied; 7) Encouraging the integration of historic heritage values into new activities; 8) Enabling adaptive reuse or upgrade of historic heritage places and areas where historic heritage values can be maintained.	As discussed in the Archaeological Assessment (Attachment D) the site recorded are associated with activities that relate to early colonial European occupation in the mid-1800s. The proposal is likely to affect the archaeological values of two recorded sites. The recommendations made in the assessment will form conditions of consent to ensure the historic heritage associated with the site is protected where possible. The proposal achieves the policy.
Objective 5.3	Sufficient land is managed and protected for economic production	The site does not contain highly productive land and is therefore does not necessitate protection for economic production. There is no opportunity for adverse reverse sensitivity effects given the separation from any farming activity. The proposal achieves the policy.
Policy 5.3.1	Rural activities Manage activities in rural areas, to support the region's economy and communities, by: 1) Enabling primary production and other rural activities that support that production; 2) Providing for mineral exploration, extraction and processing; 3) Minimising the loss of significant soils; 4) Restricting the establishment of incompatible activities in rural areas that are likely to lead to reverse sensitivity effects;	

Provision	Detail	Assessment
	5) Minimising the subdivision of productive rural land into smaller lots that may result in a loss of its productive capacity or productive efficiency; 6) Providing for other activities that have a functional need to locate in rural areas.	
Objective 5.4	Adverse effects of using and enjoying Otago's natural and physical resources are minimised	The proposal minimises adverse effects on the environment through sensitively designed development. All effects are known and understood, and there is no uncertainty about the potential outcomes. The proposal achieves the policy.
Policy 5.4.3	Precautionary approach to adverse effects Apply a precautionary approach to activities where adverse effects may be uncertain, not able to be determined, or poorly understood but are potentially significant or irreversible.	
Policy 5.4.5	Pest plants and animals Control the adverse effects of pest species, prevent their introduction, reduce their spread and enable the removal and destruction of material for biosecurity purposes, to safeguard all of the following: a) The viability of indigenous species and habitats for indigenous species; b) Ecosystem services that support economic activities; c) Water quality and water quantity; d) Soil quality; e) Human and animal health; f) Recreation values; g) Landscapes, seascapes and natural character; h) Primary production.	This is addressed in detail in the Ecological Assessment (Attachment H). The proposal does not introduce pest species, rather native vegetation that will enhance the ecosystem services. To the extent relevant, the proposal achieves this policy.
Policy 5.4.6	Offsetting for indigenous biological diversity Consider indigenous biological diversity offsetting, when: a) Residual adverse effects of activities cannot be avoided, remedied or mitigated; b) The offset achieves no net loss and preferably a net gain in indigenous biological diversity; c) The offset ensures there is no loss of individuals of Threatened taxa other than kānuka (<i>Kunzea robusta</i> and <i>Kunzea serotina</i>), and no reasonably measurable loss within the ecological district to an At Risk-Declining taxon, other than mānuka (<i>Leptospermum scoparium</i>), under the New Zealand Threat Classification System ("NZTCS"); d) The offset is undertaken where it will result in the best ecological outcome, preferably: i. Close to the location of development; or ii. Within the same ecological district or coastal marine biogeographic region; e) The offset is applied so that the ecological values being achieved are the same or similar to those being lost; f) The positive ecological outcomes of the offset last at least as long as the impact of the activity, preferably in perpetuity;	The proposal includes biological diversity compensation in accordance with Policy 5.4.7 below.

Provision	Detail	Assessment
	g) The offset will achieve biological diversity outcomes beyond results that would have occurred if the offset was not proposed; h) The delay between the loss of biological diversity through the proposal and the gain or maturation of the offset's biological diversity outcomes is minimised.	
Policy 5.4.6A	Biological Diversity Compensation Consider the use of biological diversity compensation: a) When: - Adverse effects of activities cannot be avoided, remedied, mitigated or offset; and - The residual adverse effects will not result in - The loss of an indigenous taxon (excluding freshwater fauna and flora) or of any ecosystem type from an ecological district or coastal marine biogeographic region; - Removal or loss of viability of habitat of a threatened or at risk indigenous species of fauna or flora under the New Zealand Threat Classification System ("NZTCS"); - Removal or loss of viability of an originally rare or uncommon ecosystem type that is associated with indigenous vegetation or habitat of indigenous fauna; - Worsening of the NZTCS conservation status of any threatened or at risk indigenous freshwater fauna. b) By applying the following criteria: - The compensation is proportionate to the adverse effect; - The compensation is undertaken where it will result in the best practicable ecological outcome, preferably; - Close to the location of development; - Within the same ecological district or coastal marine biogeographic region; - The compensation will achieve positive biological diversity outcomes that would not have occurred without that compensation; - The positive ecological outcomes of the compensation last for at least as long as the adverse effects of the activity; and - The delay between the loss of biological diversity through the proposal and the gain or maturation of the compensation's biological diversity outcomes is minimised.	The proposal includes the use of biological diversity compensation as the adverse effects of the proposal cannot be avoided, remedied, mitigated or offset. With respect to the matters in (a)(ii): - The proposal will not result in the loss of any indigenous taxon or vegetation community or habitat in the Dunstan Ecological District. - The areas of kanuka shrubland and cushionfield communities supporting threatened and at risk species such as matagouri, Oleria lineata and Raoulia australis will not result in the loss of viability of habitats utilised by these plant species outside the project area. - The project area does not contain any originally rare or uncommon ecosystem types. - The proposal does not concern any freshwater fauna. With respect to (b)(i) the area of the proposed compensation planting covers approximately 41,000m² and 40,000m² of kanuka shrubland and cushionfield is proposed to be cleared. With respect to the matters in (b)(ii): - The proposed compensation planting areas are located on the site in the vicinity of the proposed cleared areas that will accommodate building platforms and accessways. - The proposed compensation planting is within the Dunstan Ecological District. With respect to (b)(iii) the proposed compensation planting will lead to positive ecological outcomes as discussed in the Ecological Assessment (Attachment H).

Provision	Detail	Assessment
		With respect to (b)(iv) the proposed compensation planting will be established and maintained in perpetuity to ensure a permanent compensation effect. With respect to (b)(v) the proposed compensation planting will be undertaken in accordance with the Ecological Management Plan which will set out the timing of planting, ongoing management and pest control.

Table 6: ORC PRPS 2021

Provision	Detail	Assessment
Part 1 – Mana whenua		
Objective MW-O1	Principles of Te Tiriti o Waitangi The principles of Te Tiriti o Waitangi are given effect in resource management processes and decisions, utilising a partnership approach between councils and Papatipu Rūnaka to ensure that what is valued by <i>mana whenua</i> is actively protected in the region.	As discussed above in relation to the PORPS provisions, the proposal does not undermine the principles of Te Tiriti o Waitangi and it is not expected that the proposal will have effects that are incompatible with Kāi Tahu ki values, and this will be confirmed over the process of the application. The proposal achieves the objectives and policies relating to Kāi Tahu values and Te Tiriti o Waitangi.
Policy MW-P1	Treaty obligations Promote awareness and understanding of the obligations of local authorities in regard to the principles of Te Tiriti o Waitangi, tikaka Māori and kaupapa Māori.	
Policy MW-P2	Treaty principles Local authorities exercise their functions and powers in accordance with Treaty principles, by: 1) recognising the status of Kāi Tahu and facilitating Kāi Tahu involvement in decision-making as a Treaty partner, 2) including Kāi Tahu in resource management processes and implementation to the extent desired by mana whenua, 3) recognising and providing for Kāi Tahu values and resource management issues, as identified by <i>mana whenua</i>, in resource management decision-making processes and plan implementation, 4) recognising and providing for the relationship of Kāi Tahu culture and traditions with their ancestral lands, <i>water</i>, sites, <i>wāhi tapu</i>, and other taoka by ensuring that Kāi Tahu have the ability to identify these relationships and determine how best to express them, 5) ensuring that <i>regional</i> and <i>district plans</i> recognise and provide for Kāi Tahu relationships with Statutory Acknowledgement Areas, <i>tōpuni</i>, <i>nohoaka</i> and customary fisheries identified in the NTCSA 1998, including by actively protecting the mauri of these areas,	

Provision	Detail	Assessment
	6) having particular regard to the ability of Kāi Tahu to exercise kaitiakitaka, 7) actively pursuing opportunities for: a. delegation or transfer of functions to Kāi Tahu, and b. partnership or joint management arrangements, and 8) taking into account iwi management plans when making resource management decisions.	
Part 2 – Integrated management		
Objective IM-01	Long term vision The management of natural and physical resources in Otago, by and for the people of Otago, including Kāi Tahu, and as expressed in all resource management plans and decision making, achieves healthy, resilient, and safeguarded natural systems, and the ecosystem services they offer, and supports the well-being of present and future generations, <i>mō tātou, ā, mō kā uri ā muri ake nei</i>.	The proposal provides for social wellbeing through the provision of sites for residential and travellers' accommodation, and related activities, taking into account the Rocky Point Recreation Zone, while maintaining environmental quality and safeguarding the natural systems of the area. The proposal achieves this objective.
Objective IM-02	Ki uta ki tai Natural and physical resource management and decision making in Otago embraces ki uta ki tai, recognising that the <i>environment</i> is an interconnected system, which depends on its connections to flourish, and must be considered as an interdependent whole.	The proposal recognises the environment holistically through the development enabled by the Rocky Point Recreation Zone and the recognition of the potential impacts of development on the environment and its interconnected components. The proposal achieves this objective.
Objective IM-03	Environmentally sustainable impact Otago's communities carry out their activities in a way that preserves environmental integrity, form, function, and resilience, so that the life-supporting capacities of air, water, soil, ecosystems, and indigenous biodiversity endure for future generations.	The proposal does not compromise the life-supporting capacity of the District's air, water, soil, ecosystems, or indigenous biodiversity. Consent conditions are volunteered to ensure that impacts are managed appropriately, and the environment remains, overall, sustainable for indigenous biodiversity and environmental integrity. The proposal achieves this objective.
Policy IM-P13	Managing cumulative effects Otago's environmental integrity, form, function, and resilience, and opportunities for future generations, are protected by recognising and specifically managing the cumulative effects of activities on natural and physical resources in plans and explicitly accounting for these effects in other resource management decisions.	Cumulative effects will be limited when considering what the Rocky Point Recreation Zone provides for. Otago's environmental integrity, form, function, and resilience, and opportunities for future generations will remain protected. The proposal achieves this policy.
Part 3 – Freshwater		

Provision	Detail	Assessment
Policy LF-FW-P15	Stormwater and wastewater discharges Minimise the adverse effects of direct and indirect discharges of stormwater and wastewater to fresh water by: - except as required by LF-VM-O2 and LF-VM-O4, preferring discharges of wastewater to land over discharges to water, unless adverse effects associated with a discharge to land are greater than a discharge to water, and - requiring: - all sewage, industrial or trade waste to be discharged into a reticulated wastewater system, where one is available, - all stormwater to be discharged into a reticulated system, where one is available, - implementation of methods to progressively reduce the frequency and volume of wet weather overflows and minimise the likelihood of dry weather overflows occurring for reticulated stormwater and wastewater systems, - on-site wastewater systems to be designed and operated in accordance with best practice standards, - stormwater and wastewater discharges to meet any applicable water quality standards set for FMUs and/or rohe, and - the use of water sensitive urban design techniques to avoid or mitigate the potential adverse effects of contaminants on receiving water bodies from the subdivision, use or development of land, wherever practicable, and - promoting the reticulation of stormwater and wastewater in urban areas.	Requirements for a full assessment of effluent disposal requirements is anticipated as a consent condition and will be completed prior to the occupation of any dwelling. Required standards will be met. The assessment provided by Mt Iron Geodrill (Attachment G) demonstrates that wastewater disposal (onsite and communal) options are available for the lots proposed and wastewater can be discharged to land. Vegetation is being retained wherever possible to control stormwater. The proposal achieves this policy.
Land and soil		
Objective LF-LS-O11	Land and soil The life-supporting capacity of Otago's soil resources is safeguarded and the availability and productive capacity of highly productive land for primary production is maintained now and for future generations.	The proposal does not compromise the life-supporting capacity of the district's soil. The site has a LUC class of 7 and the proposal results in development of the Rocky Point Recreation Zone with large areas revegetated or protected. The proposal achieves this objective.
Objective LF-LS-O12	Use of land The use of land in Otago maintains soil quality and contributes to achieving environmental outcomes for fresh water.	Soil quality will be maintained, and native vegetation will be maintained where possible, enhanced through compensation planting areas and protected in perpetuity. This will assist with preventing soil erosion and overland flow into water sources. The proposal achieves this objective.

Provision	Detail	Assessment
Policy LF-LS-P17	Soil values Maintain the mauri, health and productive potential of soils by managing the use and development of land in a way that is suited to the natural soil characteristics and that sustains healthy: 1) soil biological activity and biodiversity, 2) soil structure, and 3) soil fertility.	Beyond the area required to establish building platforms and access the site will be protected from development. The mauri, health and productive potential of soils will therefore be maintained. The proposal achieves this policy.
Policy LF-LS-P18	Soil erosion Minimise soil erosion, and the associated risk of sedimentation in water bodies, resulting from land use activities by: 1) implementing effective management practices to retain topsoil in-situ and minimise the potential for soil to be discharged to water bodies, including by controlling the timing, duration, scale and location of soil exposure, 2) maintaining vegetative cover on erosion-prone land, and 3) promoting activities that enhance soil retention.	The proposal makes provision for the protection of soil resource by its low density and footprint of development (comparative to what is anticipated within the 'Development Area' of the Rocky Point Recreation Zone), restrictive curtilage areas and compensation planting and protection. Extensive areas of indigenous vegetation will remain onsite, and proposed earthworks are limited to roading and minor works to prepare build platforms. Erosion, compaction and the loss of soils will be limited. The proposal achieves this policy.
Policy LF-LS-P19	Highly productive land Maintain the availability and productive capacity of highly productive land by: 1) identifying highly productive land based on the following criteria: (a) the capability and versatility of the land to support primary production based on the Land Use Capability classification system, (b) the suitability of the climate for primary production, particularly crop production, and (c) the size and cohesiveness of the area of land for use for primary production, and 2) prioritising the use of highly productive land for primary production ahead of other land uses, and 3) managing urban development in rural areas, including rural lifestyle and rural residential areas, in accordance with UFD-P4, UFD-P7 and UFD-P8.	As previously discussed, the site has a LUC 7 soils and therefore the proposal has no impact on highly productive land. The proposal achieves this policy.
Policy LF-LS-P21	Land use and fresh water Achieve the improvement or maintenance of fresh water quantity or quality to meet environmental outcomes set for Freshwater Management Units and/or rohe by: 1) reducing direct and indirect discharges of contaminants to water from the use and development of land, and 2) managing land uses that may have adverse effects on the flow of water in surface water bodies or the recharge of groundwater.	The discharge of contaminants is not anticipated by the proposal. No natural water courses are affected by the proposal. The Wastewater Disposal Report (Attachment G) demonstrates that wastewater disposal options are available for the development. The proposal achieves this policy.
Ecosystems and indigenous biodiversity		
Objective	Indigenous biodiversity	The values of indigenous biodiversity is recognised as

Provision	Detail	Assessment
ECO-O1	Otago's indigenous biodiversity is healthy and thriving and any decline in quality, quantity and diversity is halted.	detailed in the Ecological Assessment (Attachment H). The proposal includes a significant amount of compensation planting which will assist in maintaining and improving Otago's indigenous biodiversity. The proposal achieves this objective.
Objective ECO-O3	Kaitiaki and stewardship Mana whenua are recognised as kaitiaki of Otago's indigenous biodiversity, and Otago's communities are recognised as stewards, who are responsible for: 1) te hauora o te koiroa (the health of indigenous biodiversity), te hauora o te taoka (the health of species and ecosystems that are taoka), and te hauora o te taiao (the health of the wider environment), while 2) providing for te hauora o te takata (the health of the people).	While it is not expected that the proposal will have effects that are incompatible with mana whenua values, and the applicant will consult with the Mana whenua over the process of the application, as discussed above, and taking into account the findings of the archaeological expert.
Policy ECO-P1	Kaitiakitaka Recognise the role of Kāi Tahu as kaitiaki of Otago's indigenous biodiversity by: 1) involving Kāi Tahu in the management of indigenous biodiversity and the identification of indigenous species and ecosystems that are taoka, 2) incorporating the use of mātauraka Māori in the management and monitoring of indigenous biodiversity, and 3) providing for access to and use of indigenous biodiversity by Kāi Tahu, including mahika kai, according to tikaka.	
Policy ECO-P3	Protecting significant natural areas and taoka Except as provided for by ECO-P4 and ECO-P5, protect significant natural areas and indigenous species and ecosystems that are taoka by: 1) avoiding adverse effects that result in: (a) any reduction of the area or values (even if those values are not themselves significant) identified under ECO-P2(1), or (b) any loss of Kāi Tahu values, and 2) after (1), applying the biodiversity effects management hierarchy in ECO-P6, and 3) prior to significant natural areas and indigenous species and ecosystems that are taoka being identified in accordance with ECO-P2, adopt a precautionary approach towards activities in accordance with IM-P15	
Policy ECO-P6	Maintaining indigenous biodiversity Maintain Otago's indigenous biodiversity (excluding the coastal environment and areas managed under ECO-P3) by applying the following biodiversity effects management	As discussed in the Ecological Assessment (Attachment H) biodiversity offsetting was not possible and therefore the proposal

Provision	Detail	Assessment
	hierarchy in decision-making on applications for resource consent and notices of requirement: 1) avoid adverse effects as the first priority, 2) where adverse effects demonstrably cannot be completely avoided, they are remedied, 3) where adverse effects demonstrably cannot be completely avoided or remedied, they are mitigated, 4) where there are residual adverse effects after avoidance, remediation, and mitigation, then the residual adverse effects are offset in accordance with APP3, and 5) if biodiversity offsetting of residual adverse effects is not possible, then: (a) the residual adverse effects are compensated for in accordance with APP4, and (b) if the residual adverse effects cannot be compensated for in accordance with APP4, the activity is avoided.	includes compensation planting (in accordance with APP4). The proposal achieves this policy.
Policy ECO-P8	Enhancement The extent, occupancy and condition of Otago's indigenous biodiversity is increased by: 1) restoring and enhancing habitat for indigenous species, including taoka and mahika kai species, 2) improving the health and resilience of indigenous biodiversity, including ecosystems, species, important ecosystem function, and intrinsic values, and 3) buffering or linking ecosystems, habitats and ecological corridors.	As discussed in the Ecological Assessment (Attachment H) the proposed compensation planting will increase the diversity of the homogenous kanuka shrubland. Removal and control of pest species will also be undertaken. The proposal achieves this policy.
Policy ECO-P9	Wilding conifers Reduce the impact of wilding conifers on indigenous biodiversity by: 1) avoiding afforestation and replanting of plantation forests with wilding conifer species listed in APP5 within: (a) areas identified as significant natural areas, and (b) buffer zones adjacent to significant natural areas where it is necessary to protect the significant natural area, and (c) supporting initiatives to control existing wilding conifers and limit their further spread.	The removal of wilding conifers will form part of the future Vegetation Management Plan which will be required by condition of consent. The proposal achieves this policy.
Historic heritage		
Policy HCV-HH-P5	Managing historic heritage Protect historic heritage by: 1) requiring the use of accidental discovery protocols, 2) avoiding adverse effects on areas or places with special or outstanding historic heritage values or qualities, 3) avoiding significant adverse effects on areas or places with historic heritage values or qualities,	The Archaeological Assessment Attachment D) recommends methods for the protection of the historic retaining wall and a consent condition is volunteered to ensure this occurs. The proposal achieves this policy.

Provision	Detail	Assessment
	4) avoiding, as the first priority, other adverse effects on areas or places with historic heritage values or qualities, 5) where adverse effects demonstrably cannot be completely avoided, remedying or mitigating them, and 6) recognising that for infrastructure, EIT-INF-P13 applies instead of HCV-HH-P5(1) to (5).	
Natural features and landscapes		
Objective NFL-O1	Outstanding and highly valued natural features and landscapes The areas and values of Otago’s outstanding and highly valued natural features and landscapes are identified, and the use and development of Otago’s natural and physical resources results in: 1) the protection of outstanding natural features and landscapes, and 2) the maintenance or enhancement of highly valued natural features and landscapes.	As discussed in the Landscape Assessment (Attachments E) the proposal mitigates or avoids adverse landscape and visual amenity effects on the ONL and therefore protects the values of the ONL overall. The proposal achieves this objective and policy.
Policy NFL-P2	Protection of outstanding natural features and landscapes Protect outstanding natural features and landscapes by: 1) avoiding adverse effects on the values that contribute to the natural feature or landscape being considered outstanding, even if those values are not themselves outstanding, and 2) avoiding, remedying or mitigating other adverse effects.	
Urban form and development		
Objective UFD-O4	Development in rural areas Development in Otago’s rural areas occurs in a way that: 1) avoids impacts on significant values and features identified in this RPS, 2) avoids as the first priority, land and soils identified as highly productive by LF-LS-P19 unless there is an operational need for the development to be located in rural areas, 3) only provides for urban expansion, rural lifestyle and rural residential development and the establishment of sensitive activities, in locations identified through strategic planning or zoned within district plans as suitable for such development; and 4) outside of areas identified in (3), maintains and enhances the natural and physical resources that support the productive capacity, rural character, and long-term viability of the rural sector and rural communities.	The proposal provides for development within and surrounding the Rocky Point Recreation Zone which specifically provides for a “Development Area” and anticipates residential and travellers’ accommodation and related activities. The site does not contain highly productive soils and the proposal does not impact significantly on the values and features identified in the RPS, including nature conservation landscape, and heritage values The proposal achieves this objective.
Policy UFD-P7	Rural Areas The management of rural areas:	

Provision	Detail	Assessment
	1) provides for the maintenance and, wherever possible, enhancement of important features and values identified by this RPS, 2) outside areas identified in (1), maintains the productive capacity, amenity and character of rural areas, 3) enables primary production particularly on land or soils identified as highly productive in accordance with LF-LS-P19, 4) facilitates rural industry and supporting activities, 5) directs rural residential and rural lifestyle development to areas zoned for that purpose in accordance with UFD-P8, 6) restricts the establishment of residential activities, sensitive activities, and non-rural businesses which could adversely affect, including by way of reverse sensitivity, the productive capacity of highly productive land, primary production and rural industry activities, and 7) otherwise limits the establishment of residential activities, sensitive activities, and non-rural businesses to those that can demonstrate an operational need to be located in rural areas.	adversely affect primary production potential, being located on land with a low productivity and LUC rating. The proposal achieves this policy.
Policy UFD-P8	Rural lifestyle and rural residential zones The establishment, development or expansion of rural lifestyle and rural residential zones only occurs where: 1) the land is adjacent to existing or planned urban areas and ready access to employment and services is available, 2) despite the direction in (1), also avoids land identified for future urban development in a relevant plan or land reasonably likely to be required for its future urban development potential, where the rural lifestyle or rural residential development would foreclose or reduce efficient realisation of that urban development potential, 3) minimises impacts on rural production potential, amenity values and the potential for reverse sensitivity effects to arise, 4) avoids, as the first priority, highly productive land identified in accordance with LF-LS-P16, 5) the suitability of the area to accommodate the proposed development is demonstrated, including (a) capacity for servicing by existing or planned development infrastructure (including self-servicing requirements), (b) particular regard is given to the individual and cumulative impacts of domestic water supply, wastewater disposal, and stormwater management including self-servicing, on the receiving or supplying environment and impacts on capacity of development infrastructure, if provided, to meet other planned urban area demand, and	The proposal does not necessarily include the establishment, development or expansion of rural lifestyle or rural residential zones, rather it is giving effect to the Rocky Point Recreation Zone. To the extent relevant, the proposal does not negatively impact on rural production potential, amenity values, nature conservation values, or give rise to reverse sensitivity effects. To the extent it is relevant, the proposal achieves the policy.

Provision	Detail	Assessment
	(c) likely future demands or implications for publicly funded services and additional infrastructure, and (d) provides for the maintenance and wherever possible, enhancement, of important features and values identified by this RPS.	

5.3. Kai Tahu ki Otago Natural Resource Management Plan 2005

The relevant provisions of Kai Tahu ki Otago Natural Resource Management Plan 2005 are assessed in **Table 7** below.

Table 7: Kai Tahu ki Otago Natural Resource Management Plan provisions

Provision	Detail	Assessment
Section 5.2: Objectives applying to the whole of the Otago Region.		
5.2 (i)	The rakātirataka and kaitiakitaka of Kāi Tahu ki Otago is recognised and supported.	Kāi Tahu ki Otago will be consulted with during the course of this application and will have the opportunity to submit on the application. Taking into account the findings of the Archaeological Assessment it is not expected that the proposal will have effects that are incompatible with Kāi Tahu ki Otago values and this will be confirmed over the process of the application, as discussed in Part 4.4 above and in relation to the relevant RPS provisions in Part 5.3 above.
5.2 (iii)	The mana of Kāi Tahu ki Otago is upheld through the management of natural, physical, and historic resources in the Otago Region.	
5.2 (iv)	Kāi Tahu ki Otago have effective participation in all resource management activities within the Otago Region.	
10.3. Wahi Tapu in the Clutha/Mata-au Catchment		
10.3.3.1.	To require that wāhi tapu sites are protected from further loss or destruction.	No wahi tapu sites are located within the site of the proposal, and therefore will not be subject to further loss or destruction. The proposal achieves this policy.
10.3.3.2.	To require accidental discovery protocols for any earth disturbance activities.	Accidental discovery protocols will be followed throughout the earthworks phase. The proposal achieves this policy.

5.4. Te Tangi a Tuira – The Cry of the People 2008

The relevant provisions of Te tangi a Tuira – The Cry of the People 2008 are assessed in **Table 8** below.

Table 8: Te Tangi a Tuira provisions

Provision	Detail	Assessment
3.4.12: Mahinga kai – mahi ngā kai		

Provision	Detail	Assessment
Policy 4	Promote the protection, restoration, and enhancement of indigenous biodiversity.	Overall the proposal provides for the enhancement of indigenous biodiversity as far as possible as discussed in the Ecological Assessment (Attachment H), while enabling an efficient development. To this extent the proposal achieves this policy.
3.5.8. Earthworks		
3.5.8 (1)	Consent applicants who are undertaking earthworks may be required to enter into Accidental Discovery Protocol and monitoring agreements with Ngāi Tahu ki Murihiku, stating that any earthworks, fencing, landscaping, or other such activity has the potential to uncover archaeological sites. Procedures and processes associated with such an occurrence should also be outlined.	Accidental discovery protocols will be complied with as a requirement of consent conditions. The proposal achieves this policy.
3.5.8 (6)	Oppose any earthworks activity application whereby the adverse effects on cultural values are considered too significant.	It is not considered that the proposal would result in effects that are incompatible with cultural values, given the mitigation measures to be implemented during construction, and the adherence to the accidental discovery protocol.
3.5.7. Subdivisions		
3.5.7 (6)	Encourage appropriate subdivision activities that protect and even enhance natural, ecological, and cultural values.	The proposal protects natural, ecological, and cultural values. Planting of indigenous vegetation will occur in appropriate locations across the site. The proposal achieves this policy.

5.5. National Environmental Standard – Assessing and Managing Contaminants in Soil

In accordance with the National Standard for Assessing and Managing Contaminants in the Soil, all applications for resource consent need to be determined if they apply under this National Environmental Standard (NES).

The regulations apply if any of the following activities are undertaken:

- (a) *remove or replace an underground fuel storage system or any of its parts*
- (b) *sample the soil to determine contamination*
- (c) *disturb the soil (earthworks)*
- (d) *subdivide the land*
- (e) *change the use of the land.*

Upon review of the Otago Regional Council HAIL database, there are no identified HAIL sites or activities, and the site history, anecdotal evidence and historical aerial photography confirm that the site has only been used as pastureland. The required earthworks will not expose people to contaminated soils and therefore are unlikely to give rise to any risk to human health.

The proposal does not require resource consent under or any further assessment against the NES.

5.6. National Policy Statement – Highly Productive Land

The National Policy Statement – Highly Productive Land (**NPS-HPL**) requires that regional councils map as “highly productive land” any land in its region that is in a general rural zone or rural production zone; is predominantly LUC 1, 2, or 3 land; and forms a large and geographically cohesive area. The mapping is to be notified and when operative, territorial authorities must map the highly productive land in their districts. Until the regional council’s mapping is operative, each territorial authority and consent authority must apply the NPS-HPL as if references to highly productive land were references to land zoned general rural or rural production; and is LUC 1, 2, or 3 land; but is not identified for future urban development or subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle.

The Manaaki Whenua mapping identifies the soils of the site within LUC 6 and LUC 7, and therefore the site does not constitute “highly productive land” under the NPS-HPL’s definition and under Clause 3.5(7)(a)(ii).

No further assessment is required.

5.7. Overall conclusion – objectives and policies of the relevant planning instruments

Based on the above assessment it is concluded that the proposal is consistent with and achieves the relevant objectives and policies of the District Plan and the relevant regional and national planning instruments.

6. PART 2 OF THE RESOURCE MANAGEMENT ACT 1991

6.1. Section 5 – Purpose

The purpose of the Act is “to promote the sustainable management of natural and physical resources”. Section 5(2) of the Act defines “sustainable management” as:

... managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while –

- (a) *Sustaining the potential of natural and physical resources ... to meet the reasonably foreseeable needs of future generations; and*
- (b) *Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
- (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

The proposal addresses the matters in section 5(2)(a)-(c) of the Act. The applicant has taken care to avoid or mitigate any potential adverse effects of the proposal on nature conservation values, landscape values and heritage values through the design of the proposal and the location of the identified building platforms and accessways, while giving effect to the zoning (Rocky Point Recreation Zone) and contributing to meeting the increasing needs of residents and visitors within the District.

6.2. Section 6 – Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters national importance. The following matters are relevance to this proposal;

- b. *the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development;*

- c. *the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna*
- e. *the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;*
- f. *the protection of historic heritage from inappropriate subdivision, use, and development;*

As discussed in the Landscape Assessment (**Attachment X**) the proposal protects the values of the ONL and protects the wider indigenous biodiversity values through design and compensation planting. Careful design has ensured the proposal does not constitute inappropriate subdivision, use or development of the land or impact on the historic heritage of parts of the wider site. The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga is not impacted by this proposal.

The proposal is therefore consistent with s6.

6.3. Section 7 – Other matters

The relevant matters of Section 7 of the Act that should be considered as follows:

- b. *the efficient use and development of natural and physical resources:*
- c. *the maintenance and enhancement of amenity values:*
- d. *intrinsic values of ecosystems:*
- f. *maintenance and enhancement of the quality of the environment:*

The proposal accords with the relevant matters as the development of the land for the activities recognised by the Rocky Point Recreation Zone is an efficient use of resources, while maintaining the amenity values and intrinsic values of the ecosystems. The quality of the environment is not compromised by the proposal.

7. WHERE THE ACTIVITY INCLUDES THE USE OF HAZARDOUS SUBSTANCES AND INSTALLATIONS, AN ASSESSMENT OF ANY RISKS TO THE ENVIRONMENT WHICH ARE LIKELY TO ARISE FROM SUCH USE:

Not applicable.

8. A DESCRIPTION OF THE MITIGATION MEASURES (SAFEGUARDS AND CONTINGENCY PLANS WHERE RELEVANT) TO BE UNDERTAKEN TO HELP PREVENT OR REDUCE THE ACTUAL AND POTENTIAL EFFECT:

No mitigation measures are necessary.

9. SECTION 95A ASSESSMENT AND IDENTIFICATION OF AFFECTED PERSONS

Section 95A of the RMA requires a decision on whether or not to publicly notify an application.

The steps set out below, in the order given, are used to determine whether to publicly notify an application for a resource consent.

Step 1 – Mandatory public notification

Step 1 requires public notification where this is requested by the applicant, or the application involves the exchange of recreation reserved land under s15A of the Reserves Act 1977.

In this circumstance, the applicant requests public notification. Therefore, the following further statutory steps regarding notification are not required to be further addressed or considered.

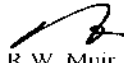
10. WHERE THE SCALE OR SIGNIFICANCE OF THE ACTIVITY'S EFFECT ARE SUCH THAT MONITORING IS REQUIRED, A DESCRIPTION OF HOW, ONCE THE PROPOSAL IS APPROVED, EFFECTS WILL BE MONITORED AND BY WHOM.

No monitoring is required apart from that normally undertaken by a Council in monitoring consent conditions.



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**




R.W. Muir
Registrar-General
of Land

Identifier **993471**
Land Registration District **Otago**
Date Issued 27 July 2021

Prior References
383859

Estate Fee Simple
Area 68.5662 hectares more or less
Legal Description Lot 1 Deposited Plan 561457
Registered Owners
TKO Properties Limited

Interests

Subject to Section 11 Crown Minerals Act 1991

Subject to Part IVA Conservation Act 1987

Irrigation Agreement under the Public Works Amendment Act 1910 (Affects part formerly contained in RT 222153)

836846 Land Improvement Agreement pursuant to Section 30 Soil Conservation and Rivers Control Act 1941 - 23.8.1993 at 9.46 am (Affects part formerly contained in RT 222153)

5009824.9 Conservation Covenant pursuant to Section 77 Reserves Act 1977 - 2.10.2000 at 2:44 pm (Affects part formerly contained in RT 222153)

Appurtenant to part formerly Lot 13 DP 391334 herein is a right to convey power & water and a right to occupy for bore & pump specified in Easement Certificate 5296615.3 - 26.7.2002 at 12:23 pm

Appurtenant to part formerly Lot 13 DP 391334 herein is a right to convey water created by Transfer 5296615.5 - 26.7.2002 at 12:23 pm

5439435.1 Gazette Notice declaring the adjoining road State Highway 8 to be a Limited Access Road - 18.12.2002 at 9:00 am

5700852.2 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 21.8.2003 at 9:00 am (Affects part formerly contained in RT 222153)

5700852.3 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 21.8.2003 at 9:00 am (Affects part formerly contained in RT 222153)

5700852.4 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 21.8.2003 at 9:00 am (Affects part formerly contained in RT 222153)

5700864.1 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 21.8.2003 at 9:00 am (Affects part formerly contained in RT 222153)

Appurtenant to part formerly Lot 13 DP 391334 herein is a right of way created by Easement Instrument 5905279.9 - 20.2.2004 at 9:00 am

The easements created by Easement Instrument 5905279.9 are subject to Section 243 (a) Resource Management Act 1991
Land Covenant in Transfer 6011256.3 - 20.5.2004 at 9:00 am (Affects part formerly contained in RT 366557)

Land Covenant in Transfer 6015512.3 - 24.5.2004 at 9:00 am (Affects part formerly contained in RT 366557)

6048887.4 Partial Surrender of the right to store water and the right to convey water over part herein specified in Easement Certificate 5296615.3 as appurtenant to Lot 1 DP 316124 - 21.6.2004 at 9:00 am

Land Covenant in Easement Instrument 7780662.13 - 11.4.2008 at 9:00 am (Affects part formerly contained in RT 366557)

Subject to a right (in gross) to convey electricity over part marked B on DP 561457 in favour of Aurora Energy Limited created by Easement Instrument 7868547.1 - 7.7.2008 at 9:00 am

Subject to a right (in gross) to convey electricity and to transform electricity over part marked A on DP 561457 in favour of Aurora Energy Limited created by Easement Instrument 7868547.2 - 7.7.2008 at 9:00 am

7988472.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 6.11.2008 at 9:00 am

Appurtenant hereto is a right of way created by Easement Instrument 7988472.10 - 6.11.2008 at 9:00 am

The easements created by Easement Instrument 7988472.10 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 7988472.13 - 6.11.2008 at 9:00 am

10838358.3 Surrender of the right of way created by Easement Instrument 7988472.10 over part lot 4 marked A, B and C DP 396297 - 5.7.2017 at 2:31 pm

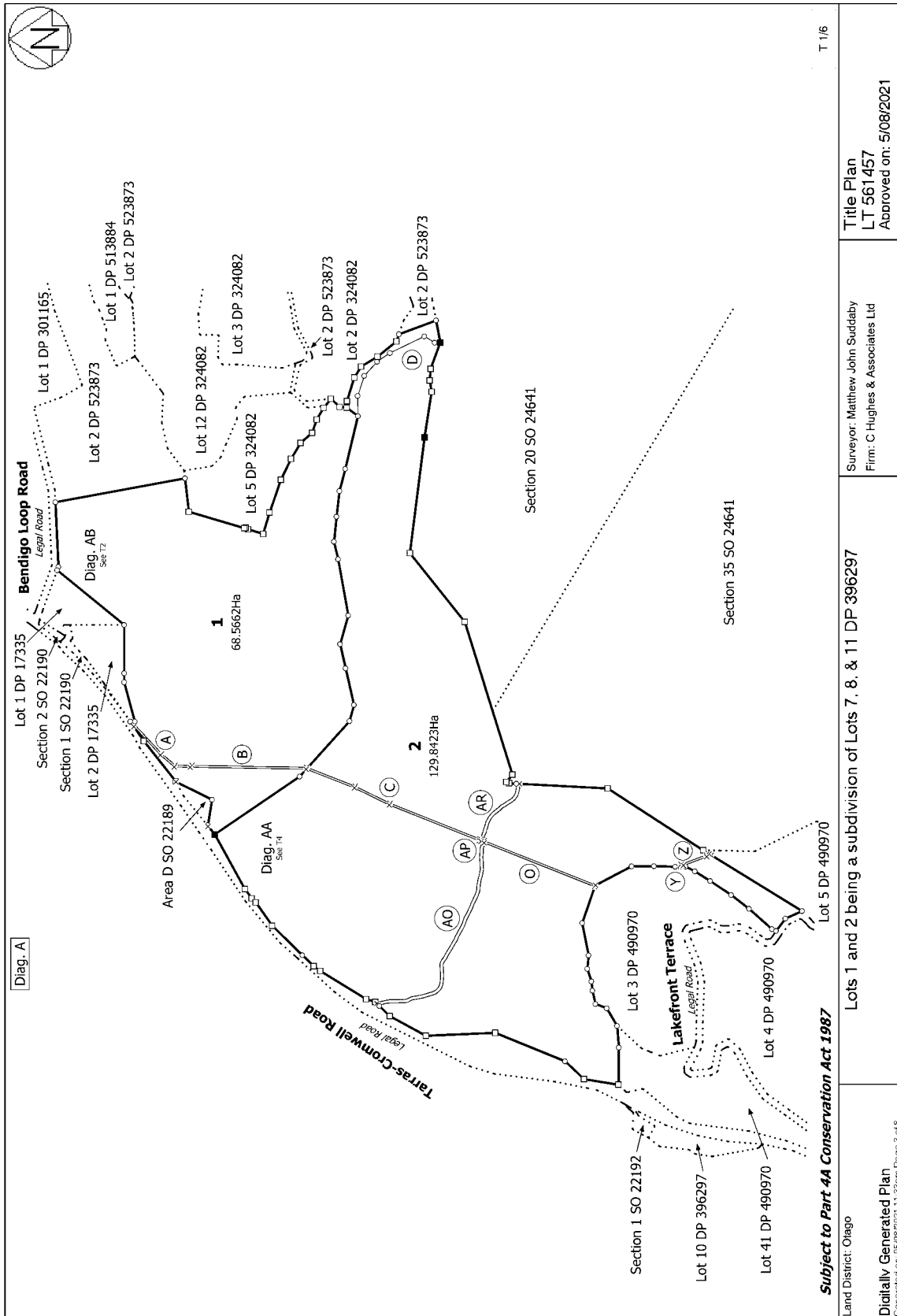
Appurtenant hereto is a right of way created by Easement Instrument 10838358.12 - 5.7.2017 at 2:31 pm

The easements created by Easement Instrument 10838358.12 are subject to Section 243 (a) Resource Management Act 1991

12117575.4 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 27.7.2021 at 2:45 pm

Appurtenant hereto is a right of way and a right to convey water created by Easement Instrument 12117575.5 - 27.7.2021 at 2:45 pm

12612359.5 Mortgage to Killarney Capital Limited - 5.12.2022 at 2:58 pm



IN THE MATTER of Lots 1 – 3 being a subdivision of Secs 1, 2 & 34, SO
24641, CT 2546

AND

CONO 6707980.5 Consen

Cpy – 01/01, Pgs – 003, 23/12/06, 11:48



DocID: 110704961

IN THE MATTER of resource consent RC 050200 from the Central Otago
District Council to subdivide the above land.

CONSENT NOTICE PURSUANT
TO SECTION 221 OF THE
RESOURCE MANAGEMENT ACT 1991

PATERSON PITTS PARTNERS LTD
REGISTERED SURVEYORS
P O Box 84
CROMWELL

In accordance with a condition of resource consent RC 050200 of the Central Otago District Council granted pursuant to Section 105 of the Resource Management Act 1991 dated 5 July 2005, the following condition is to be imposed on an ongoing basis by a consent notice to be registered against the certificates of title for Lots 1 and 3.

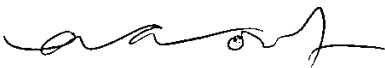
1. Prior to construction of any building or structure on Lots 1 and 3, the consent holder shall submit to the Chief Executive of the Central Otago District Council (with a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that any building or structure on Lot 1 and/or 3 complies with the minimum safe distances from the Roxburgh-Twizel A 220k V double circuit transmission line as specified in Table 3 of the NZECP 34:2001.
2. A building or any part of a building on Lots 1 and/or 3 must not be located within 12 metres of the closest visible edge of any high voltage transmission line support structure foundation.
3. All machinery and mobile plant operated on Lots 1 and/or 3 must maintain a minimum clearance distance of 4 metres from the Roxburgh-Twizel A 220k V double circuit transmission line conductors at all times.
4. All buildings, structures and vegetation located on Lots 1 and/or 3 must not be located to preclude existing vehicle access to the existing support structures on the site.
5. In the case of any tower supporting any conductor, no person may excavate or otherwise interfere with any land:
 - (a) at a depth greater than 300mm within 6 metres of the outer edge of the visible foundations of the tower; or
 - (b) at a depth greater than 3 metres, between 6 metres and 12 metres of the outer edge of the visible foundation of the tower; or
 - (c) in such a way as to create an unstable batter.

6. Excavated or other material must not be deposited under or near the Roxburgh-Twizel A 220k V double circuit transmission line so as to reduce the vertical distance from the ground to the conductors to a distance less than:
- (a) 8 metres vertically, across or along driveways or on any other land traversable by vehicles;
 - (b) 6.5 metres vertically, on any land not traversable by vehicles due to inaccessibility; and
 - (c) 5 metres in any distance other than vertical on all land.

DATED this.....17th.....day of October.....2005

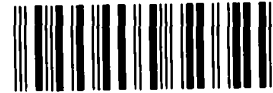
SIGNED for and on behalf of the

CENTRAL OTAGO DISTRICT COUNCIL

for
by its Chief Executive.....

CONO 7988472.6 Cons

Cpy - 01/01, Pgs - 004, 06/11/08, 12:52



DocID: 212285727

IN THE MATTER of Lots 1 - 12 DP 396297 being a subdivision of Lots 1 and 3 DP 353225, Lot 13 DP 391334 and Sec 29 S.O.24641; CT's 97285, 222152 and 222153

AND

IN THE MATTER of resource consent RC 060096 from the Central Otago District Council to subdivide the above land.

CONSENT NOTICE PURSUANT
TO SECTION 221 OF THE
RESOURCE MANAGEMENT ACT 1991

PATERSON PITTS PARTNERS LTD
REGISTERED SURVEYORS
P O Box 84
CROMWELL

In accordance with a condition of resource consent RC 060096 of the Central Otago District Council granted pursuant to Sections 104 and 104B of the Resource Management Act 1991 dated 4 August 2006; the following conditions are to be imposed on an ongoing basis by a consent notice to be registered against the certificated of title for Lots 1 – 12.

State Highway Access

1. Any future subdivision of the title consisting of Lot 10 and Section 1 S.O. 22192 shall provide for the 'staggered T' full side road intersection inclusive of a right turning bay at Crossing Place 41 (such Crossing Place being relocated to provide 250 metres of sight distance to the north) in conjunction with the intersection constructed at the intersection of ROW A and SH8 in condition (3) below.
2. No services (apart from short crossings across the highway) shall be located within the SH8 road reserve.
3. Lots 1, 2, 3, 4, 5, 7, 8 and 11 shall access SH8 only via the intersection of ROW A and SH8.

Water Supply, Power and Telecom Services

4. At the time a dwelling is erected on Lots 1 – 3, domestic water and fire fighting storage is to be provided by a standard 30,000 litre tank on each allotment. Of this total capacity a minimum of 20,000 litres shall be maintained at all times as a static fire fighting reserve. Alternatively, an 11,000 litre fire fighting reserve is to be made available for each dwelling in association with a domestic sprinkler system installed in each dwelling to an approved standard. A fire fighting connection is to be located within 90 metres of any proposed building on the site. In order to ensure that connections are compatible with New Zealand Fire Service equipment the fittings are to comply with the following standards:
 - (a) Either: - 70mm Instantaneous Couplings (Female) NZS 4505, or 100mm Suction Couplings (Female) NZS 4505 (hose tail is to be same diameter as the threaded coupling eg 100mm coupling has 100mm hose tail) provided that the consent holder shall provide written confirmation from the NZ Fire Service to the Chief Executive to confirm that the couplings are appropriate for fire fighting purposes.

- (b) The connection shall have a hardstand area adjacent to it to allow for an NZ Fire Service appliance to park on. Access shall be maintained at all times to the hardstand area.
- 5. Fire fighting water supply may be provided by means other than the above if the written approval of the NZ Fire Service is obtained for the proposed method.
- 6. All access ways to dwellings erected on Lots 1, 2 and 3 shall have a minimum formed access way of not less than 4.0 metres and be able to withstand a laden weight of up to 25 tonnes with an axle of 8.2 tonnes, or have a load bearing capacity of no less than the public roadway serving the property, whichever is the lower.
- 7. At the time a dwelling is erected on Lots 1 – 8, 10 and/or 11 a potable domestic water supply and underground electricity and telecommunication services shall be installed to service the dwelling.

High Voltage Line Hazard

- 8. Prior to construction the consent holder shall submit to the Chief Executive (and a copy to Transpower) a certificate from a suitably qualified electrical engineer confirming that any building or structure on Lots 1 – 9, 11 and 12 complies with the minimum safe distances from the Roxburgh – Twizel A 220kV double circuit transmission line as specified in Table 3 of the NZECP 34:2001.
- 9. Buildings or any part of a building on Lots 1 – 9, 11 and 12 must not be located within 12 metres of the closest visible edge of any high voltage transmission line support structure foundation.
- 10. All machinery and mobile plant operated on Lots 1 – 9, 11 and 12 must maintain a minimum clearance distance of 4 metres from the Roxburgh – Twizel A 220kV double circuit transmission line conductors at all times.
- 11. All buildings, structures and vegetation located on Lots 1 – 9, 11 and 12 must not be located to preclude existing vehicle access to the existing support structures on the site.
- 12. In the case of any tower supporting any conductor, no person may excavate or otherwise interfere with any land:
 - (a) at a depth greater than 300mm within 6 metres of the outer edge or the visible foundations of the tower; or

- (b) at a depth greater than 3 metres, between 6 metres and 12 metres of the outer edge of the visible foundation of the tower;
or
(c) in such a way as to create an unstable batter.
13. Excavated or other material must not be deposited under or near the Roxburgh – Twizel A 220kV double circuit transmission line so as to reduce the vertical distance from the ground to the conductors to a distance less than:
- (a) 8 metres vertically, across or along driveways or on any other land traversable by vehicles;
(b) 6.5 metres vertically, on any land not traversable by vehicles due to inaccessibility; and
(c) 5 metres in any distance other than vertical on all land.

DATED this 21st day of August 2008

SIGNED for and on behalf of the

CENTRAL OTAGO DISTRICT COUNCIL

by its Chief Executive 

L.A. van der Voort
Authorised Officer

View Instrument Details



Instrument No	12117575.4
Status	Registered
Date & Time Lodged	27 July 2021 14:45
Lodged By	Christie, Amy Laura
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991



Affected Records of Title	Land District
---------------------------	---------------

993471	Otago
993472	Otago

Annexure Schedule Contains 2 Pages.

Signature

Signed by Amy Laura Christie as Territorial Authority Representative on 27/07/2021 02:42 PM

***** End of Report *****

Consent Notice

PURSUANT TO SECTION 221 OF THE RESOURCE MANAGEMENT ACT 1991

THE CENTRAL OTAGO DISTRICT COUNCIL hereby requests the District Land Registrar to annotate his memorial with the following Consent Notice issued with respect to Lots 1 & 2 DP 561457.

- a) Lots 1 and 2 are unserviced for wastewater disposal, power supply, telecommunications and the provision of these services are the responsibility of future ownership at the time that the lots are developed or further subdivided.
- b) Lot 1 is unserviced for potable water supply and the provision of a potable water supply is the responsibility of future ownership at the time that the lots are developed or further subdivided.
- c) At the time Lot 1 is further developed, access must be provided in accordance with Part 29 of Council's Roading Policies January 2015.
- d) At the time residential activity (new dwelling) is constructed on Lots 1 and 2, domestic water and firefighting storage is to be provided by a standard 30,000 litre tank. Of this total capacity, a minimum of 20,000 litres must be maintained at all times as a static firefighting reserve. Alternatively, an 11,000 litre fire fighting reserve is to be made available to the building in association with a domestic sprinkler system installed in the building to an approved standard. A fire fighting connection is to be located within 90 metres of any proposed building on the site. In order to ensure that connections are compatible with Fire and Emergency New Zealand equipment the fittings are to comply with the following standards:
 - i. Either: 70 mm Instantaneous Couplings (Female) NZS 4505, or 100 mm Suction Coupling (Female) NZS 4505 (hose tail is to be the same diameter as the threaded coupling (e.g. 100 mm coupling has 100 mm hose tail) provided that the consent holder must provide written confirmation from Fire and Emergency New Zealand to the Chief Executive to confirm that the couplings are appropriate for firefighting purposes.
 - ii. The connection must have a hardstand area adjacent to it to allow a Fire and Emergency New Zealand appliance to park on it. The hardstand area must be located at the centre of a clear working space with a minimum width of 4.5 metres. Access must be maintained at all times to the hardstand area.

- e) Firefighting water supply may be provided by means other than that provided for above if the written approval of Fire and Emergency New Zealand is obtained for the proposed method and that approval is submitted to the Chief Executive.

SIGNED at Alexandra this 23rd day of April 2021



LOUISE VAN DER VOORT
EXECUTIVE MANAGER - PLANNING AND ENVIRONMENT

Authorised Officer



- Notes:
- 1) Lots 101-103 to Vest as Road
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 - Stage 1 : Lots 31-33
 - Stage 2 : Lots 1-9, 29, 30
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 - Stage 4 : Lots 21-28
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REVISION	DETAIL	DATE
B	Subdivision layout	29 Nov 2022
C	Layout	30 Jan 2023
D	Lots 29,30 & tracks	3 Feb 2023
E	Entrance and Lots 30-32	11 May 2023
F	Road alignments and Platforms	9 June 2023

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03 443 5052

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17A MURRAY TERRACE

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03 445 0376

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Project

ROCKY POINT
TKO Properties Ltd
Overall and Staging

Title

Proposed Subdivision
of Lot 1 DP 561457.
FOR CONSENT

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W1665	1	F	June 2023



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TKO Properties Ltd
Enlargement 1

Title

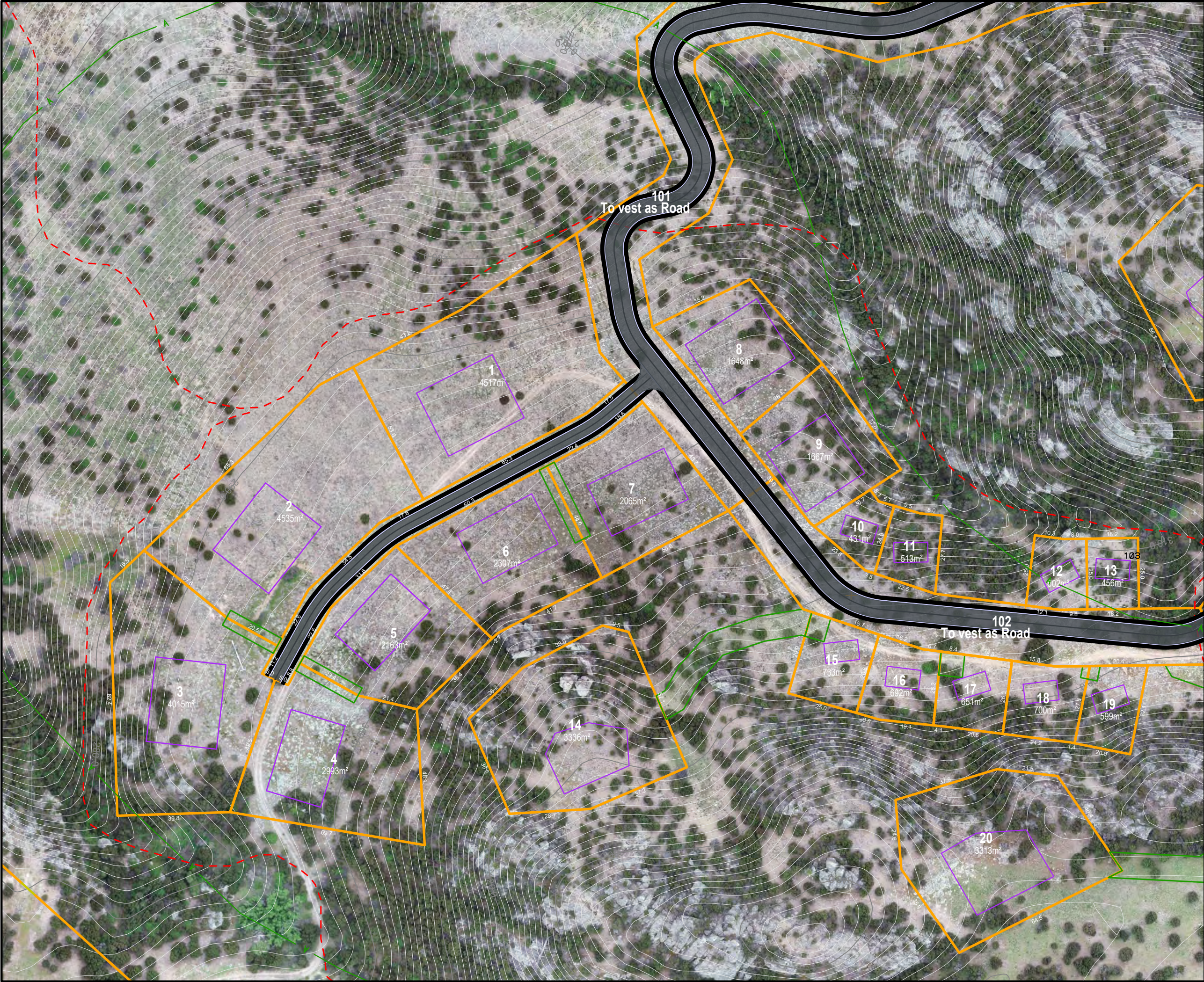
Proposed Subdivision
of Lot 1 DP 561457.
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W1665	2	F	June 2023



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Project

ROCKY POINT
TKO Properties Ltd
Enlargement 2

Title

Proposed Subdivision
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W1665	3	F June 2023



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TKO Properties Ltd
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Title

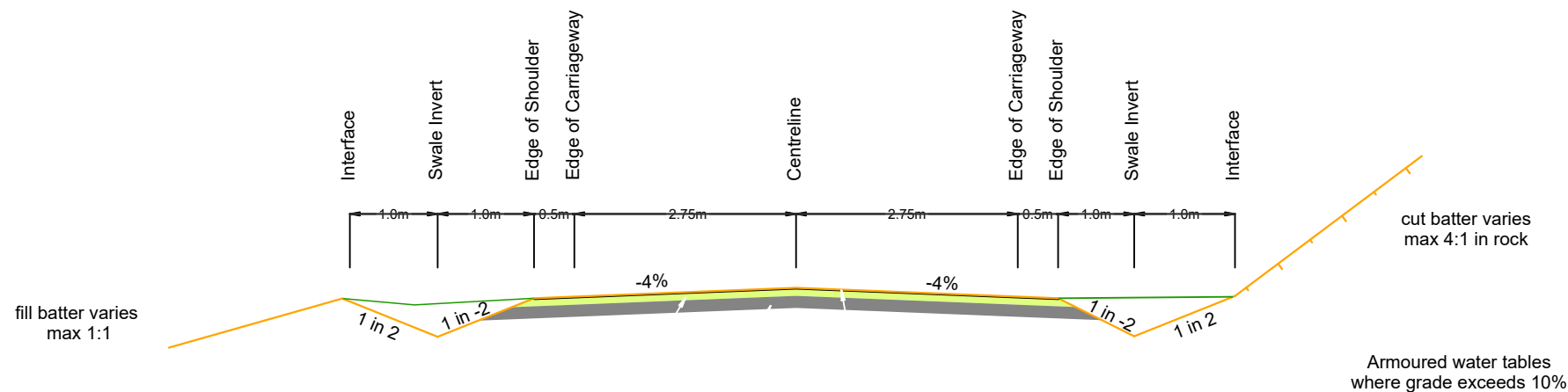
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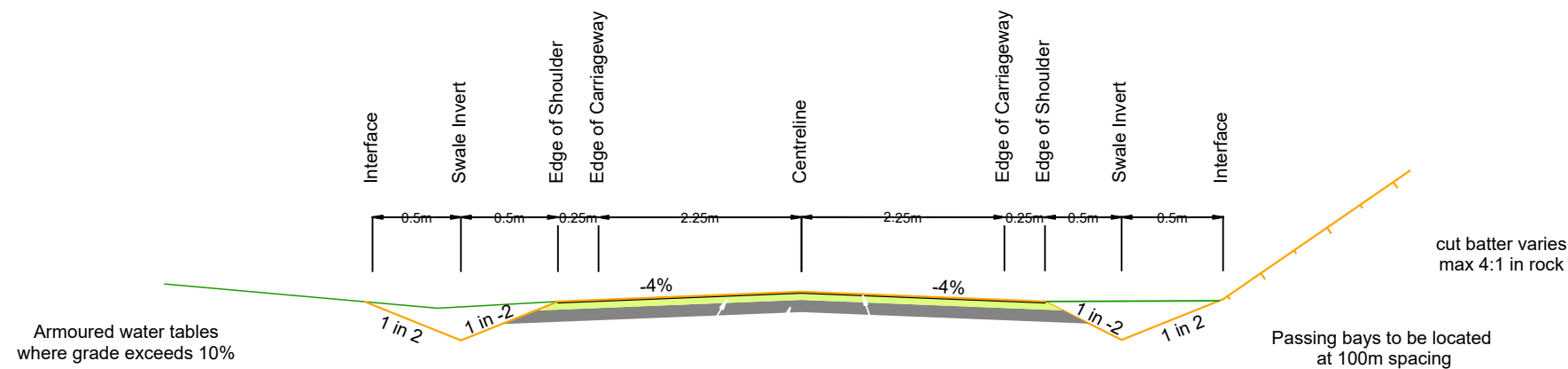
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Drawing No:	Sheet No:	Revision: Date Created:
W1665	4	F June 2023

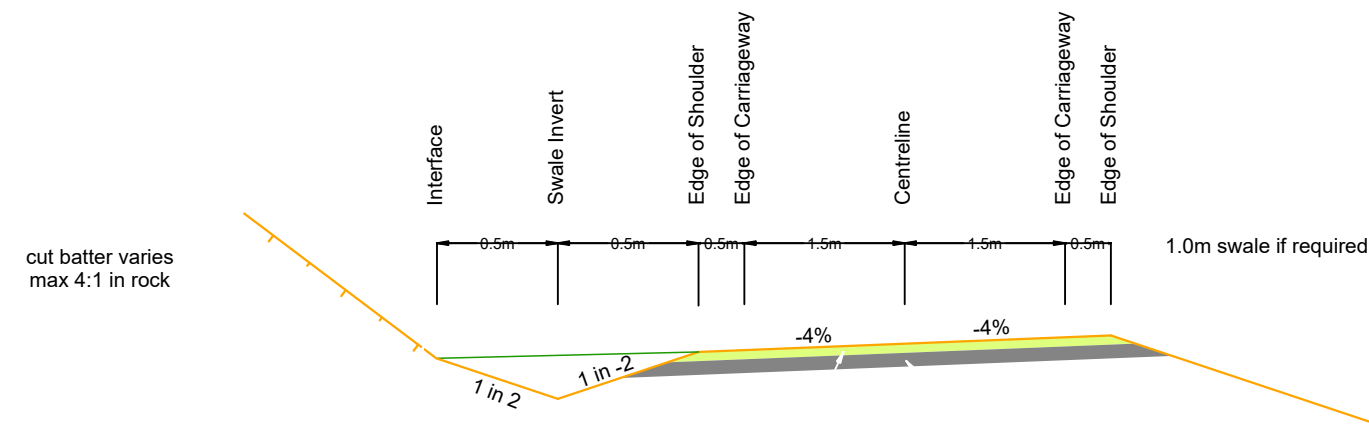


Typical Road Section 5.5m Carriageway
Road to vest
Legal width 20.00m

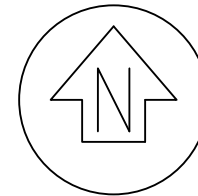
NOTE: Final pavement design
subject to site specific CBR testing



Typical Road Section 4.5m Carriageway
Shared Right of Way
Legal width 10.00m



Typical Road Section 3.0m Carriageway - Single Crossfall
Unsealed Private Driveway



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REVISION	DETAIL	DATE

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Project

ROCKY POINT
TKO Properties Ltd
Cross Sections

Title

**Proposed Subdivision
of Lot 1 DP 561457.**

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5925	MJS	LP2000
Drawing No:	Sheet No:	Revision:
W1665	5	A
		Date Created:
		February 2023



Archaeological assessment of proposed Rocky Point Subdivision, Central Otago

Report to Infracon Ltd.

Chris Jennings

January 2023



Southern Pacific
Archaeological Research

Archaeological Programme | School of Social Sciences
University of Otago | PO Box 56 | Dunedin 9014

Legal Description: Lot 1 DP 561457

Citation: Jennings, C. 2023. Archaeological assessment of proposed Rocky Point subdivision, Central Otago. Report to Infracon Limited. Southern Pacific Archaeological Research.

Report No. 332

This report was updated on May 5th, 2023 to include the most recent subdivision design.

Front image: Photograph of rock outcrop, from NZTM E 1308390 N 5017295, facing northeast.

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1. Introduction

Infracon Ltd proposes to subdivide Lot 1 DP 561457 at Rocky Point, near Bendigo, Central Otago (Figure 1). Infracon engaged Southern Pacific Archaeological Research (SPAR) to prepare an archaeological assessment of the property to accompany the application for resource consent from the Central Otago District Council.

1.1 Assessment Area

The assessment area, Lot 1 DP 561457, is located west of State Highway 8, in the foothills of the Dunstan Mountains, near the northern end of Lake Dunstan. The assessment area consists of rocky hills cut by gullies, with rock outcrops and plateaus. The hills of the assessment area are covered in kanuka and other shrubs.



Figure 1. Location of proposed Rocky Point subdivision assessment area (Lot 1 DP 561457).

2. Legislation

There are two main pieces of legislation in New Zealand that regulate work that affects archaeological sites. These are the *Heritage New Zealand Pouhere Taonga Act 2014* (HNZPTA) and the *Resource Management Act 1991* (RMA).

2.1 Heritage New Zealand Pouhere Taonga Act 2014

Heritage New Zealand Pouhere Taonga (HNZPT) administers the HNZPTA. The HNZPTA contains a consent (authority) process for any work where there is reasonable cause to suspect that an archaeological site or sites will be affected, where an archaeological site is defined as:

- (a) any place in New Zealand, including any building or structure (or part of a building or structure), that—
 - (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
 - (ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand.

Any person who intends to carry out work that will damage or destroy an archaeological site, or to investigate a site using invasive archaeological techniques, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including public, private and designated land. The HNZPTA contains penalties for unauthorised site damage or destruction.

The archaeological authority process applies to all sites that fit the HNZPTA definition, regardless of whether:

- The site is recorded in the New Zealand Archaeological Association Site Recording Scheme or listed by HNZPT,
- The site only becomes known about as a result of ground disturbance, and/ or,
- The activity is permitted under a district or regional plan, or a resource or building consent has been granted.

2.2 Resource Management Act 1991

The Resource Management Act 1991 identifies the protection of historic heritage from inappropriate subdivision, use and development as a matter of national importance (RMA Amendment Act 2003 s.6). In carrying out their functions under the RMA local authorities must, in relation to managing the use, development, and protection of natural and physical resources, recognise and provide for matters of 'national importance'.

Historic heritage is defined by the RMA (s.2) as follows:

Historic heritage:

(a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:

- (i) archaeological;
- (ii) architectural;
- (iii) cultural;
- (iv) historic;
- (v) scientific;
- (vii) technological;

and

(b) includes -

- (i) historic sites, structures, places, and areas; and
- (ii) archaeological sites; and
- (iii) sites of significance to Māori, including wahi tapu; and
- (iv) surroundings associated with the natural and physical resources (RMA s.2).

Local authorities have a responsibility to protect historic heritage within their district or region. Protecting historic heritage involves identifying historic heritage places, managing adverse effects and promoting the protection of heritage values in accordance with conservation principles (NZHPT 2004).

Decisions made under the RMA must take account of any iwi planning documents that have been lodged with the relevant local or regional government body.

3. Methods

The archaeological assessment involved a combination of desk-based historical documentary research and an on-site inspection of the retaining wall.

3.1 Documentary Research

Desktop research was carried out to investigate the wider archaeological landscape in which the site is situated. Various sources were examined to locate any relevant historical information, including local histories, maps and survey plans relating to the study area and surrounds. In addition to published literature relevant to the survey area and surrounding area, the following collections and sources make up the main sources consulted:

The following sources are typically consulted by SPAR during the preparation of archaeological assessments of locations within the Dunedin area:

- Prover (<https://prover.co.nz/>)
- DigitalNZ (<https://digitalnz.org/>)
- The National Library of New Zealand's Papers Past (<https://paperspast.natlib.govt.nz/>)
- National Library of New Zealand Te Puna Mātauranga o Aotearoa Alexander Turnbull Library Collections (<https://natlib.govt.nz/>)
- Heritage New Zealand Pouhere Taonga Archaeological Reports Digital Library (<https://www.heritage.org.nz/protecting-heritage/archaeology/digital-library>)
- Heritage New Zealand Pouhere Taonga Register of Historic Places (<https://www.heritage.org.nz/the-list>)
- New Zealand Archaeological Association Site Recording Scheme (ArchSite) (<https://archsite.eaglegis.co.nz/>)
- Retrolens – Historical Imagery Resource (<https://retrolens.co.nz/>)
- Kā Huru Manu: Ngāi Tahu Cultural Mapping Project (<https://www.kahurumanu.co.nz/>)

The results of the documentary research are reported in Section 3.

3.2 Site Inspection

Inspection of the assessment area was carried out by Chris Jennings (SPAR). Jennings visited briefly visited the assessment area on 15 November 2022 with Jeana Tate-Bell (Infracon) and Simon Beale (Beale Consultants). The archaeological survey was undertaken on 16 November 2022 by Jennings. This survey was undertaken with a concurrent archaeological inspection of Lot 2 DP 561457 (proposed Bendigo Hills subdivision) (Jennings 2023). This was undertaken as an inspection of features identified during GIS analysis and previously identified by Matt Suddaby (C. Hughes and Associates) during surveying work in the assessment area. All tracks throughout the survey area were driven to survey the topography and identify potential sites that may have been visible. Locations of features were recorded using a Garmin Oregon 750t GPS hand unit. In-field observation of the topography was constrained by dense kanuka scrub and other vegetation covering much of the landscape, which impeded surface visibility.

4. Historical Research

4.1 Historical Background

The first people to reach and settle Aotearoa New Zealand arrived from a tropical East Polynesian homeland (Hawaiiki) some 3000 km or more to the northeast (Walter et al. 2017). Archaeology provides unequivocal evidence for sustained human occupation throughout Aotearoa New Zealand by the early fourteenth century (Anderson et al. 1996; Jacomb et al. 2014; Walter et al. 2017). The descendants of these Polynesian settlers would go on to develop a distinct Māori cultural identity. A rich local record of Māori traditions and place names recount some of the earliest Polynesian settlers of Te Wai Pounamu (the South Island). Three principal streams of descent, associated with distinct waves of settlement and subsequent integration through marriage, are recognised in the traditions of Ngāi Tahu mana whenua (Waitaha, Ngāti Mamoe and Ngāi Tahu).

The first people to arrive in Te Wai Pounamu were linked to the iwi Waitaha, arriving aboard the canoes *Uruao* and *Waka-A-Raki* (O'Regan 2001: 45). Certain traditions and texts also reference Te Rapuwai and Ngāti Hawea as groups established in Te Wai Pounamu during the earliest period of settlement, though the traditions of these groups are often interwoven into the histories and whakapapa of Waitaha (Anderson 1998: 18-20; see Tau 2003: 159 for discussion). According to O'Regan (2001) and Tau (2003), Waitaha are associated with the first explorations, the naming of places and earliest landscape transformations, with all major landmarks in Te Wai Pounamu derived from Waitaha tradition. For some, the stories connected to Waitaha are considered significant for the establishment of a unique mythology and whakapapa specific to the iwi and landscapes in the south (O'Regan 2001).

The earliest settlers of southern Te Wai Pounamu encountered an environment vastly different to that of tropical Polynesia. In particular, the colder climate would have been unsuitable for the cultivation of introduced tropical Polynesian cultigens, such as the kūmara (sweet potato), necessitating reliance on a variety of uncultivated foods (Anderson and Smith 1996). The archaeological evidence for early Māori occupation suggests a settlement pattern comprising of settled village sites primarily concentrated along the east coast of Te Wai Pounamu adjacent to rich and sustained resources that included moa (Aves: Dinornithiformes), kekeno (NZ fur seals), and a range of kaimoana (seafood) (Anderson and Smith 1996). Areas further inland – including the Central Otago region – were accessed seasonally via ara tāwhito (traditional travel routes) for

additional types of food resources and various types of stone (most notably pounamu and silcrete) that were used to produce tools and ornaments.

Weka and eels are identified by Anderson (1982) as two of the main hunted resources inland. In addition to being consumed in situ, weka were preserved for use elsewhere and for trade (Anderson 1982: 75). The loss or severe depletion of the large-bodied and easily exploited taxa of fauna (moa and sea mammals) by the start of the sixteenth century (1500 AD) brought about a subsequent change in settlement patterns across Te Wai Pounamu, including the establishment of permanent settlements in the Queenstown Lakes District. Anderson (1982: 72) notes that at the beginning of the eighteenth century (ca. 1700 AD), Waitaha and Ngāti Mamoe occupied settlements concentrated around the western lakes, with Ngāti Mamoe in the Wakatipu district in particular. The situation changed dramatically with the subsequent arrival of Ngāi Tahu in the area and it appears that by about the middle of the eighteenth century Waitaha and Ngāti Mamoe had retreated to areas south of Wakatipu (Anderson 1982: 72).

Māori archaeological sites in the Bendigo-Tarras area are primarily oven sites that were located on the original banks of the Mata-Au (Clutha River)¹. The river itself is considered to have been an important route for providing access to lakes Wānaka, Hāwea and Whakatipu Waimāori (Lake Wakatipu) from the settlements of coastal Otago². The oven sites recorded through the area are likely to have been features related to temporary camp sites associated with movement through the region, although none of these sites have been dated. Notably, a Māori wooden paddle was found in a cave near Bendigo (Skinner 1948) underscoring the importance of Mata-Au for early Māori transit in the region. Traditional knowledge indicates that a settlement (kainga) called Wairere³ was present near the junction of the Mata-Au and Kawarau Rivers (Taylor 1952: 143), which is likely related to eighteenth century occupation in the area.

After the Otago Purchase of 1844 and the subsequent settlement of Dunedin in 1848, the ensuing years would see further exploration and settlement of the Central Otago interior. In 1854, the Waste Lands Act was introduced, putting in place a system that allowed Pākehā colonists to obtain leases for large tracts of land (runs) for the purpose of sheep farming (Campbell 1981). A thorough

¹ These sites were located to the southwest of the assessment area and were subsequently inundated by the creation of Lake Dunstan as a result of the Clyde Dam Project.

² "Mata-au" <https://www.kahurumanu.co.nz/atlas> accessed 20/12/2022.

³ This kainga is recorded on ArchSite as G41/367, although it was recorded based on information from Taylor (1952) and no description of archaeological evidence is present.

reconnaissance of the Otago Province was required to allow prospective runholders to make their selections. Over 1856-1858, John Turnbull Thomson, the Chief Surveyor for the Province of Otago undertook a survey of the vast interior to map the lower South Island. Thomson would survey the part of the Otago interior, including the area now known as Upper Clutha valley late in 1857 (Figure 2) (Duff 1978: 20).



Figure 2. JT Thomson 1857-8 Map of the interior districts of Otago Province (<https://maps.recollect.co.nz/>).

John McLean, a Scottish immigrant, arrived in New Zealand in 1852 after seeing some success as a merchant on the Victorian goldfields, (and less success as a runholder). In 1858, several months

after Thomson's survey of the area, McLean would set eyes on the area himself, guided there by the Māori rangatira Huruhuru (Duff 1978: 23). McLean attempted to acquire a license for a massive area of approximately 315,400 acres (127,638 hectares). This area stretched from Dromedary Hill and Longslip in the Lindis Pass area in the north, to the Mata-Au River below Cromwell in the south. It was bordered to the east by the Bathans Range and Dunstan Mountains and bordered the Mata-Au River and across the southern tip of Lake Hawea in the west (Campbell 1981: 82).

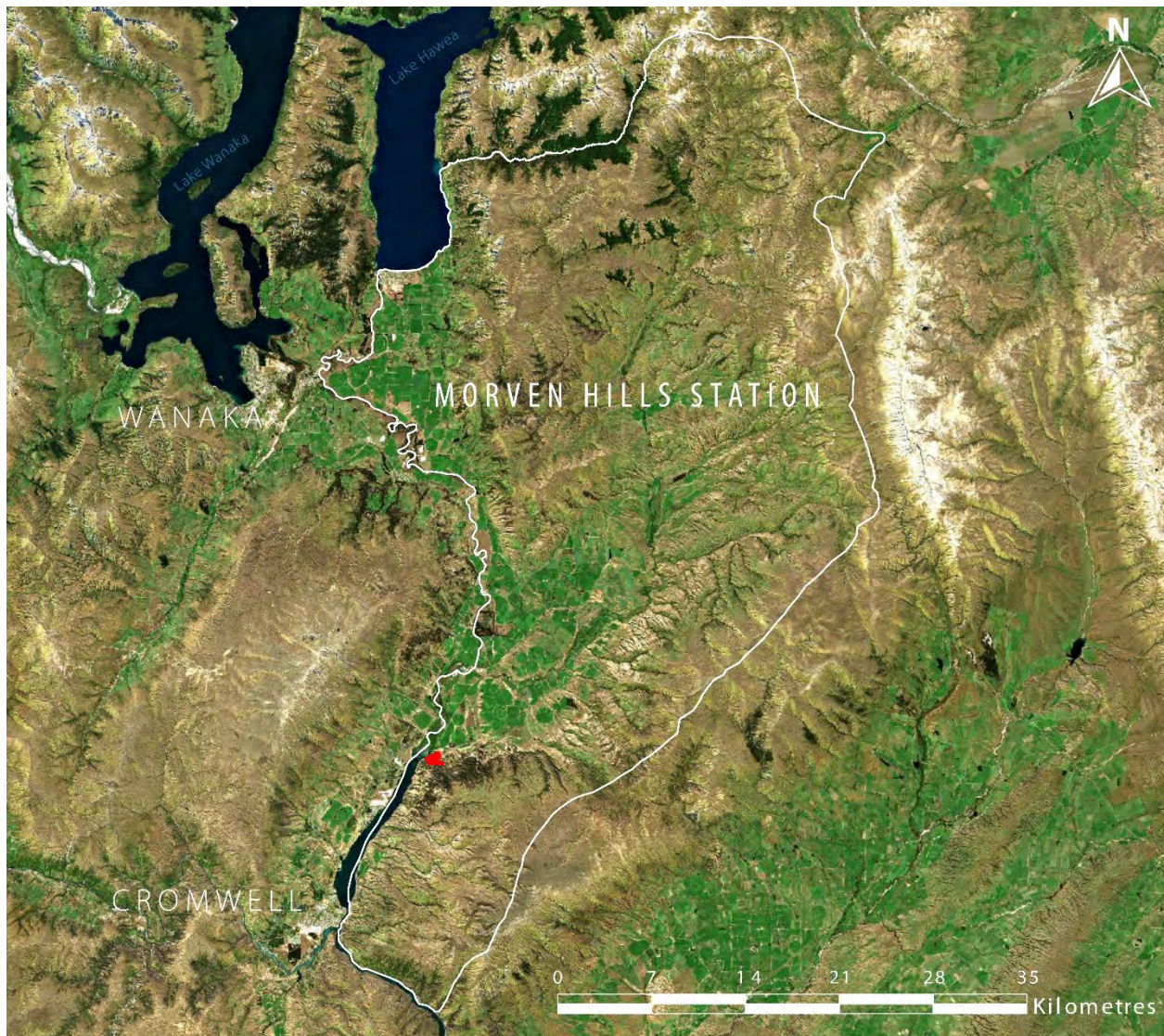


Figure 3. Location of assessment area (red) in relation to the approximate boundaries of the original Morven Hill Station (white outline) (Based on Duff 1978: Figure

The Waste Lands Board was reluctant to grant this area as a single grazing run, and instead divided it into four separate units (Runs 235-238). Undeterred, McLean leased Run 235 (82,000 acres, approx. 33,184 ha), with the following leases licensed to his family members: Run 236 (120,000

1993: 14). In 1869 the township of Bendigo was selected by James MacAndrew, then the Superintendent of Otago. The township population gradually declined over the next decade as interest in quartz mining shifted elsewhere (Duff 1978: 78).

The McLeans sold Morven Hills Station in 1874, after they had acquired many other areas of farmlands in North Otago and South Canterbury (Duff 1978: 32). Over the next year the property changed hands twice, until it was acquired by F.G. Dalgety and Charles Nichols (Duff 1978: 34). Dalgety was a prosperous businessman based in London, with interests in Victoria, New South Wales and throughout New Zealand. Morven Hills Station remained under Dalgety's ownership for the next 34 years (Duff 1978: 35). From the early 1880s, vocal and frustrated land-seekers led the Lands Department to authorise the subdivision of several runs, including Morven Hills Station into smaller blocks (Duff: 1978: 44). This would eventually lead to the dissolution of the station from 1908 to into subdivided runs. The assessment area is on Run 238I, part of the area that became known as Bendigo Station (Figure 5). Bendigo Station has been farmed in the 20th Century by the Begg, Lucas and Perriam families (Hamel 1993; Perriam *et al.* 2009).

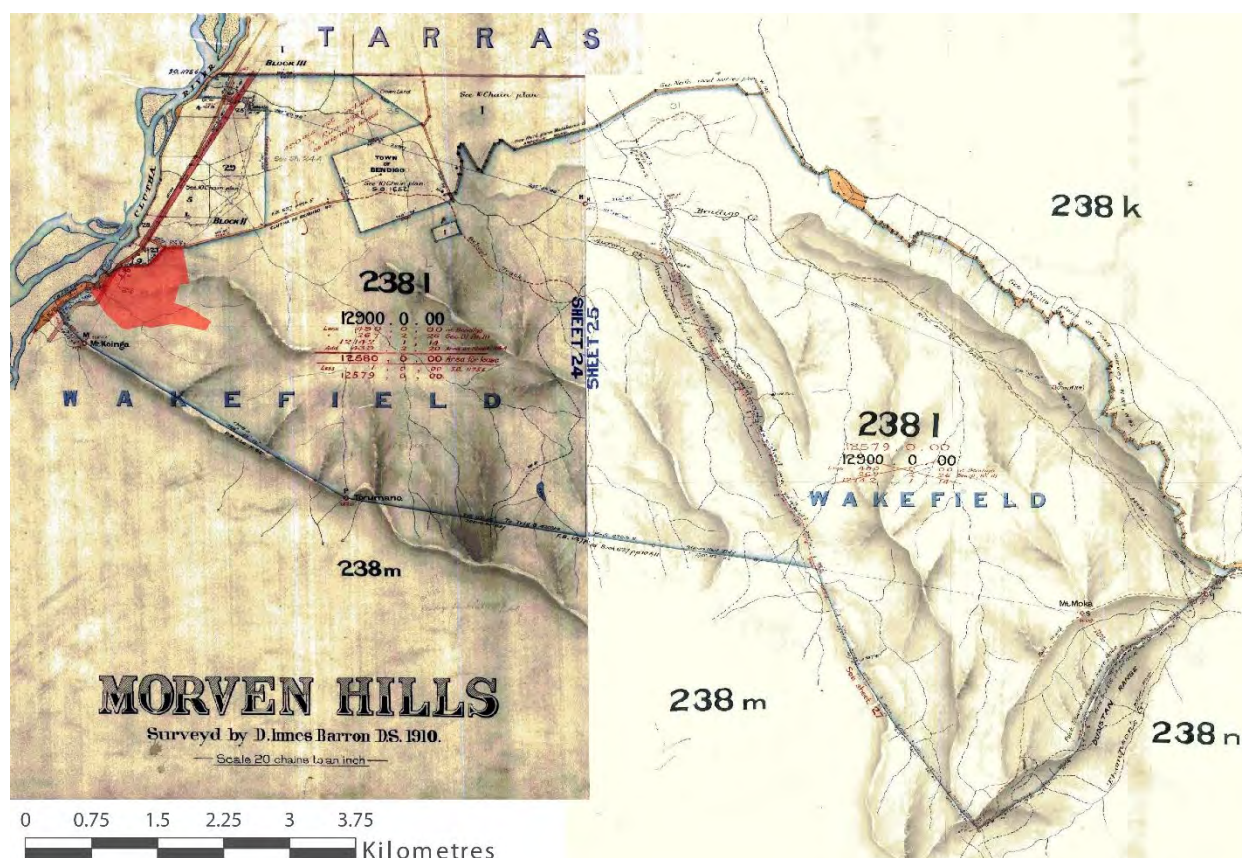


Figure 5. Composite figure of survey plans (SO 1203 and SO 1205) showing the location of assessment area (red) on Run 238I, part of Bendigo Station.

4.2 Previous Archaeological Work

Although the wider area Bendigo exhibits numerous archaeological sites associated with the historic gold mining industry, few sites have been recorded in the vicinity of the assessment area (Figure 6). Extensive archaeological investigations were carried out in the Clutha Valley over 1976-1986 as part of mitigation efforts prior to the construction of the Clyde Dam (Higham 2022; Ritchie 2022). As part of these investigations, an extensive survey was made of the East bank of the Mata-au/Clutha River, from Quartz Reef Point to Rocky Point (Higham 2022: 16). Although several sites were recorded throughout this area, primarily related to alluvial gold working, only two sites were recorded within the vicinity of the assessment area. The first of these was the Rocky Point Hotel stables, recorded in 1976 (ArchSite No. G41/297). The structure was intact and being used as a garage at the time it was recorded, but no further updates have been made since. The second site, recorded with the same map grid coordinates was the location of the former settlement of Wakefield, which was later known as Crippletown (ArchSite No. G41/19). The original site record form (1978) does not describe any remains of the town and appears to have been recorded based on the original 1863 survey map for the town of Wakefield.



Figure 6. Archaeological sites recorded within 150 m buffer of assessment area boundaries (Source: ArchSite).

An archaeological survey of Bendigo Station was undertaken by Hamel in 1990, although her field work appears to have concentrated on the major quartz gold working areas of Bendigo, approximately 3 km to the east of the assessment area (Hamel 1993).

In 2021, Ben Teele of Origin Consultants was engaged by GB Water Ltd to undertake an archaeological survey of Lots 1 and 2 DP 56145 (Teele 2021). Teele identified two potential archaeological features during field work. One was located outside of the current assessment area in Lot 2 DP56145 and recorded as G41/770 during the concurrent field inspection of that land parcel (Jennings 2023). The other site was interpreted as a drainage feature and was also inspected during field work for the current assessment, but this feature appeared to be a natural channel and not an archaeological feature.

5. Site Inspection

Field inspection of the assessment area was undertaken concurrently with the inspection of Lot 2 DP 561457, the adjacent land parcel also proposed for subdivision (Bendigo Hills subdivision). Four archaeological sites were recorded in the assessment area during the November 2022 field work (Figure 7). Although the main locations intended for development were inspected during the field survey, the dense kanuka and scrub vegetation obscured much of the topography of the wider assessment area. Additional sites may be present in Lot 1 DP 561457 that were not identified during field work. Site record forms for the sites recorded during the assessment are included as Appendix A.



Figure 7. Sites recorded in Lot 1 DP 51457 during November 2022 field survey.

G41/771 - Earth bank feature

A banked earth feature was located in the western end of Lot 1 DP 51457, just off the track running through the assessment area. This feature is visible on the earliest available aerial photographs (Figure 8). The feature is located at the top of a slope that drops away to the northwest. It appears to have been created to form a level surface (Figure 9). The banks of the feature are made from

surface gravel and are under 1 metre in height, although they appear to have slumped considerably (Figure 10). The feature is approximately 32 m long running northeast to southwest. The bank at its northern extent is approximately 12 m long east-west, and the bank at its southern extent is approximately 12 m long, running northwest-southeast. The feature has the appearance of spoil that has been bulldozed, although no tracks are present on the 1950 and 1975 aerial photographs that would suggest that earthworks had occurred.

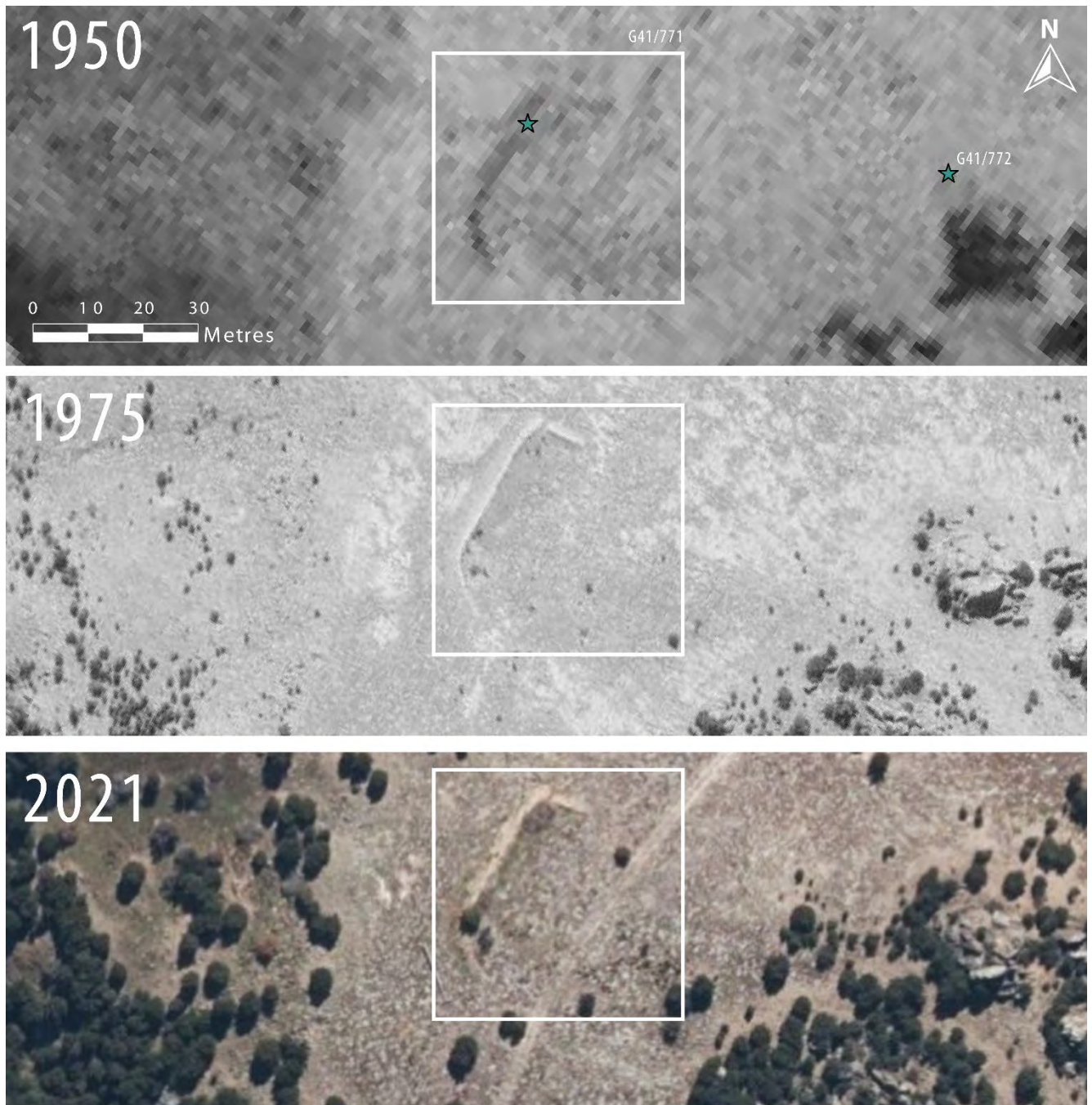


Figure 8. Aerial photographs of G41/771. Green stars indicate coordinates of the sites as recorded in ArchSite.



Figure 9. View northern end of of G41/771 from NZTM E1307942 N5017241, facing southwest.



Figure 10. Example of bank condition facing from northern extent, facing west.



Figure 11. Power pole dropped on southern part of G41/771.

In addition to the degraded nature of the banks, a recently replaced power pole has been dropped on the feature, causing minor damage to part of its southern portion (Figure 11).

Although various features and structures were likely to have been dotted throughout the area since the establishment of Morven Hills Station in the mid-1800s, it is unclear if this feature is pre-1900 in origin or not. The function of the feature is unclear, and no building remains (e.g. stone blocks) were present that might have indicated it was the foundation for a structure. The feature may have once functioned as a holding pen for stock. Additionally No artefacts were observed in the wider area that might indicate the time period during which the feature was in use.

G41/772 – Stone retaining wall

G41/772 was a stone retaining wall feature located approximately 75 m east of Site G41/771. The wall skirted around the edge of a large rock outcrop for a length of approximately 38 m (Figure 12). A similar feature (G41/770) was also identified during the concurrent survey of the adjacent Lot 2 DP 51457, approximately 440 m to the southwest (Jennings 2023). This wall was very similar to the G41/770, in that it skirted the edge of an outcrop, and did not appear to serve any obvious function beyond creating a level surface around the rocky bluff (Figure 13). The wall incorporates parts of the outcrop, is over two metres at its highest point (Figure 14 and Figure 15) and is stacked lower at its northern and southern ends (Figure 16). The wall has partially collapsed at its easternmost portion, but it is otherwise in good condition.

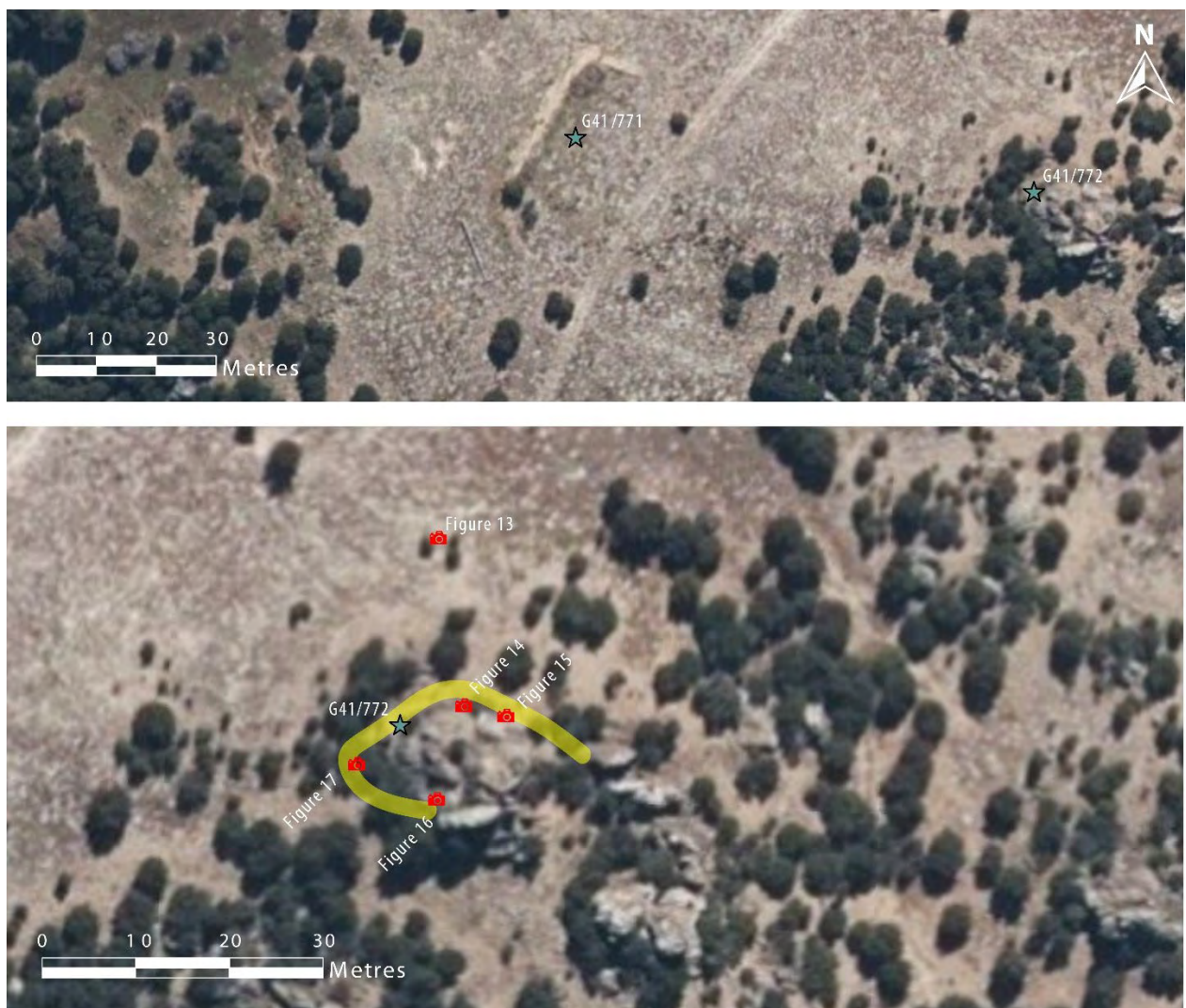


Figure 12. TOP: Aerial photograph showing location of G41/772 in relation to Site 2. BOTTOM: Photograph locations (red camera icons) for Figures 13-17. Green stars indicate coordinates of sites as recorded in ArchSite.



Figure 13. Photograph of G41/772 retaining wall from NZTM E1308011 N5017234, facing south.



Figure 14. Close up of feature, from NZTM E1308012 N5017216.



Figure 15. View to southeast of wall from NZTM E1308020 N5017215.



Figure 16. Lower section of wall at southern end.



Figure 17. Partial collapse at NZTM E1308004 N5017209.

G41/773 – Earth bank feature

Two parallel raised banks of piled up earth are located in the central northern part of the assessment area (Figure 18). These banks, recorded as site G41/773 are similar in construction to those of site G41/771, although both of the banks exhibit stone revetting at corresponding locations (Figure 19 and Figure 20). The feature is present on the earliest available aerial photographs (Figure 21) and creates an enclosure of approximately 25 by 20 metres. G41/773 may once have been an animal enclosure or a reservoir. A hole is present under the revetting on the eastern bank that appears to open on both sides, indicating this may have been a culvert, although it may also be a result of rabbit burrowing. Both banks are very slumped, degraded and are disturbed by rabbit burrowing.



Figure 18. G41/773 from NZTM E1308223 N5017420, facing north. Arrows indicate banks and point to locations where revetting is present.



Figure 19. Stone revetting on western bank feature of G41/773 at NZTM E1308188 N5017454, facing east.



Figure 20. Stone revetting on eastern bank feature of G41/773 at NZTM E1308215 N5017475, facing east.

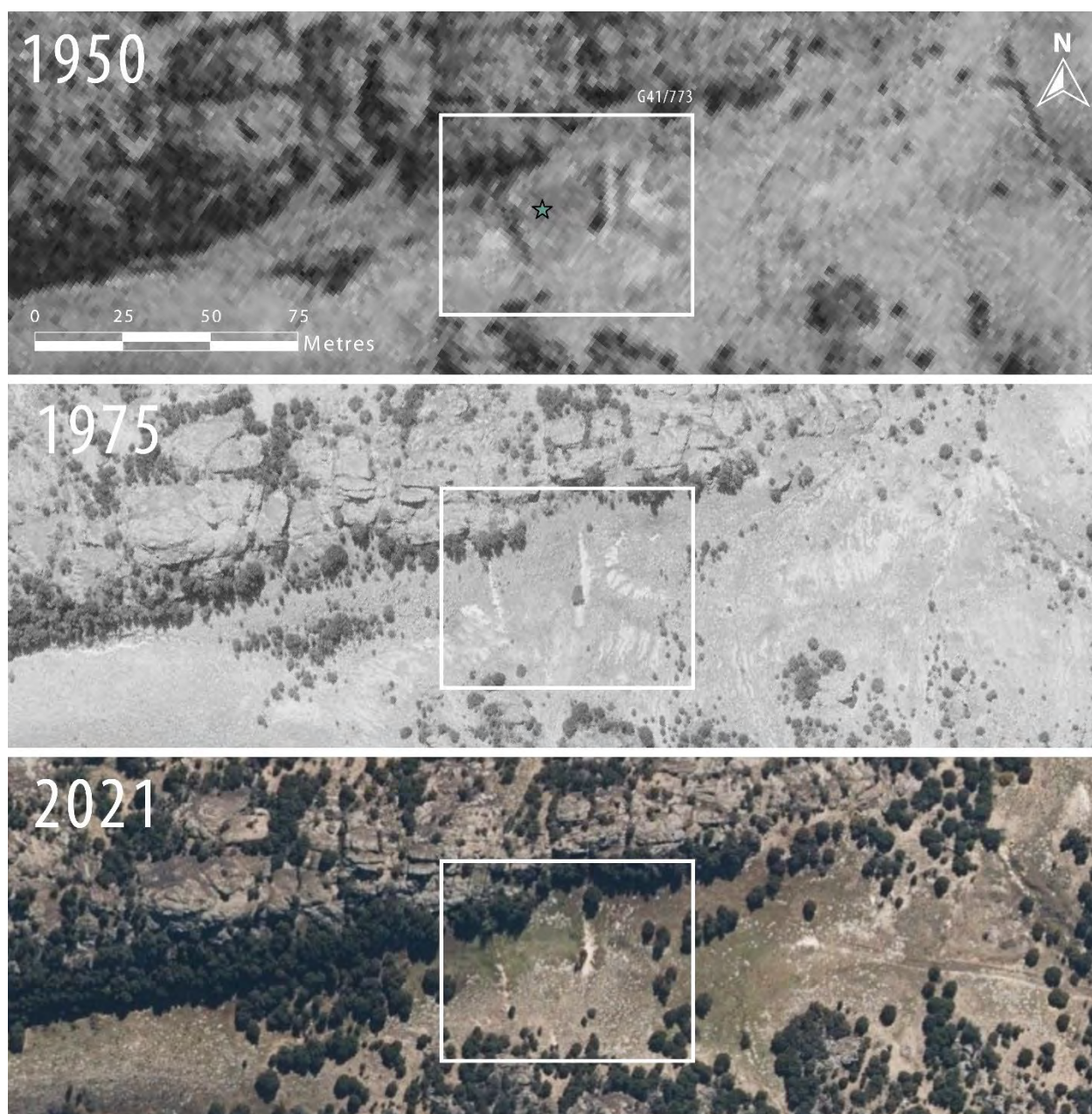


Figure 21. Aerial photographs of G41/773. Green stars indicate coordinates of sites as recorded in ArchSite.

G41/774 – Sluicing Area

The remnants of sluicing were identified in an area with three parallel gullies within the proposed Rocky Point subdivision (Figure 22). These were apparent as small patches of amorphous tailings. The gullies were largely overgrown with scrub, although tailings were observed in the eastern and western gullies (Figure 23 - Figure 25). The sluicing areas appear to have exploited a drainage channel upslope in the adjacent property, which has since been infilled by a vineyard plantation. The western and middle gullies were largely overgrown, and only minor examples of tailings were observed in these areas. These gullies were also deeply cut, indicating extensive water movement has scoured them. Where they could be observed, the tailings appear to represent only minor workings, and these gullies may have been an area where unsuccessful attempts at alluvial gold mining occurred.

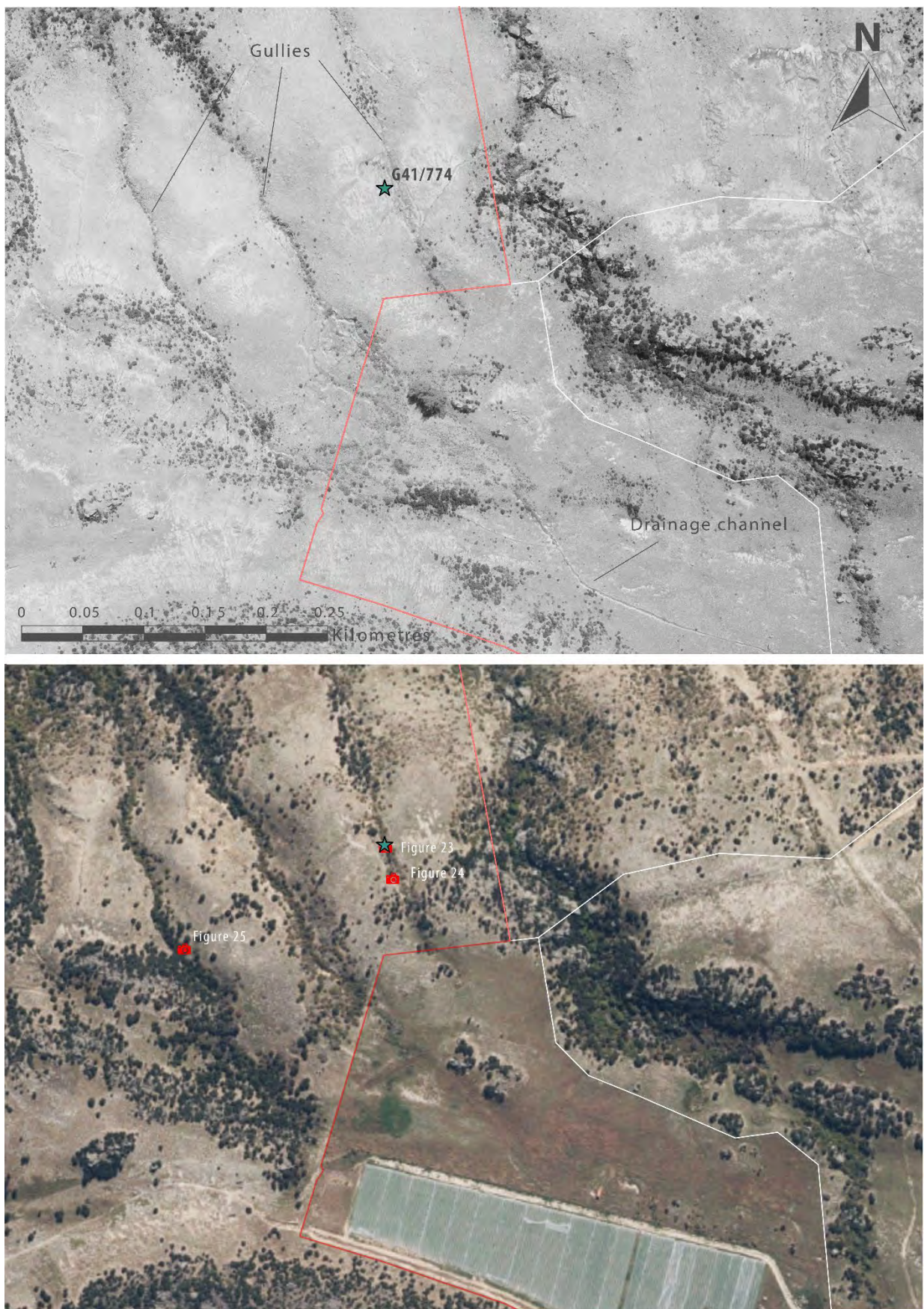


Figure 22. TOP: 1975 Aerial photograph showing gullies of G41/774. BOTTOM: Locations of photographs (red camera icons) for Figures 23-25.



Figure 23. Example of tailings in eastern gully at NZTM E1308619 N5017601.



Figure 24. Example of tailings in eastern gully at NZTM E1308626 N5017576.



Figure 25. Example of tailings in western gully at NZTM E1308458 N5017511.

6. Archaeological Other Values

The values of an archaeological site can be assessed in relation to the potential of the site to provide information about the history of New Zealand, its associations with past people, events or historical themes, and its connections with contemporary cultural groups (Gumbley 1995, Walton 1999, 2002). The condition of the site, its rarity or representativeness and the degree to which the site contributes to the wider context of an archaeological landscape may also contribute to its values. A single site may possess many different values, connections and interpretations. On its own or as part of a group, the site may be an important expression of cultural identity, local character or sense of place, and may play an important part in the ongoing production of socio-cultural identities for contemporary groups. Consequently, the values of an archaeological site are often fundamentally intertwined with contemporary socio-cultural perspectives of sites, places and landscapes. Archaeological features can provide tangible links with the past for contemporary communities when they are still visible or can be incorporated into modern features.

Although early Māori were active throughout the wider region, these sites are generally situated near larger rivers, specifically the Mata-au/Clutha River, the Kawarau River and smaller water courses such as Bendigo Creek. Based on the regional distribution of these archaeological sites it is unlikely that any Māori sites are present within the assessment area. The sites that were identified during this assessment are primarily related to the operation of the historic Morven Hills Station, and later Bendigo Station. The remaining site, G41/774 is likely to be associated with exploratory alluvial gold mining activity in the region. Tables 1-3 detail the archaeological and other values in relation to the sites recorded in the assessment area.

Table 1. Summary of archaeological and other heritage values of banked earth feature sites G41/771 and G41/773.

Criteria	Assessment
Cultural connections	Colonial European. Associated with activities related to early pastoral farming originally part of at Morven Hills Station, and later Bendigo Hills station.
Historic associations	The sites have historical associations with early sheep stations and run holding in the region.
Archaeological information potential	Low. No artefacts associated with these features were observed and subsurface archaeological evidence is unlikely.
Condition	Poor. Both sites are heavily slumped.
Rarity/uniqueness	Uncommon. Although banked earth features have been recorded in the Central Otago region, their function is frequently unknown and subject to conjecture without supporting documentary evidence.
Contextual value	Features have contextual value within a wider archaeological landscape of early European settlement and the development of pastoral run holding at Morven Hills Station.
Amenity value	Low. Features are located on private property and are not accessible to the public.

Table 2. Summary of archaeological and other heritage values of stone retaining wall site G41/772.

Criteria	Assessment
Cultural connections	Colonial European. Associated with activities related to early pastoral farming originally part of at Morven Hills Station, and later Bendigo station.
Historic associations	The site has historical associations with early sheep stations and run holding in the region.
Archaeological information potential	Limited. No portable artefacts were observed at the site, or in the surrounding area. There is a possibility that artefacts from the 19 th Century may have been used as fill material behind the retaining wall.
Condition	Variable. The wall is mostly intact, except for one portion where it has collapsed.
Rarity/uniqueness	Rare. Although drystone wall construction was common in the region during the early colonial period, retaining walls of indeterminate function associated with rock outcrops are not commonly documented.
Contextual value	Features have contextual value within a wider archaeological landscape of early European settlement and the development of pastoral run holding at Morven Hills Station.
Amenity value	Low. The feature is located on private property and is not accessible to the public.

Table 3. Summary of archaeological and other heritage values of sluicing site G41/774.

Criteria	Assessment
Cultural connections	Colonial European. Associated with activities related to early pastoral farming originally part of at Morven Hills Station, and later Bendigo Hills station.
Historic associations	The site has historical associations with early alluvial gold mining in the Bendigo area.
Archaeological information potential	Low. The remains of sluicing associated with G41/774 consisted of very minor amounts of tailings. The wider area was overgrown with scrub, and further evidence may be present, but historical information indicates major gold mining activity occurred elsewhere in the Bendigo area.
Condition	Unknown. Where observed, only minor evidence of tailings is present, and the remaining area is obscured by dense vegetation.
Rarity/uniqueness	Common. Gold mining sites are ubiquitous throughout many parts of Central Otago.
Contextual value	Features have contextual value within a wider archaeological landscape of early European colonial gold mining in the Bendigo area.
Amenity value	Low. The features are located on private property and are not accessible to the public.

7. Assessment of Effects

7.1 Scope of Works

Establishment of the proposed Rocky Point subdivision will require a number of preliminary works, including roading, landscaping and associated works related to the installation of services. The preliminary concept plan for the subdivision prepared by C Hughes and Associates Limited is shown in Figure 26.

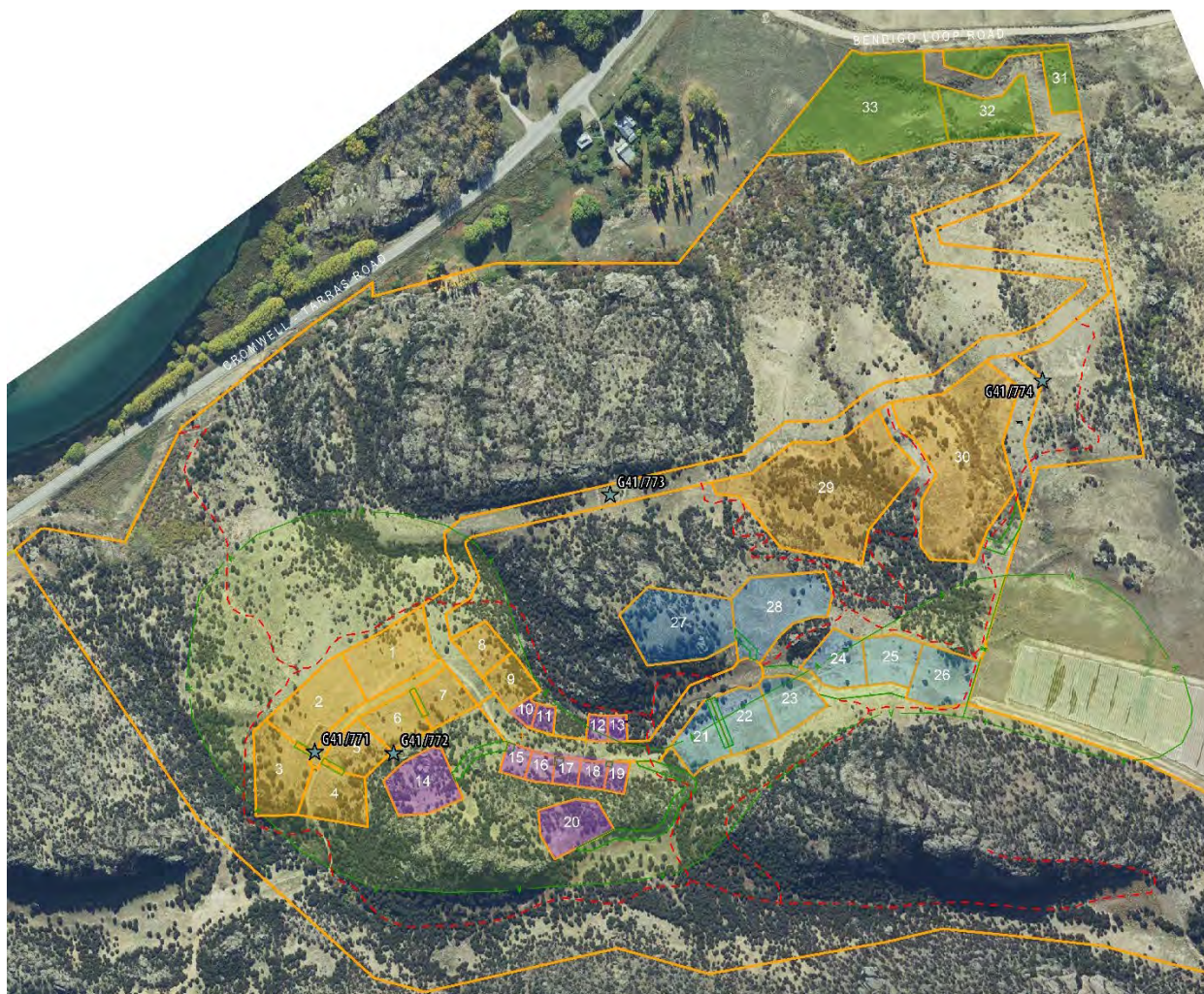


Figure 26. Concept plan for Rocky Point subdivision showing recorded archaeological sites.

7.2 Assessment of Effects

Preliminary works of the subdivision development will affect the archaeological values of two of the archaeological sites recorded during this assessment. Landscaping for the proposed Lot 2 and formation of the road providing access to the lots in this area will affect site G41/771, and the feature will likely need to be destroyed to develop the site (Figure 27).

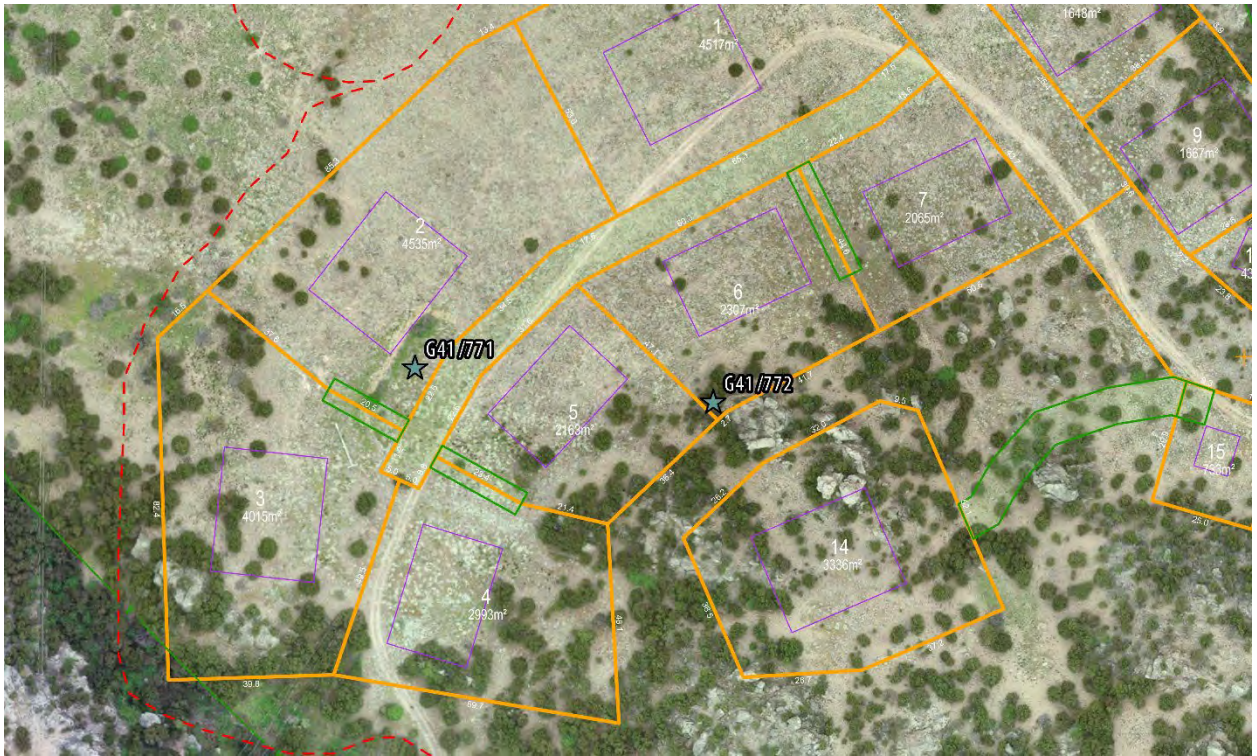


Figure 27. Close up of concept plan showing location of archaeological sites on Lots 3 and 6.

Part of G41/772 is located within boundary of the proposed Lot 6 and near Lot 5. Although development of the subdivision is unlikely to affect the site, ongoing management of the property must be considered.

Development of Road corridor running east-west through the subdivision will affect G41/773, likely requiring part or all of the feature to be destroyed. Formation of road corridor and earthworks running east of the proposed Lot 30 may also affect features related to Site G41/774.

8. Conclusion and Recommendations

This historical research undertaken for this archaeological assessment indicates that the sites recorded in the assessment area are associated with activities that related to early colonial European occupation in the mid-1800s. Although it is not possible to reliably date the features, it can be concluded that they were constructed sometime after the Mclean family established themselves in the region in 1858.

No artefacts were observed during the field survey, and although the features themselves provide limited information on their age or purpose, associated subsurface archaeological evidence may be present. Additionally, detailed recording of these features would provide comparative information for future studies of similar sites in the Central Otago region.

We make the following recommendations for continued works at the site:

1. A general archaeological authority under section 44 of the Heritage New Zealand Pouhere Taonga Act 2014 must be obtained from Heritage New Zealand prior to road construction and landscaping that will affect sites G41/771 and G41/773.
2. Contractors should be briefed by an archaeologist on the identification of further archaeological evidence and the appropriate protocols to follow in the event of any archaeological find.
3. Prior to earthworks, detailed recording should be undertaken for sites G41/771 and G41/773 and parts of G41/774 that may be affected by road construction. Recording should include photographic recording and scaled plan drawings for both sites.
4. Monitoring should be undertaken for any sites impacted by earthworks. Any subsurface features, or artefacts discovered during earthworks should be investigated and recorded by an appropriately experienced archaeologist.
5. The landowner who acquires Lot 6 should be made aware by Infracon, that the stone wall feature recorded as G41/772 is an archaeological site protected under the Heritage New Zealand Pouhere Taonga Act 2014. Furthermore, they should be informed that any plans to modify, damage or destroy the wall, will require an archaeological authority.

9. References

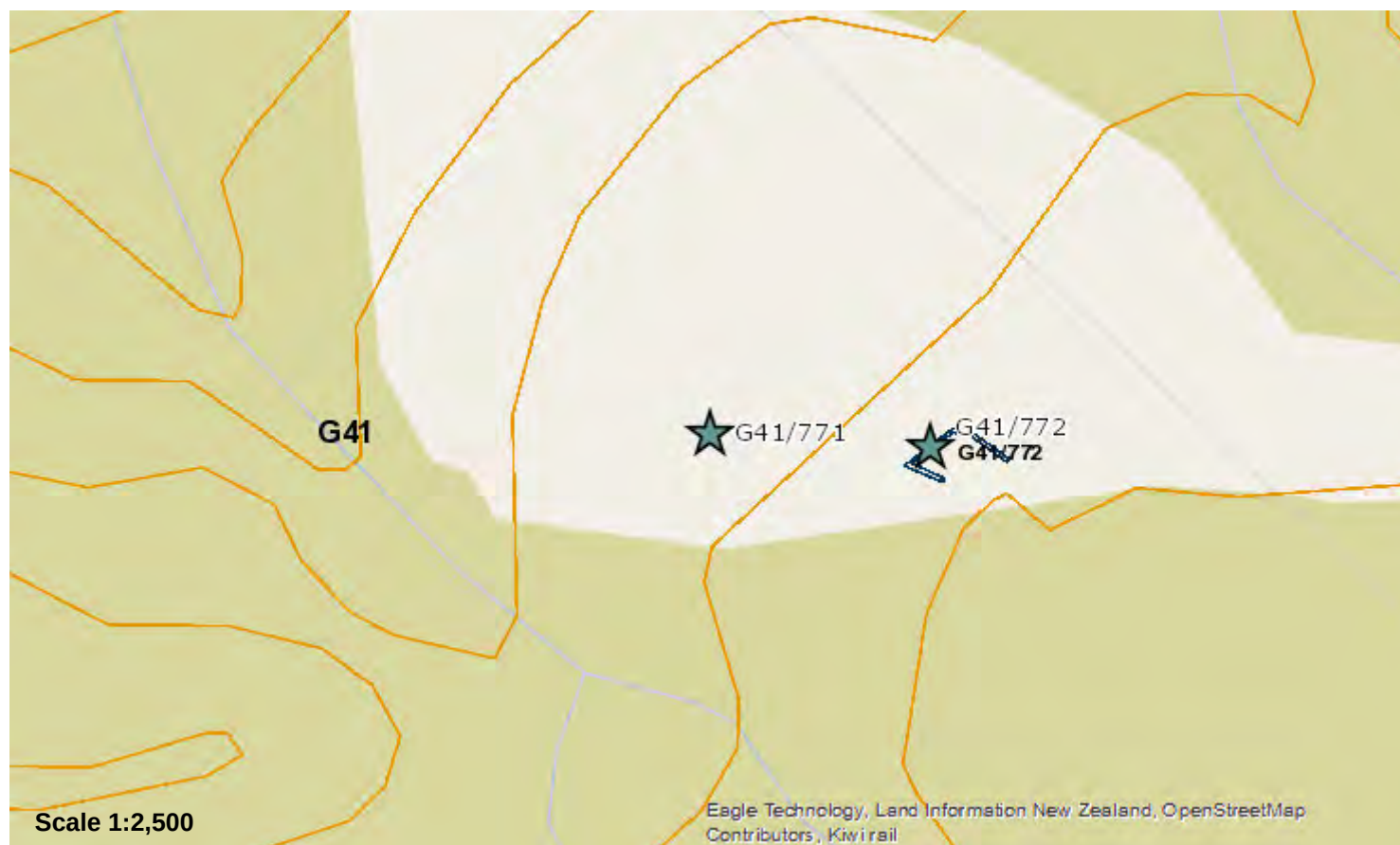
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Appendix A: Site record forms



Site Record Form

NZAA SITE NUMBER: G41/771**SITE TYPE:** Agricultural/ pastoral**SITE NAME(s):****DATE RECORDED:****SITE COORDINATES (NZTM) Easting:** 1307931**Northing:** 5017219**Source:** Handheld GPS**IMPERIAL SITE NUMBER:****METRIC SITE NUMBER:** G41/771**Finding aids to the location of the site**

Follow road through Lot 1 DP 56147 towards coordinates. Site is located approximately 5 m from the road.

Brief description

Earth bank

Recorded features

Bank (earth)

Other sites associated with this site

SITE RECORD HISTORY	NZAA SITE NUMBER: G41/771
Site description Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris Grid reference (E1307931 / N5017219) The site consists of a banked earthworks feature visible on the earliest available aerial photographs (1951). The feature appears to have been created to form a level surface and is located at the top of a slope that drops away to the north-west. The banks of the feature are made from surface gravel and are under 1 metre in height, although they appear to have slumped considerably and may once have been higher. The feature is approximately 32 m long running northeast to southwest, 12 m east-west at its northern extent and 12 m northwest-southeast at its southern extent. It is unclear if this feature is pre-1900 as it has the appearance of spoil that has been bulldozed, although this is not conclusive, as the feature is present on the 1950 aerial photograph prior to the formation of the nearby track. No associated artefacts that may have indicated the time it was used were identified in the immediate vicinity. Condition of the site Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris In addition to the degraded nature of the banks, a recently replaced power pole has been dropped on the feature, causing minor damage to part of the feature. Lot 1 DP 56147 is intended for subdivision, and due to the location of the feature, it may be affected by the development of the property. Statement of condition Updated: 04/01/2023 - Fair - Some intact features, but others may be unclear or damaged Current land use: Updated: 04/01/2023 - Rural residential Threats: Updated: 04/01/2023 - Subdivision, Property development	

G41/771 – Terrace feature

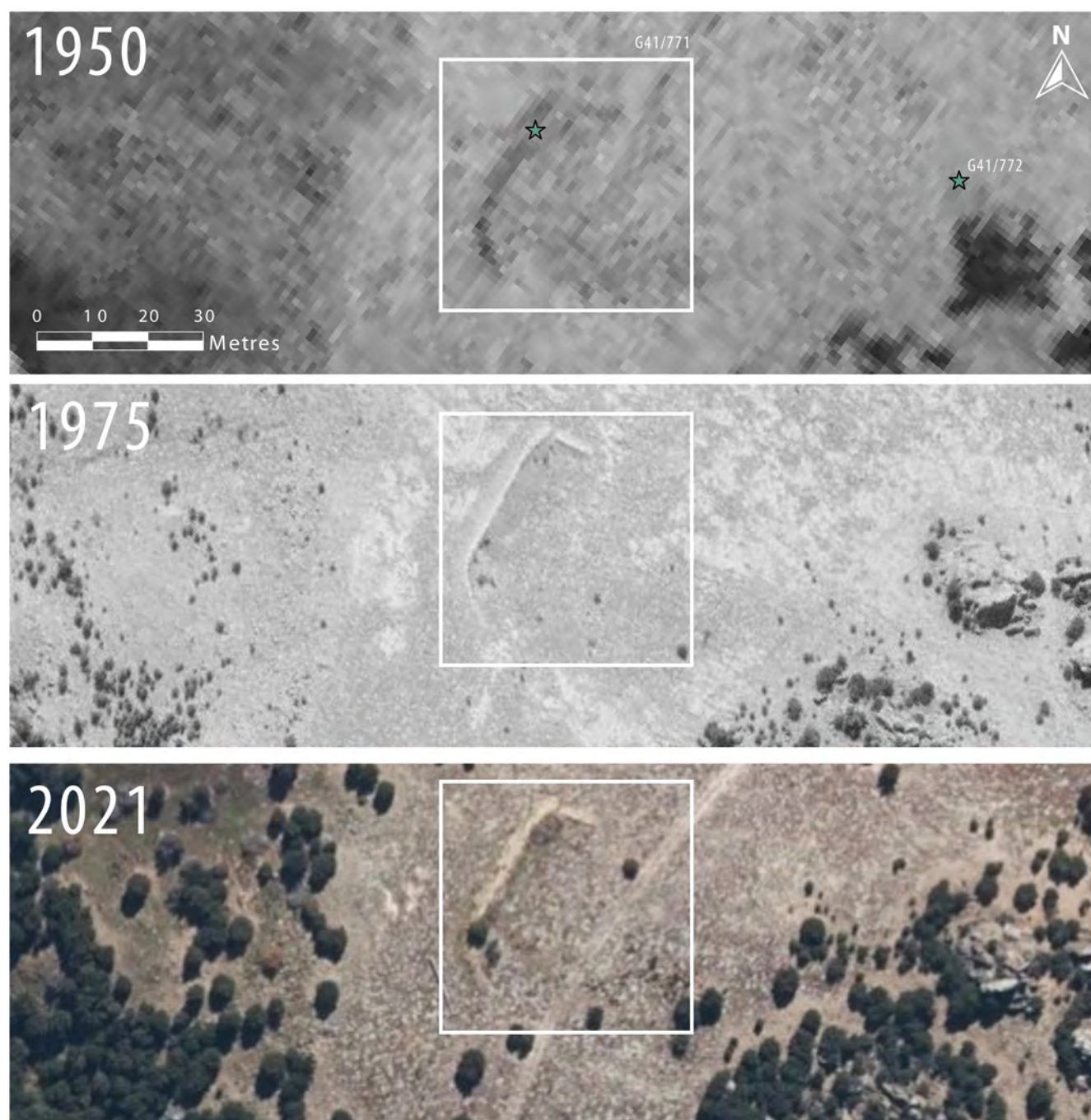


Figure 1. Aerial photographs of Site 2.



Figure 2. View of Site 2 Feature from NZTM E1307942 N5017241, facing southwest.



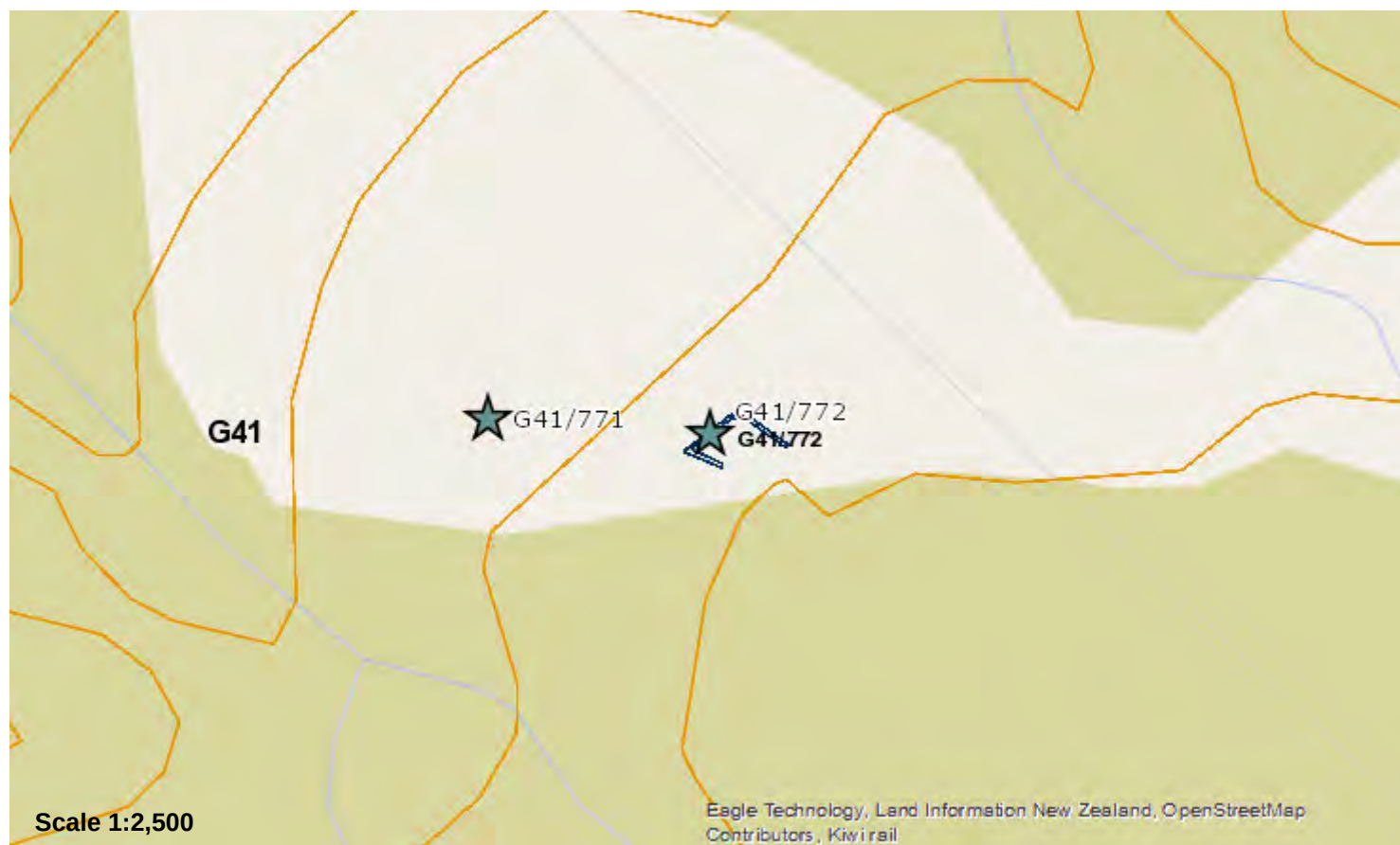
Figure 3. Example of feature bank in profile.



Figure 4. Power pole dropped on southern part of Site 2 feature.



Site Record Form

NZAA SITE NUMBER: G41/772**SITE TYPE:** Agricultural/ pastoral**SITE NAME(s):****DATE RECORDED:****SITE COORDINATES (NZTM) Easting:** 1308008**Northing:** 5017214**Source:** Handheld GPS**IMPERIAL SITE NUMBER:****METRIC SITE NUMBER:** G41/772**Finding aids to the location of the site**

Follow road through Lot 1 DP 56147 towards coordinates. Site is located approximately 50 m from the road.

Brief description

Stone wall

Recorded features

Stone retaining/ facing

Other sites associated with this site

G41/771

SITE RECORD HISTORY	NZAA SITE NUMBER: G41/772
Site description Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris Grid reference (E1308008 / N5017214) The site is a stone retaining wall feature which feature skirts around the edge of a large rock outcrop for a length of approximately 38 m. The feature does not appear to serve any function beyond creating a level surface around the rocky bluff. The wall incorporates parts of the outcrop, is over two metres at its highest point and is stacked lower at its northern and southern ends. The site is approximately 55 m away from G41/771, an earth bank feature. Condition of the site Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris The wall has partially collapsed at the easternmost part of the feature, but is otherwise in good condition. Lot 1 DP 56147 is intended for subdivision, but due to the location of the wall, property development is unlikely to affect the site. Statement of condition Updated: 04/01/2023 - Good – Majority of visible features are intact, but some minor loss of definition and/or damage Current land use: Updated: 04/01/2023 - Rural residential Threats: Updated: 04/01/2023 - Subdivision	

G41/772 – Retaining Wall

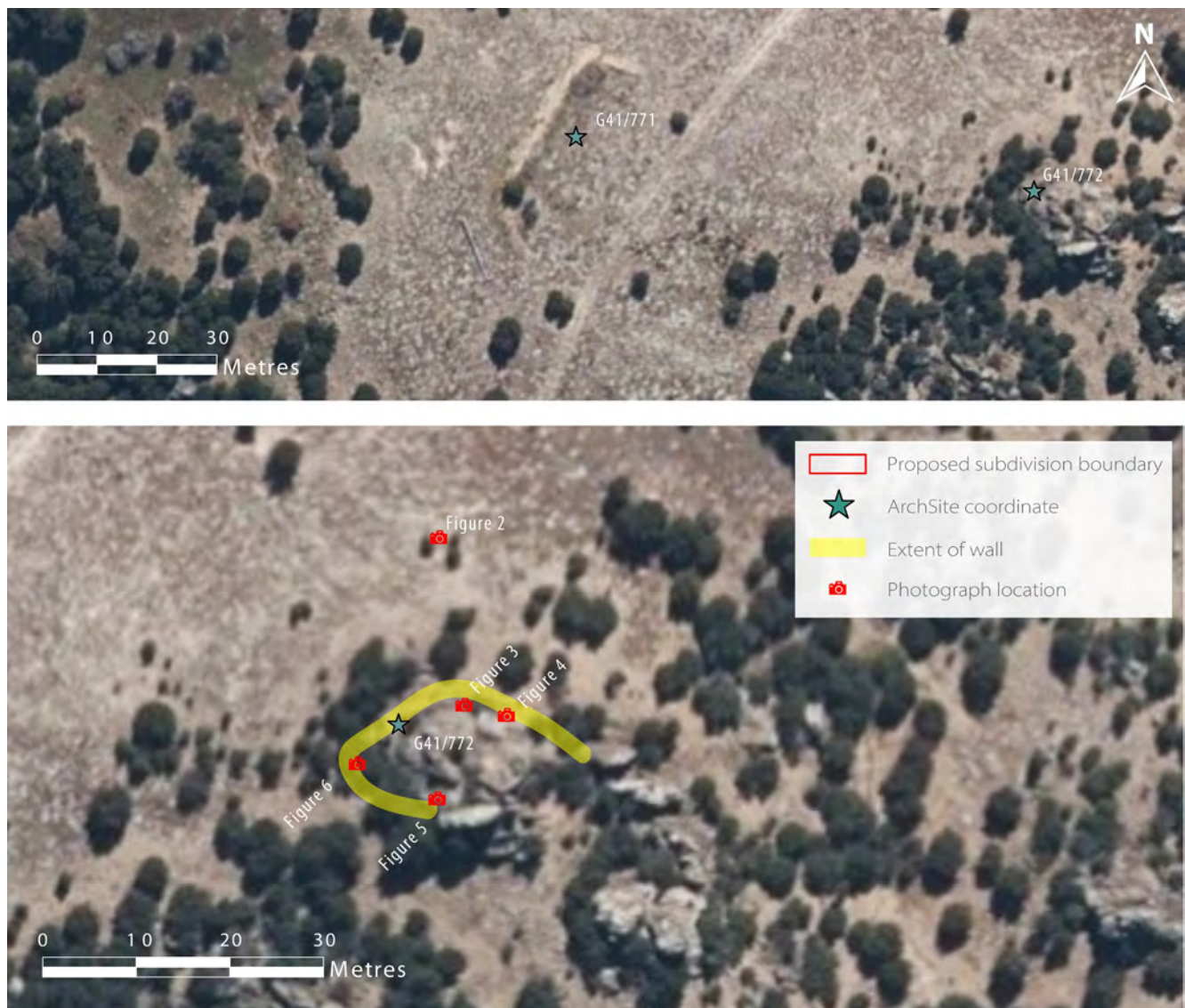


Figure 1. Aerial photographs of G41/772.



Figure 2. Photograph of G41/772 retaining wall from NZTM E1308011 N5017234, facing south.



Figure 3. Close up of feature, from NZTM E1308012 N5017216.



Figure 4. View to southeast of wall from NZTM E1308020 N5017215.

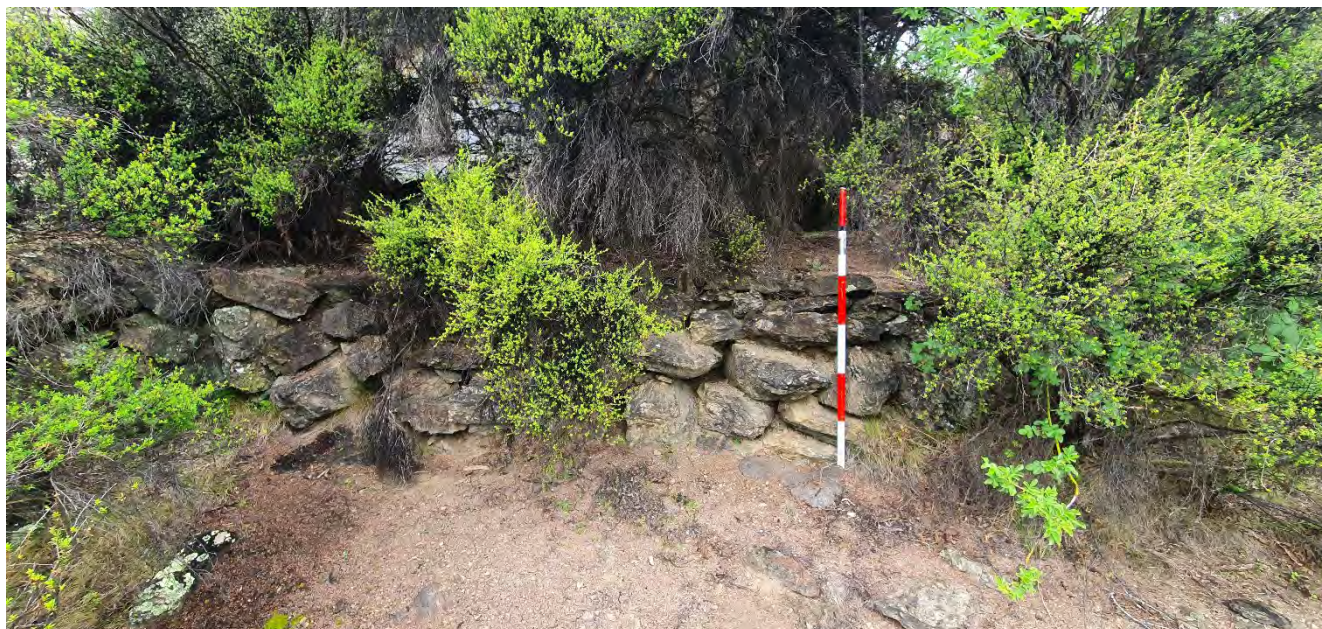


Figure 5. Lower section of wall at southern end.



Figure 6. Partial collapse at NZTM E1308004 N5017209.



Site Record Form

NZAA SITE NUMBER: G41/773

SITE TYPE: Agricultural/ pastoral

SITE NAME(s):

DATE RECORDED:

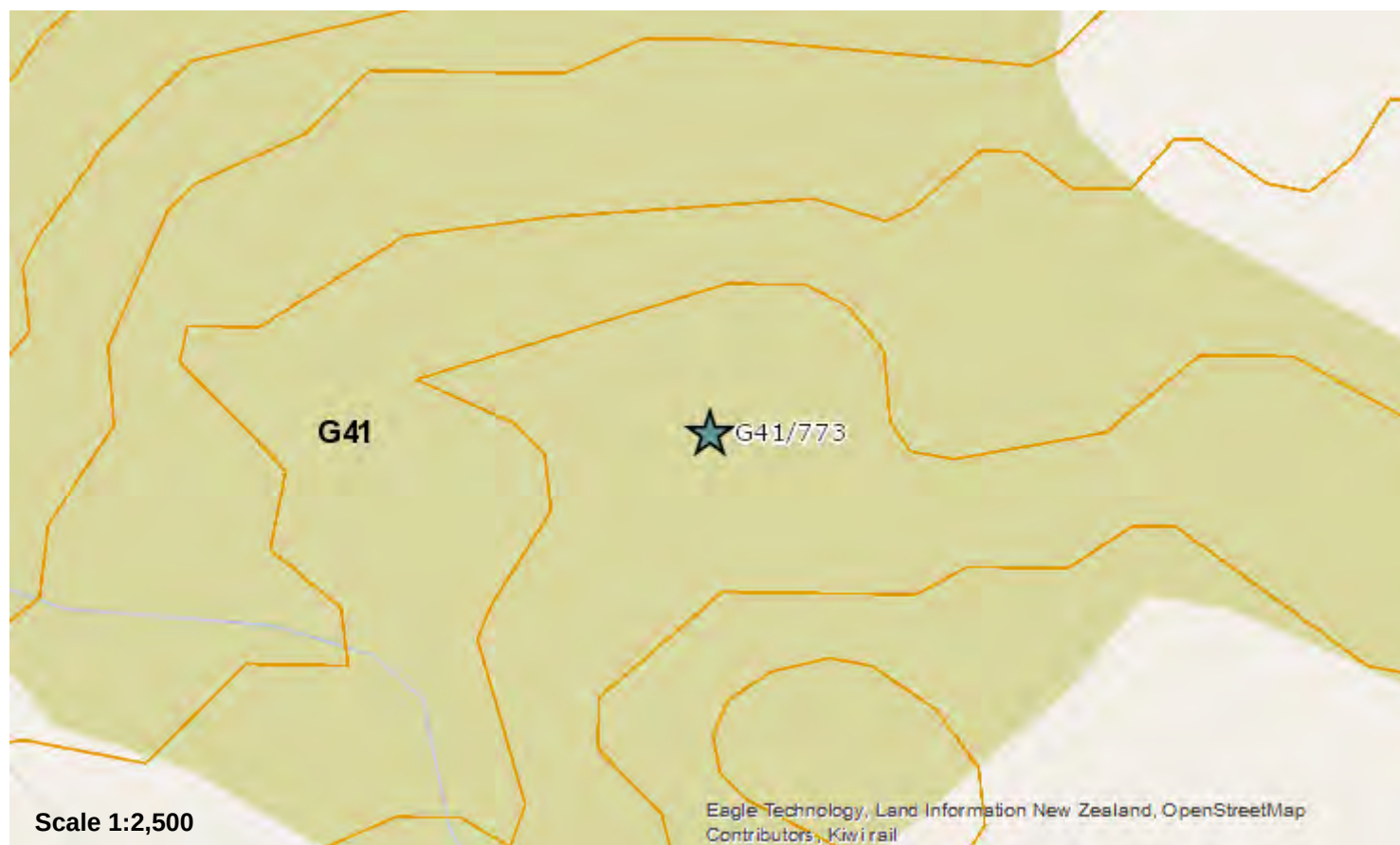
SITE COORDINATES (NZTM) Easting: 1308206

Northing: 5017471

Source: Handheld GPS

IMPERIAL SITE NUMBER:

METRIC SITE NUMBER: G41/773



Finding aids to the location of the site

Follow road through Lot 1 DP 56147 towards coordinates. The site is adjacent to the road.

Brief description

Earth bank with stone revetting

Recorded features

Bank (earth)

Other sites associated with this site

SITE RECORD HISTORY	NZAA SITE NUMBER: G41/773
Site description Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris Grid reference (E1308206 / N5017471) The site consists of two raised banks of piled up earth with revetting on each bank. Both banks exhibit revetting at approximately corresponding locations. The feature is present on the earliest available aerial photographs (1950) and creates an enclosure of approximately 25 by 20 metres. The site may once have been an animal enclosure or a small reservoir. A hole is present under the revetting on the eastern bank that appears to open on both sides, indicating this may have been a culvert, although it may also be a result of rabbit burrowing. Condition of the site Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris Both banks are quite slumped and degraded and are disturbed by rabbit burrowing. Statement of condition Updated: 04/01/2023 - Poor - Visible features are incomplete, unclear and/or the majority have been damaged in some way Current land use: Updated: 04/01/2023 - Rural residential Threats: Updated: 04/01/2023 - Subdivision, Erosion, Property development	

G41/773 – Earth Bank Feature

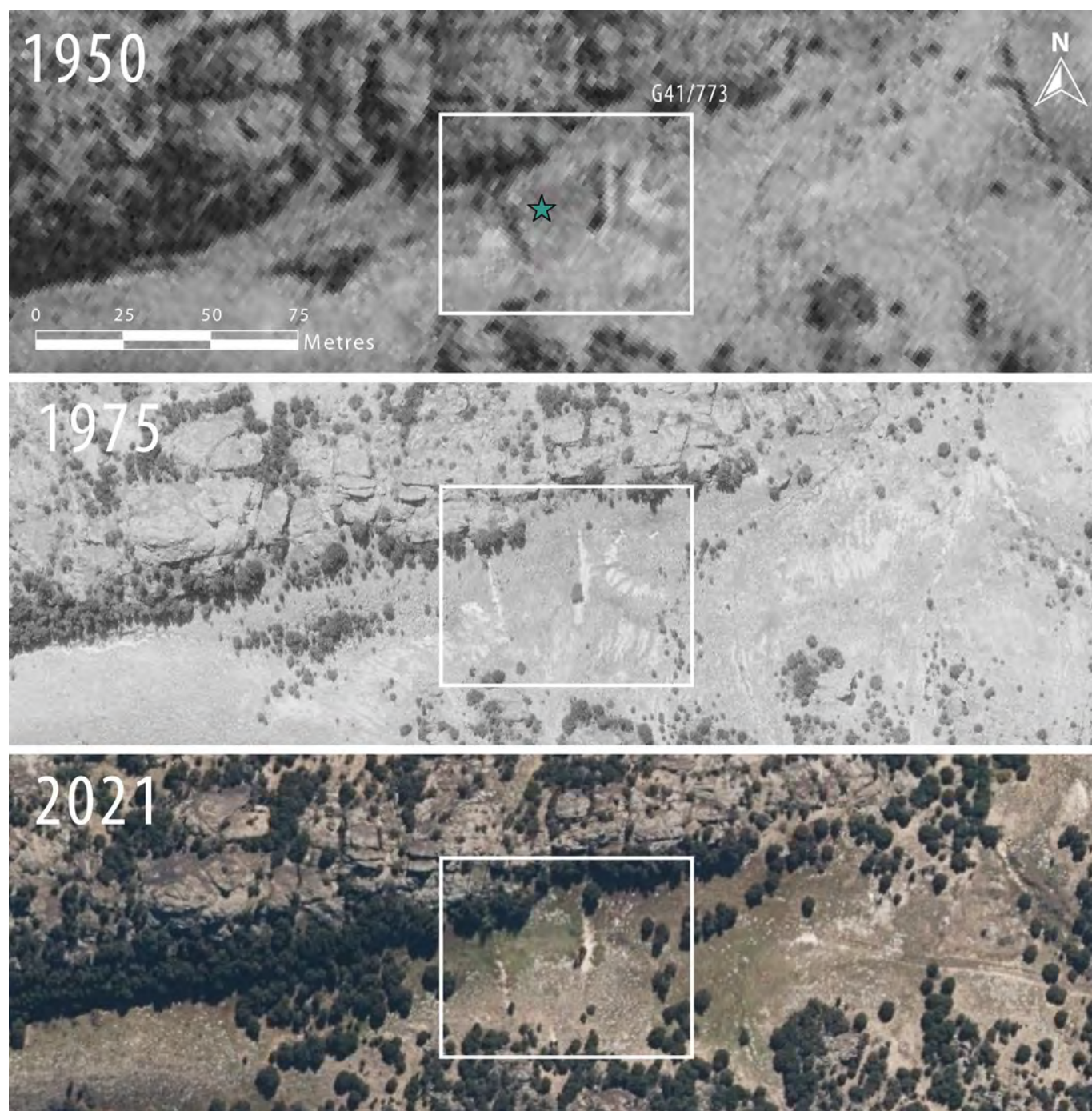


Figure 1. Aerial photographs of G41/773



Figure 2. Site 4 from NZTM E1308223 N5017420, facing north. Arrows show banks and point to locations where revetting is present.



Figure 3. Revetting on western bank feature at NZTM E1308188 N5017454, facing east.



Figure 4. Revetting on eastern bank feature at NZTM E1308215 N5017475, facing east.



Site Record Form

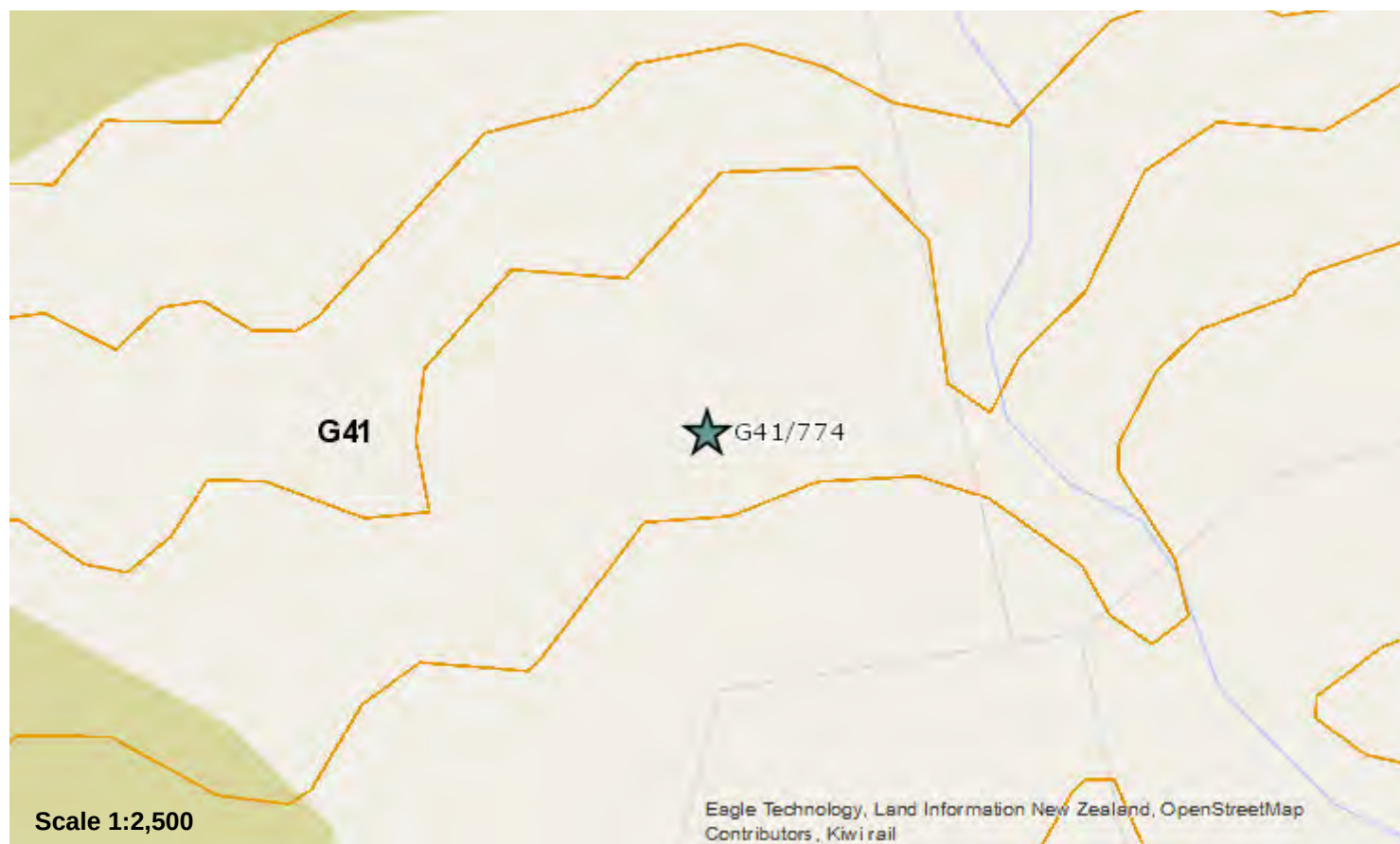
NZAA SITE NUMBER: G41/774

SITE TYPE: Mining - gold

SITE NAME(s):
DATE RECORDED:
SITE COORDINATES (NZTM) Easting: 1308618

Northing: 5017604

Source: Handheld GPS

IMPERIAL SITE NUMBER:
METRIC SITE NUMBER: G41/774

Finding aids to the location of the site

Follow road through Lot 1 DP 56147 towards coordinates. The site is located in gullies adjacent to road.

Brief description

Sluicing areas and tailings

Recorded features

Sluicings/ sluicing face, Tailings

Other sites associated with this site

SITE RECORD HISTORY	NZAA SITE NUMBER: G41/774
Site description Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris Grid reference (E1308618 / N5017604) The remnants of sluicing were identified in an area with three parallel gullies within the proposed Rocky Point subdivision (Lot 1 DP 56147). These were apparent as small patches of amorphous tailings. The gullies were largely overgrown with scrub, although tailings were observed in the eastern and western gullies. The sluicing areas appear to have exploited a drainage channel upslope in the adjacent property which has since been infilled by a vineyard plantation. The western and middle gullies were largely overgrown, and only minor examples of tailings were observed in these areas. These gullies were also deeply cut, indicating extensive water movement. Where they could be observed, the tailings appear to represent minor workings, and these gullies may have been an area where unsuccessful attempts at gold mining occurred. Condition of the site Updated 22/12/2022 (Field visit), submitted by chrisjennings , visited 16/11/2022 by Jennings, Chris The gullies are overgrown with scrub, and it is difficult to properly ascertain the extent of the workings. Where they could be observed, the tailings are small and degraded. Although Lot 1 DP 56147 is intended for subdivision, the location of the features indicate they are unlikely to be affected by the development of the property. The tailings are more likely to be displaced by erosion. Statement of condition Updated: 04/01/2023 - Poor - Visible features are incomplete, unclear and/or the majority have been damaged in some way Current land use: Updated: 04/01/2023 - Rural residential Threats: Updated: 04/01/2023 - Subdivision, Erosion	

G41/774 – Sluicings/tailings

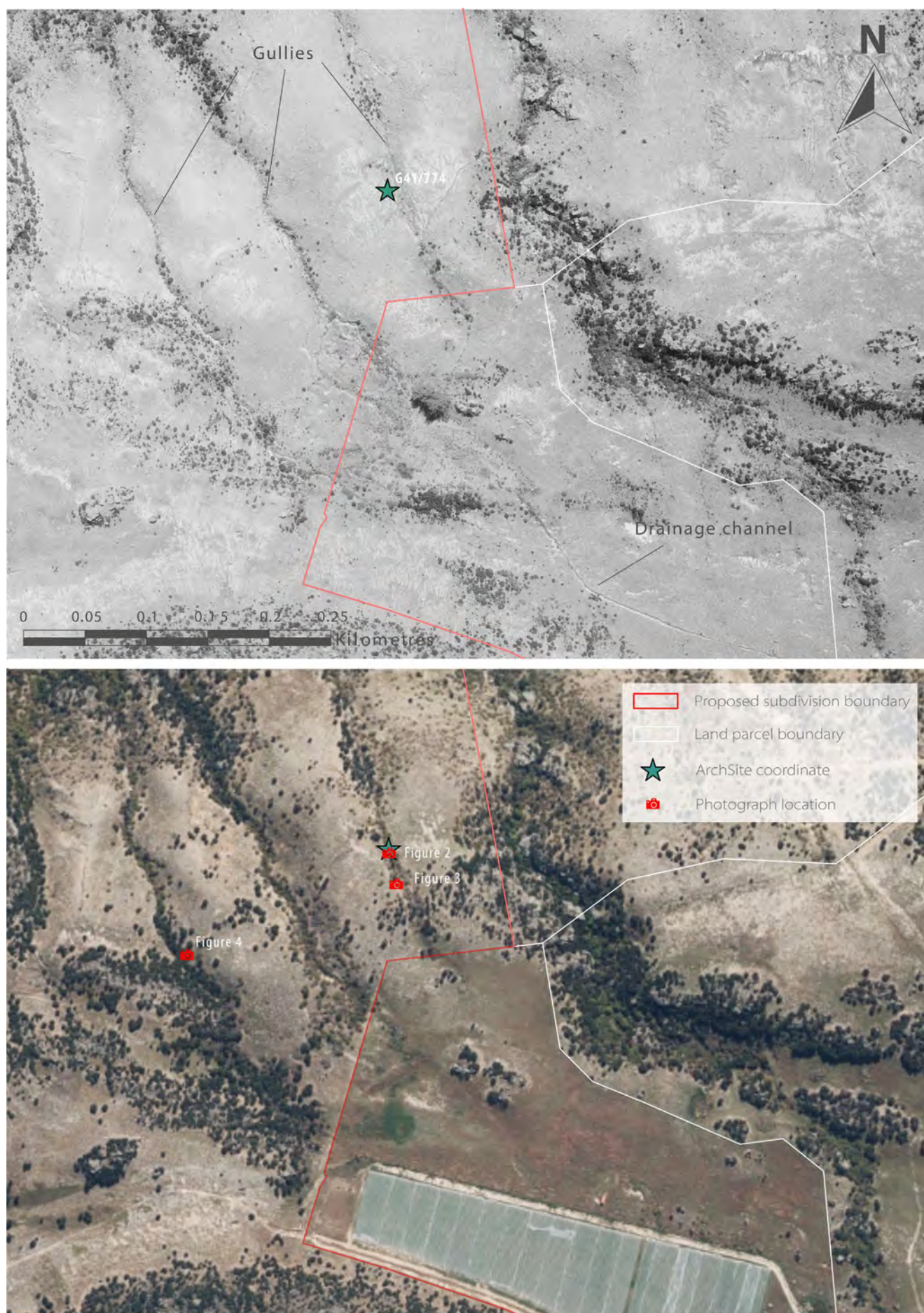


Figure 1. Aerial photographs of G41/773



Figure 2. Example of tailings in eastern gully at NZTM E1308619 N5017601.



Figure 3. Example of tailings in eastern gully at NZTM E1308626 N5017576.



Figure 4. Example of tailings in western gully at NZTM E1308458 N5017511.



Rocky Point – Bendigo
Landscape Assessment
8/06/2023

INTRODUCTION

1. This report assesses the potential effects of a proposed subdivision, access roads, and development of 19 residential dwellings, 9 Chalets, and 3 small-scale communal development lots, located within the site (Lot 1 DP 561457). This assessment addresses the following matters:

- *Effects on amenity, landscape and open space of the receiving environment;*
- *Consideration of the location of the building platforms;*
- *Effects on neighbouring properties;*
- *Mitigation measures (Design Controls)*
- *Recommended conditions.*

2. The Landscape Assessment is structured as follows:

- Qualifications and experience
- Background
- Description of the wider landscape and the site
- Description of the proposal
- Recommended Design Controls
- Landscape assessment
- Visual assessment
- Effects on landscape character and landscape amenity
- Assessment of relevant policies
- Overall conclusion

2. The following attachments are included in this report:

Attachment A:	Context Plan	<i>Baxter Design - 4371-SK34</i>
Attachment B:	District Plan	<i>Central Otago District Council</i>
Attachment B1:	Schedule 19.16	<i>Central Otago District Council</i>
Attachment C:	Masterplan	<i>Baxter Design - 4371-SK33</i>
Attachment C1:	Existing Landscape Component Analysis	<i>Baxter Design - 4371-SK58</i>
Attachment D:	Lots 1-9 –Indicative Site Plan	<i>Baxter Design - 4371-SK54</i>
Attachment D1:	Lots 1-9 –Platforms and Levels	<i>Baxter Design - 4371-SK66</i>
Attachment D2:	Lots 10-19 – Indicative Site Plan	<i>Baxter Design - 4371-SK81</i>
Attachment D3:	Lots 10-19 – Platforms and Levels	<i>Baxter Design - 4371-SK73</i>
Attachment D4:	Lots 14 & 20 – Indicative Site Plan	<i>Baxter Design - 4371-SK75</i>
Attachment D5:	Lots 14 & 20 – Building Platform	<i>Baxter Design - 4371-SK67</i>
Attachment E:	Lots 21-26 – Indicative Site Plan	<i>Baxter Design - 4371-SK55</i>
Attachment E1:	Lots 21-26 – Platforms and Levels	<i>Baxter Design - 4371-SK69</i>
Attachment E2:	Lot 27 – Indicative Site Plan	<i>Baxter Design - 4371-SK77</i>
Attachment E3:	Lot 27 – Platform and Levels	<i>Baxter Design - 4371-SK68</i>
Attachment E4:	Lot 28 Indicative Site Plan	<i>Baxter Design - 4371-SK82</i>
Attachment E5:	Lot 28 Platform and Levels	<i>Baxter Design - 4371-SK72</i>
Attachment F:	Lots 29 & 30 Indicative Site Plan	<i>Baxter Design - 4371-SK79</i>
Attachment F1:	Lots 29 & 30 Indicative Site Plan	<i>Baxter Design - 4371-SK70</i>
Attachment G:	Lots 31 & 32 Indicative Site Plan	<i>Baxter Design - 4371-SK80</i>
Attachment G1:	Lots 33 Indicative Site Plan	<i>Baxter Design - 4371-SK83</i>
Attachment G2:	Lots 31 - 33 I-Platform and Levels	<i>Baxter Design - 4371-SK71</i>
Attachment H:	Photo Location Map	<i>Baxter Design - 4371-SK41</i>
Attachment I:	Landscape Assessment Viewpoint 1	<i>Baxter Design - 4371-SK42A</i>
Attachment J:	Landscape Assessment Viewpoint 2	<i>Baxter Design - 4371-SK42B</i>
Attachment K:	Landscape Assessment Viewpoint 3	<i>Baxter Design - 4371-SK42C</i>
Attachment L:	Landscape Assessment Viewpoint 4	<i>Baxter Design - 4371-SK42D</i>
Attachment M:	Landscape Assessment Viewpoint 5	<i>Baxter Design - 4425-SK42E</i>
Attachment M1:	Landscape Assessment Viewpoint 7	<i>Baxter Design - 4425-SK42G</i>
Attachment M2:	Landscape Assessment Viewpoint 8	<i>Baxter Design - 4425-SK42H</i>
Attachment N:	Landscape Assessment Viewpoint 9	<i>Baxter Design - 4425-SK42I</i>
Attachment O:	Landscape Assessment Viewpoint 10	<i>Baxter Design - 4425-SK42J</i>
Attachment P:	Landscape Assessment Viewpoint 6	<i>Baxter Design - 4371-SK42F</i>
Attachment Q:	Scheme Plan	
Attachment R:	Rocky Point – Schedule of Lots	<i>Baxter Design - 4371-SK91</i>
Attachment S:	Rocky Point – Existing Kanuka	<i>Baxter Design - 4371-SK93</i>
Attachment S1:	Lots 1 - 9 - Existing Kanuka	<i>Baxter Design - 4371-SK94</i>

Attachment S2:	Lots 10 - 19- Existing Kanuka	Baxter Design - 4371-SK95
Attachment S3:	Lots 14 and 20 - Existing Kanuka	Baxter Design - 4371-SK96
Attachment S4:	Lots 21 - 26- Existing Kanuka	Baxter Design - 4371-SK97
Attachment S5:	Lot 27 – Existing Kanuka	Baxter Design - 4371-SK99
Attachment S6:	Lot 28 – Existing Kanuka	Baxter Design - 4371-SK100
Attachment S7:	Lot 29 and Lot 30 - Existing Kanuka	Baxter Design - 4371-SK98
Attachment S8:	Rocky Point – Existing Kanuka	Baxter Design - 4371-SK101
Attachment T:	Proposed Compensation Planting	Baxter Design - 4371-SK116

QUALIFICATIONS AND EXPERIENCE

3. My full name is Patrick John Baxter. I hold a Bachelor of Science degree in Geography from 1981 and a Post Graduate Diploma in Landscape Architecture from 1984. I am a Director of Baxter Design Group Limited, a Queenstown-based consultancy specialising in landscape architecture, urban design, master planning and landscape planning and I am a registered member of the New Zealand Institute of Landscape Architects.
4. I have worked in the Queenstown Lakes District since 1989. I was employed in the Queenstown office of Boffa Miskell from 1989 until 1998. In 1998, I established my own practice specialising in landscape architecture, urban design and master planning. Baxter Design currently employs 5 staff and is working on projects throughout New Zealand and the South Pacific.

BACKGROUND

5. Under the Central Otago District Plan, the site sits within the Rural Resource Area 2 and subject to the Rocky Point Recreation Zone and Landscape Protection Area (Concept Plan in Schedule 19.16)". Under Section 4, the District Plan describes the Rural Resource Area as:

"The Rural Resource Area comprises the rural environment of the District. This area has been identified as distinct from the urban areas of the District on the basis of its environmental character. The amenity values of the rural environment are dominated by Central Otago's unique, semi-arid landscape of broad basins separated by low mountain ranges with sparse vegetation, covered in tussock grassland and exotic pasture, and broken by schist rock outcrops. District Plan as an outstanding natural landscape or outstanding natural feature. These values can be enhanced by human made elements which include orchards and vineyards; homesteads accompanied by stands of trees (often poplars); remnant stone cottages; small irrigation and stock water dams and water races; energy generation facilities; and shelter belts of trees."

6. A portion of the site sits within an Outstanding Natural Landscape (ONL) overlay identified as elevated areas providing a visual backdrop to Lake Dunstan near Bendigo. The ONL sits outside the Rocky Point Recreation Zone as shown in the Concept Plan in Schedule 19.16.(Refer Attachment B1).

7. Section 4.2 of the District Plan outlines significant resource management issues of the Rural Resource Area. The most relevant points are 4.2.1 Outstanding Natural Landscapes and Outstanding Natural Features, 4.2.2 “Central Otago’s Unique and Distinctive landscape” and 4.2.15 “Development in Rural Areas.” This Landscape Assessment addresses the proposed additional development in the context of these key sections of the District Plan.

DESCRIPTION OF THE WIDER LANDSCAPE + SITE

8. For this application, the ‘site’ refers to the area in and around the ‘Rocky Point Recreation Zone’ (approximately 18.2ha), identified on schedule 19.16 of the Central Otago District Plan, located on Lot 1 DP 561457 (Refer Attachment A and C).

DESCRIPTION OF THE WIDER LANDSCAPE

9. The site is located on the lower western slopes of the Dunstan Mountain Range, approximately opposite the point at which the Clutha River flows into Lake Dunstan, at the south end of a broad valley/basin landscape (Refer to Attachment A) that extends north beyond Tarras. The site is located approximately 13.5km north of Cromwell and 15km south of Tarras.
10. To the north of the site the landscape character is largely an open pastoral landscape, within a valley landscape that includes the land east of the Pisa Mountain Range, extending across the Clutha River to the Dunstan Mountain Range and up the Tarras ‘valley’ . This landscape is occupied by a mix of pastoral and intensive farming, including viticulture, traditional grazing and dairy farms. Large pivot dairy irrigators substantially cover this flat landscape. The Clutha River sits within an incised river terrace, west of the site. Residential dwellings and agricultural buildings are scattered throughout that open flat pastoral area to the north and northeast of the site.
11. To the east of the site is the area known as Chinaman’s Bluff. Located at the southern end of the flats described above. The ‘Chinaman’s Bluff’ locale / landscape describes that rolling terraced landform that extends approximately 6.5km east from the site, south of Bendigo Loop Road. The landscape character here is one of an intensively developed viticultural landscape occupying the terraces and north facing escarpments at the foot of the Dunstan Range, one of the larger viticultural areas in the southern lakes / Central Otago area, reputedly producing some of the highest quality wine in the region.



Google Earth Screenshot 2023 showing viticultural development along Chinaman's Bluff East of Site

12. The landscape character of the western lower slopes of the Dunstan Mountain Range, within which the site is located, retains a relatively natural character, flanked by the Chinaman's Bluff viticultural landscape to the east and the development adjacent to Lake Dunstan, south of the site.
13. South of the site the landscape character is characterised by relatively steeply rising land above the lake, clad in predominantly Kanuka scrubland with occasional rocky cliffs and outcrops amongst historic river terraces. Development and man-made modification of that landscape is mostly contained to the lower foothills and flats along the eastern edge of Lake Dunstan, on the lower slopes of the Dunstan Range foothills. In the last 10 years there has been considerable modification undertaken within that landscape, including gravel roads, extensive viticulture, small scale communal development, scattered lifestyle residential development and public recreation areas.
14. The residential dwellings described above are typically found on the flat open terraces between vegetated gullies, rocky outcrops, vineyards and rural development. Access to that development from the State Highway winds up a mix of sealed and gravel roads. The principle residential developments include Bendigo Downs and The Boulders, with large-scale sections and defined building platforms. A large distillery complex is also currently under construction in this landscape. The architecture of residential dwellings is consistent in their bulk, location, material and colour palettes, with the use of steel, concrete, glazing, and natural stone utilised on the façades of buildings. Colours are typically dark and of a low reflective colour, with these dwellings blending recessively into the surrounding vegetation and stone outcrops. This is an expected outcome of considered development within an Outstanding Natural Landscape and is appropriate in that landscape.
15. Directly west of the site, over SH8, is Lake Dunstan, including the lake and the outlet of the Clutha River at the head of Lake Dunstan, where the Clutha River transitions over a wide delta into the north end of the lake.

16. Further west of the site, across Lake Dunstan, the landform rises up away from the lake edge, onto flat pastoral land, predominantly in rural and viticulture land use directly across from the site, with established lakeside residential development. That landform transitions west to hills that become progressively steeper and more rugged, up to the Pisa Range tops. That open pastoral landscape provides a visual contrast to the brown, semi-arid hills which form an integral part of the enclosing visual character of the surrounding landscape.
17. The landscape character of the wider Dunstan Range is characterised by rocky outcrops, dense swathes of Kanuka that follow natural gullies and minor ridgelines within the landscape, with a simple vegetative cover sculptured over time by a low rainfall and exposure to prevailing winds.

DESCRIPTION OF SITE CHARACTER (refer Attachment C1)

18. The site is located southeast of the intersection of Bendigo Loop Road and SH8. The site is currently accessed from the north from Bendigo Loop Road, off State Highway 8, via a gravel farm track rising from the basin floor, up to the lower slopes and up to the general location of the proposed development and from the south, via a roughly formed farm track north of Lakefront Terrace.
19. In general, the landscape character of the site is highly complex and displays a mix of rocky outcrops, steep escarpments, steep gullies, rock fields, plateaus and valleys, all with a mix of vegetative cover that is generally consistent over the site, defined by a limited selection of species.
20. To assist the description of the landscape character of the site over such a complex landscape, this report reduces the site landscape into identifiable components, as shown on Attachment C1. The landscape character of those components are described below:
21. The Rolling Flats: The lower part of the site, adjacent to Bendigo Loop Road, is a small landscape component, comprised of a series of minor terraces, adjacent to the road. Vegetative cover is sparse over this landscape, a mix of scattered Kanuka and Sweet Briar, indicative of the site's overall dry, arid nature, with small grassland species, cushion plants, and minor rocky outcrops covering the landscape, with small scrubland species within the narrow gullies. The topography rises sharply up to the south from this landscape.
22. Kanuka Escarpments: This is relatively steep land, flanking the flats described above, a series of small ridges and gullies covered in a mix of Sweet Briar and Kanuka, with exposed ridges on the upper portion of this component.



View Looking South the 'Elevated Rock Knoll' from SH8

23. **Elevated Rocky Knoll:** This is a significant component the wider site landscape character, being the bulk of the northern portion of the site and the eastern 'bookend' of the Dunstan Range landscape and its confluence with Lake Dunstan. The landscape character of this component is defined by steeply rising landform, with a consistent cover of Kanuka amongst broken rock forms, rock outcrops and in general an natural, unmodified craggy landscape



View from SH8 towards lower slopes of Elevated Rocky Knoll from SH8 (source: Google Maps)

24. **Minor Ridgelines and Gullies:** Located above the Kanuka Escarpments described above, this landform transitions onto a larger series of ridge and gully. Kanuka cover is considerably less here (possibly removed for grazing purposes) as the grade decreases. The open portions of this landscape cover are covered in a mix of native and exotic grasses, with swathes of cushion plants, the Kanuka cover largely restricted to the gullies.

25. Upper Valley: This landscape component crosses the site east to west, connecting the Plateau to a smaller flat area on the eastern boundary of the site and out to the wider vineyard landscape above Bendigo Loop Road. This valley sits between two significantly large elevated rocky knolls and a hillocky landform. The eastern end of the valley landform opens up to terraces adjacent to the site, those terraces largely developed for viticulture and extending east from the site. This valley is largely screened from wider views by enclosing landform to the north and south. Vegetation cover within the valley is sparse, with the predominant cover being small species of grass and cushion plants, flanked by Kanuka-covered escarpments, gullies and slopes that frame it. A farm access track runs through the valley, a continuation of the farm track described above, continuing to the eastern boundary of the site. This valley encloses to the west, dropping down to The Plateau described below.



Elevated view across Upper valley looking north

26. The 'Plateau': This landscape component is a substantial natural plateau, located on the western edge of the site. The landform of The Plateau drops gently to the west across the upper open portions of the plateau, before dropping steeply towards the State Highway and Lake Dunstan. The Plateau is visually and physically bordered by two densely vegetated Kanuka gullies (Refer Attachment C1). The Plateau is sparsely covered in vegetation, with the vegetation cover including largely in cushion plants. This plateau views west across Lake Dunstan and the Clutha River Delta, towards the Pisa Range. Vegetative cover increases as the land slopes down to the west, with dense Kanuka in gullies and around the larger rocky knolls. A vehicle access track and electrical transmission lines run southwest to northeast across the plateau.



View Looking Southwest Across Plateau



Drone Photo looking east over the Plateau and Upper Valley (top left-hand corner of photo)

27. **Minor Southern Valley:** This landscape component is located south of the landscape component described above as the Upper valley. This small landscape is a relatively small flat, enclosed by rising land to the south and dropping down to the Upper valley to the North. The landform is relatively flat across with open areas of grass and sweeps of Kanuka within and enclosing. The landscape character of this area is relatively small and intimate in scale. There is no evidence of human modification within this area, aside from grazing and the landscape character is remains relatively natural.



Photo looking east over Minor Southern valley

28. **Elevated Rocky Knolls:** Located on the southern portions of the site two knolls provide significant landscape features. These landforms are abrupt with steely rising faces, clad in a continuous Kanuka cover with rocky outcrops, ledges and striated rock form visible. The western Rocky Knoll is the larger of the two, being a highly visible landscape feature from views further afield. The larger of the two rocky knolls is visible in the centre of the above photograph.
29. In general, the landscape of the site described above occupies the lower half of what is known as the Dunstan Range. The Dunstan Range stands as the dominant visible background to the site, with a distinctive and abrupt ridgeline visible

from most northern views. In general, the site is around 400m above sea level, with parts of the Dunstan Range ridgeline rising up to 950 – 1000m above sea level.

OVERALL SITE LANDSCAPE CHARACTER

30. In summary, it is likely that some Kanuka removal has been undertaken over time for the purpose of grazing however the site retains a distinctive natural landscape character, with a low level of human modification. The site remains reasonably rugged in character with the landscape forms of gullies, minor ridges, and rocky knolls throughout the entire site providing a strong cohesive landscape that is easily identifiable. The more exposed rocky knolls and lower minor ridges have an arid and exposed natural character. Low lying areas and valleys within the site are sheltered from wider views by large rocky knolls and dense Kanuka vegetation, giving some parts of the site a more locally 'enclosed' character. The predominant vegetation pattern found throughout the site is Kanuka, with other smaller scrubland species such as Dog Rose (*Rosa canina*) and Matagouri (*Discaria toumatou*) evident, with some areas of the invasive weed species Sweet Briar evident on the lower northern slopes. Smaller grassland species and cushion plants are found through the site where areas of the landform are more exposed, such as minor ridges and flats. Man-made modification on the site is restricted largely to rough vehicle tracks, electrical transmission lines, historic kanuka clearance and farm fencing on boundaries.

DESCRIPTION OF THE PROPOSAL (refer Attachment C)

31. The application seeks to subdivide Lot 1 DP 561457 into 32 lots. A Scheme Plan for this subdivision was prepared in January 2023 by CHA Surveyors (Refer to Attachment Q). These lots and their respective areas, building platform areas, and site coverages are found in Attachment R.
32. The proposed development is largely contained within the area known as the Rocky Point Recreation Zone in the Central Otago District Plan aside from building platforms located within proposed Lots 27-33.
33. The proposed development can be summarised as follows:
- 20 residential allotments and specified Residential Building Platforms (RBP) (proposed Lots 1-9, 14,15, 27, 29-30 and 33);
 - 9 small residential allotments and specified RBP's (for chalets) (proposed Lots 10-19);
 - A communal facility on a specified RBP on proposed Lot 28
 - Communal use facilities on proposed Lots 31 & 32
34. In general, the character of the proposed development, the location of the future dwellings and other structures responds to the site character and a requirement to maintain and protect the existing landscape character of this site. No lot boundaries will not be evident on the site on completion as each lot will have a designated RBP. To that end, where appropriate, the proposed RBP's are not all rectangular in shape, with several being crafted to fit the landform within

which they are to be located and to that end, the size of the proposed RBP's will vary according to the landform they sit in.

35. Within the Attachments attached to this report are plans for each development area as set out below, with an indicative masterplan for each area described and a plan showing proposed earthworks and building platforms (residential and communal).
36. The overall character of the proposed development will be one of appropriately scaled and clad dwellings and communal facilities located within a natural landscape, avoiding the usual trappings of traditional rural-residential development. The principal components of the proposed development can be summarised as follows:

- All proposed future dwellings are to be located on level RBP's on prescribed and approved landform shape.
- The locations of all proposed future dwellings and communal facilities have been selected to minimise potential adverse effects and to maintain the landscape character of the site.
- All structures will be subject to design controls, specifically crafted to address and maintain the existing site character. The purpose of these controls will be to facilitate a contiguous and appropriate architectural and landscape outcome (both in form and scale) over the site.
- Land-shaping works are proposed on all development areas (refer to Attachments D1, D5, E1, E3, E5, F1 and G2), to enable flat building areas. The scale, shape and form of these earthworks have been designed to minimise disturbance to the wider landscape character and to enable a clear picture of the proposed form of the development.
- The traditional trappings of development such as residential fencing, large scale ornamental planting and domestic gardens etc. will be restricted by way of controls
- Kanuka will be maintained as the predominant tree species in order to maintain the existing landscape character and to avoid any reduction in the existing vegetative cover that forms a significant part of the landscape character of the site.

37. The areas and 'groups' of the proposed development are described below:
38. Proposed lots 1 – 9 (refer Attachments D, D1): Residential dwellings are to be located on the western edge of the site on the 'plateau' landscape described above. The proposed 9 lots have been arranged to follow the existing contours of the plateau site and avoid the steep drop off of the plateau that extends to the southwest within the zone. Proposed Lots 1, 2, 3 & 8 have a 30m x 25m residential building platform (RBP) of 750m², on re-shaped landform and proposed lots 4, 5, 6, and 7 will have 30m x 20m RBPs of 600m². Proposed RBP 9 is to be 625m², reflecting the landform on which it is to be located.
39. As with all proposed RBP's, these lots will have a level building platform and prescribed datum ensuring that built form is appropriately located within the landscape. Earthworks will be done prior to title. (Refer to Attachment D). Within this area of development, as with other areas, additional Kanuka planting is proposed and, where small areas of Kanuka are

to be removed for the purpose of shaping those RBP's, new Kanuka planting will be undertaken to match or exceed the loss of existing Kanuka. Additional Kanuka planting is also proposed between and around proposed RBP's for the purpose of mitigation, privacy and overall amenity.

40. A single road will access proposed Lots 1-9, running along the contour and joining with the principal access road at the western end of this 'cluster' of dwellings, being effectively a cul – de sac.
41. Domestic activities will be contained by way of defined curtilage areas. As with many of the proposed lots, the title boundaries extend often well past proposed curtilage areas. Therefore, within the proposed title boundaries, the extent of domestic activity is clearly defined, with protected areas of Kanuka and landscape occupying substantial portions of the titles.
42. **Proposed Lots 10 – 19 (refer Attachments D2, D3):** Accessed from the northwest from the road climbing up from proposed Lots 1-10, the Proposed RBPs for lots 10-19 will be substantially smaller in size than others (all RBPs for 10-19 being 84m² in size, 7 x 12m), allowing for a cluster of small chalet-styled development to be located within this part of the site. These lots are to be located on the southern side of a small valley (being the western end of the Upper Valley described above). From a landform perspective, this area of the site is discrete, screened from the wider.
43. Dwellings on proposed Lots 10-19 will differ from the larger stand – alone residential dwellings on other lots in that these structures (chalets) are to be built on piles only, touching the land more 'lightly' than the larger residential dwellings on the Plateau and Upper Valley Areas. Carparking will be located immediately adjacent to the access road only, with access to the chalets by paths. Proposed curtilage restrictions within this cluster of chalets are more restrictive, largely preserving the natural landscape and prohibiting gardens, fencing and suchlike.
44. **Proposed Lots 14 & 20 (refer Attachments D4, D5):** Dwellings on proposed Lots 14 & 20 will be accessed from the north from the principal access road that extends through the Upper Plateau. The proposed RBP on Lot 14 climbs up from that proposed road, with that RBP located within a small and relatively open saddle landform. The shape of the proposed RBP has been crafted to sit within that saddle with that shape and proposed earthwork shown on Attachment D3.
45. The proposed RBP on Lot 20 is also to be located on a relatively open saddle landform with the RBP tailored to fit the site landform.
46. **Proposed Lots 21-26 (refer Attachments E, E1):** Accessed from the west from a road continuing up the 'valley' from Lots 1-19, 6 residential dwellings are to be located along the southern edge and eastern end of the Upper Valley. The proposed RBP's will be shaped into the base the slope that extend along this valley, running along contour at roughly the same level. As above, these sites would be similar in character and design outcomes to those described for Lots 1-9, with the same landscape and architectural controls to be applied. Proposed RBPs for Lots 21, 22, 23, 25 and 26 are to be 30m x 20m, 600m², while Lot 24 is 30m x 25m at 750m².

47. **Proposed Lot 27:** The proposed RBP on Lot 27 (refer Attachments, E2, E3) is to be located on the southwest flank of a small knoll, accessed by a shared accessway that climbs north from the principal accessway through the Upper Plateau, sharing that accessway with the communal facility proposed on Lot 28. The proposed building platform here is relatively small (440m²) in comparison to others, a reflection of the sale of available landform to be built on and a desire to minimise potential effects.
48. **Proposed Lot 28 (refer Attachment E4, E5):** The proposed development on Lot 28 is one of two small 'communal' facilities to be located on the site, the other being future development on proposed Lots 31 & 32. The proposed BP for this lot sits north of a small knoll, on relatively flat land, access from a lower elevation south of the site, off the principal road that traverses the Upper Plateau.
49. Attachment E4 also indicates an area to the southwest of the proposed BP on Lot 28 for the purpose of providing carparking for one-off events. Also shown on that plan is a space to the north of the proposed BP to enable landscaping to be undertaken to accommodate users and facilitate the full use of the facilities.
50. It is understood that the future use on this site may include temporary events such as a weddings, small corporate events, residents' meetings and other one-off similar events by way of example. To that end, a specific set of Design Controls have been tailored for future structures on the proposed BP, with those design controls also applying to the communal development on proposed lots 31 & 32. The overlying intent of these controls is to ensure an appropriate scale and character of development on this BP, with a distinctly 'Central Otago' flavour to the structure. Those design controls can be summarised as follows:
- A future building shall not exceed 4.5m in height above the prescribed datum for that BP.
 - The principal building form shall be in a traditional gable form running west – east across the site, with verandah and lean to's encouraged.
 - Wall claddings shall be in either aged or coloured mid grey corrugated iron and or horizontal weatherboard (in a clear stain and left to weather).
51. **Proposed Lots 29 & 30 (refer Attachments F, F1):** Dwellings on proposed Lots 29 & 30 are to be located on the flatter upper portions of two north facing ridges, to be accessed independently from the principal access road that climbs up from Bendigo Loop Road. Dwellings on these proposed RPB's are reasonably stand-alone, occupying selected small open areas of land, within the wider Kanuka clad ridge and valley character of that landscape. Proposed Lots 29 & 30 will have RBP's tailored to each site being 870 & 880m² in size respectively. The location of these lots has been selected in clearings to minimise the removal of existing vegetation and to allow appropriately scaled level RBP's to be formed into those sites with controls over curtilage, the management of Kanuka and, like other lots, subject to landscape and architectural controls
52. **Proposed Lots 31 & 32 (refer Attachments G, G1)** prescribe a small-scale communal activity to be located on the minor terraces within the 'Rocky Point Valley area, at the northern entry to the site and accessed directly from Bendigo Loop Road. To maintain a consistent amenity outcome, all structures on the specified BPs within these two BPs would

be subject to the Rocky Point Communal Design Controls described below and the same as applied to the small communal development proposed for proposed Lot 28. It is understood that the proposed use of these communal lots may be more retail based as opposed to use on proposed Lot 28, would be more 'event' focussed. This may include, by way of example, wine tasting, a restaurant, meeting spaces and outside areas for dining and gathering.

53. Proposed Lot 33 (refer Attachment G1, G2) is a single stand-alone residential dwelling, accessed from Bendigo Loop Road and located on relatively flat land west of the communal activity described above.
54. As part of this assessment, an inventory of existing Kanuka vegetation has been conducted outlining the levels of existing Kanuka over the entire site. (Refer to Attachment S). The area of existing Kanuka on each proposed RBP and curtilage areas are outlined in Attachments S1-S8. This inventory reflects the areas for proposed RBPs and curtilage areas have been tailored to greatly reduce the level of disturbance on existing Kanuka vegetation. Proposed areas of compensation planting for ecological restoration are outlined in Attachment T.

DESIGN CONTROLS

55. Design controls form an important part of this purposed development in order to ensure that appropriate development is undertaken, and to maintain and protect the existing landscape character. All proposed residential dwellings, chalets and communal facilities within the site on the proposed RBP's and BP's will be subject to design controls that have prepared by Baxter Design (Refer to Appendix A). There are 3 proposed sets of design controls, a set each for the residential dwellings, the chalets and the communal facilities respectively.
56. The points below summarise the Design Controls for the Residential proposed lots:

Architectural

- All built form is to be contained within a prescribed building platform (RBP) with the combined dwelling and garaging not exceeding the prescribed site coverage as laid out in Attachment R
- No buildings shall exceed a height of 5.5m above a specified fixed floor datum (F.F.L), nominated for each RBP. The building height shall be measured from floor level to the highest point of the roof.
- Cellars etc., may be excavated below floor levels but shall not be visible from outside the platform nor shall any dwelling datum be excavated below the specified datums in order to achieve extra height.
- Dwellings are required to have a mono-pitch roof only following the natural grade of the Rocky Point landscape. The direction of pitch of all monopitch roofs shall be guided the grade of the surrounding landform.
- The lower portion of the roof pitch (mono-pitch) shall not exceed 3m in height
- Roof colours are to have a Light Reflective Value (LRV) of less than 27% and shall be in mid-dark greys or black in colour only.
- A combined maximum of 80% glazing on northern and western elevations only is permitted.

- Exterior cladding shall be restricted to timber (LRV of less than 20), stone or steel only. Where timber is used that shall be in weatherboard (clear oil, unstained), board and batten or plywood only.
- All buildings, structures, fixed clothing lines, and other domestic landscaping and structures are to be located within the prescribed curtilage areas.
- For site coverage on RBPs of residential buildings refer to Attachment R.
- Residential buildings and accessory buildings must be of a modulated form and must not be a continuous length greater than 20 metres.

Landscape

- Other than provided for in the next point, tree planting is restricted to Kanuka only, with any existing Kanuka that is removed to be replaced with a similar area of Kanuka within the lot boundary.
- Each lot is permitted to have an area of 20m² of non – indigenous planting for the purpose of amenity or production (vegetable gardens, ornamental gardens) with species not to exceed 1.2m in height at maturity within the curtilage area.
- Fencing is permitted in traditional 7 wire fencing only (with rabbit proof mesh as required) and is only permitted within the prescribed curtilage areas for the purpose of rabbit control and pet / other containment.
- No fencing of boundaries is permitted.
- Any entry gates and wall feature at lot entries shall be in timber only and shall not exceed 1m in height and 10m in width.
- Exterior lighting shall be restricted to the BP and all downward facing and the light source shall not be more than 1.2m above ground level.

57. The points below summarise the Design Controls for the proposed chalet lots 10-19

Proposed Chalet Design Controls – Lots 10-19

Architectural

Overview: The proposed cabin lots are located within a distinctive valley, the west end of the Upper Valley landscape component. The chalets will be generally small in size, up to 85m² each, located on the upper and lower portions of that valley.

- All built form is to be contained within a prescribed building platforms (RBP) with the permitted 100% site coverage of the RBPs for proposed lots 10-19 (all being 85m²).
- No buildings shall exceed a height of 5.5m above a specified fixed floor datum (F.F.L), nominated for each RBP. The building height shall be measured from floor level to the highest point of the roof. Piles are excluded in this calculation and shall not exceed 900mm in height

- All chalets on lots 10-19 shall be in gable form only (no hip roof ends permitted), with the gables running along the longer length (12m axis) on the RBPs. All gables shall have a minimum roof pitch of 30 degrees.
- Covered verandahs are permitted to extend to a maximum of 2.7m along the northern face of any chalet.
- Decking is permitted under the verandah and one end of the chalet only, extending 3m maximum from the RBP.
- Roof colours shall all be in dark grey only in Colorsteel Grey Friars or similar only.
- Exterior cladding shall be restricted to timber (LRV of less than 20) or steel only. Where timber is used that shall be in horizontal weatherboard (clear oil, unstained) or vertical board and batten only. Where steel is used for wall claddings that steel shall match the roof material in colour and form.

Landscape

The intention of the landscape design controls for the chalets is to maintain the original landscape character and to avoid any domesticated urban appearance.

- Tree planting is restricted to Kanuka only, with any existing Kanuka that is removed to be replaced with a similar area of Kanuka within the lot boundary.
- Exterior lighting shall be all downward facing and the light source shall not be more than 1.2m above ground level.
- No activities are permitted within the curtilage areas of the Cabin lots aside from path and step access to the chalets. Landscaping in the form of grasses and Kanuka only is permitted. Schist rock walls for the purpose of retaining is permitted.
- No domestic items such as heat pump machinery, clothes lines, play equipment etc. and any other items shall be located anywhere within the lot aside from a screened area to the south of each cabin not exceeding 3x3 metres outside of the RPB's and attached to the house. Screening shall be in vertical timber battens to 1.8m high, unpainted and oiled.
- No fencing, i.e., such as privacy fencing, screening or lot boundary fencing is permitted on any chalet lot.
- Retaining walls are permitted but must be in horizontally stacked schist only.
- Paths shall be in compacted gravels only.

58. The points below summarise the Design Controls for the proposed communal lots

Proposed Communal Design Controls – Lots 28, 31 & 32

Architectural

- All built form is to be contained within the prescribed building platforms (BPs) with buildings not to exceed 80% site coverage
- No building on Lot 28 shall exceed a height of 5.5m above the specified fixed floor datums (F.F.L), nominated for each BP. No building on Lot 31 and Lot 32 shall exceed a height of 6.5m above the specified

fixed floor datums (F.F.L), nominated for each BP. The building height shall be measured from floor level to the highest point of the roof.

- Cellars etc., may be excavated below floor levels but shall not be visible from outside the platform nor shall any datum be excavated below the specified datums in order to achieve extra height.
- All structures shall be simple gable form with no hip roofs. Lean-to form and verandahs are permitted
- Roof colours are to have a Light Reflective Value (LRV) of less than 27% and shall be in mid-dark greys or black in colour only and shall be in corrugated iron, in mid to dark greys or in weathered (aged) corrugated iron.
- Exterior cladding shall be restricted to timber (LRV of less than 20), stone or steel only. Where timber is used that shall be in weatherboard (clear oil, unstained), board and batten or plywood only.
- On Lot 28, communal buildings and accessory buildings must be of a modulated form and must not be a continuous length greater than 20 metres.

Landscape

- Tree planting is restricted to Kanuka only, with any existing Kanuka that is removed to be replaced with a similar area of Kanuka within the lot boundary.
- The treatment of exterior 'public' areas are to kept relatively simple in form and character, with ground treatment in grass, gravel and flat flag stone only, steps in stone or concrete and retaining walls in horizontally laid local schist.
- Carpark areas shall be in gravel or asphalt surface only.
- Exterior lighting shall be all downward facing and the light source shall not be more than 1.2m above ground level.
- No fencing of boundaries is permitted.
- Landscape structures such as outdoor fires and shade shall be recessive colours, steel or timber and shall be located within the curtilage areas.
- Each communal lot is permitted to have an area of 30m² of non – indigenous planting for the purpose of amenity or production (vegetable gardens, ornamental gardens) with species not to exceed 1.2m in height within the building platform.

LANDSCAPE ASSESSMENT

59. The structure of this report is based on a 'proposal-based' assessment and will follow the concept and principles of the *Te Tangi a Te Manu – Aotearoa New Zealand Landscape Assessment Guidelines*.

60. The methodology is consistent with the Guidelines and includes the following tasks:

- Desk-top research and site visits – including assessing potential visibility from surrounding public and private views
- A review of the CODC District Plan policies, objectives and assessment matters

- Consideration throughout the design process on measures to avoid, remedy and mitigate potential adverse effects and promote positive effects.

61. The effects rating scale used in this assessment is a modification of the NZILA 7-point scale of effect, which is summarised below:

- Very high, High, Moderate-High, Moderate, Moderate-Low, Low and Very Low.

62. Attachments I to P show the Landscape Assessment Photos, accompanied by Attachment H which shows the locations where those photos were taken.

Landscape Classification

63. Under the Central Otago District Plan, the site is located within a "Rural Resource Area". Under Section 4, the District Plan describes the Rural Resource Area as:

"The Rural Resource Area comprises the rural environment of the District. This area has been identified as distinct from the urban areas of the District on the basis of its environmental character. The amenity values of the rural environment are dominated by Central Otago's unique, semi-arid landscape of broad basins separated by low mountain ranges with sparse vegetation, covered in tussock grassland and exotic pasture, and broken by schist rock outcrops. This landscape retains a high natural character and has significant scenic values and some of it is identified in this District Plan as an outstanding natural landscape or outstanding natural feature. These values can be enhanced by human-made elements which include orchards and vineyards; homesteads accompanied by stands of trees (often poplars); remnant stone cottages; small irrigation and stock water dams and water races; energy generation facilities; and shelter belts of trees."

64. Under the Central Otago District Plan, a portion of the site (Lots 1 - 11, and Lots 14 - 26) sits within an ONL overlay identified as elevated areas providing a visual backdrop to Lake Dunstan near Bendigo (refer to Attachment B).

65. Section 4.2 of the District Plan outlines significant resource management issues of the Rural Resource Area. The most relevant points are 4.2.1 Outstanding Natural Landscapes and Outstanding Natural Features, 4.2.2 "Central Otago's Unique and Distinctive landscape" and 4.2.15 "Development in Rural Areas." This Landscape Assessment will address key matters raised in those sections throughout the report.

VISUAL ASSESSMENT

VISIBILITY / VIEWPOINTS / ASSESSMENT DISCUSSION (refer to Attachments H for all viewpoint locations & Attachments I-P for photographs)

66. Generally, the viewpoints (public) towards the proposed development are from distance, aside from views from SH8 and Bendigo Loop Road to that portion of the development directly adjacent to Bendigo Loop Road at the northern portion of the site. Specific views, potential visibility and potential effects are described below:

VIEWPOINT 1 – VIEW FROM TARRAS CROMWELL ROAD – SH8 (Attachment J)1

67. Viewpoint 1 (Refer Attachment I), from the intersection of Bendigo Loop Road and Tarras-Cromwell Highway (SH8), located approximately 5km north-northeast of the proposed development. This viewpoint represents the first viewing point of the development heading south on SH8 towards Cromwell.
68. This image shows the site amongst the overlying Kanuka covered lower foothills of the Bendigo Mountain Range. The foreground of the image shows the heavily modified nature of the valley flat, with fence lines, and agricultural and viticulture land uses present. The valley flat is predominately a mixture of exotic grasses and pasture, with the occasional cluster of trees for shelter belts. The few buildings that are present in the valley consist of residential dwellings or agricultural-related structures. Towards the foothills of the Bendigo Mountains, human activity is visible, albeit at distance, on the terrace above Bendigo, with vineyards and buildings scattered along those flats and terraces landscape. Farm tracks, roadways, and infrastructure such as large power pylons are also potentially visible.
69. At this distance the proposed development, taking into account the scale of proposed BP's, their colour and form and the retention of that Kanuka covering, would be very difficult to distinguish and perceive within the wider landscape. Given that, it is considered from this viewpoint the potential adverse effects will be very low - negligible.

Summary:

Distance to site: 5 km

Structures on BPs potentially visible from this location: 25, 26, 28, 29, 30

Scale of potential adverse effects: VERY LOW - NEGLIGIBLE

VIEWPOINT 2 – VIEW FROM TARRAS CROMWELL ROAD SH8 (Attachment J)

70. Viewpoint 2 from Tarras-Cromwell Highway (SH8), located approximately 3.8km north-northeast of the proposed development.
71. Viewpoint 2 shows a similar landscape to that described above
72. At this distance the proposed development, taking into account the scale of structures, their colour and form and the retention of that Kanuka covering, would be very difficult to distinguish and perceive within the wider landscape. Given that, it is considered from this viewpoint the potential adverse effects will be Very Low.

Summary:

Distance to site: 3.8 km

Structures on BPs potentially visible from this location: 28, 29, 30

Scale of potential adverse effects: VERY LOW

VIEWPOINT 3 – VIEW FROM TARRAS CROMWELL ROAD SH8 (Attachment K)

73. Viewpoint 3 (Attachment K) from Tarras-Cromwell Highway (SH8), approximately 2.5km north of the proposed development.
74. As above, the bulk of the proposed development will be screened from this view by existing landform. At this distance the proposed development, taking into account the scale of structures, their colour and form and the retention of that Kanuka covering, would be very difficult to distinguish and perceive within the wider landscape. Given that, it is considered from this viewpoint the potential adverse effects will be Very Low. The current level of coherence, naturalness and scenic value of the lower foothills and the Dunstan Mountain Range are retained.

Summary:

Distance to site: 2.5 km

Structures on BPs potentially visible from this location: 28, 29, 30

Scale of potential adverse effects: VERY LOW

VIEWPOINT 4 – VIEW FROM TARRAS CROMWELL ROAD SH8 (Attachment L)

75. Viewpoint 4 (Refer to Attachment L) from the Tarras-Cromwell Highway (SH8) approximately 1.2km north of the proposed development. This viewpoint is indicative of partially screened/open views towards the proposals for vehicle users and tourists moving along SH8 from the north.
76. This image shows a similar landscape to that described above in 1 & 2, albeit at a closer distance
77. As above, the bulk of the proposed development will be screened from this view by existing landform. At this distance the proposed development, taking into account the scale of structures, their colour and form and the retention of that Kanuka covering, would be very difficult to distinguish and perceive within the wider landscape. Given that, it is considered from this viewpoint the potential adverse effects will be Very Low. The current level of coherence, naturalness and scenic value of the lower foothills and the Dunstan Mountain Range will be retained.

Summary:

Distance to site: 1.2km

Structures on BPs potentially visible from this location: 28 & 29

Scale of potential adverse effects: VERY LOW

VIEWPOINT 5 – VIEW FROM BENDIGO STATION HOMESTEAD ENTRY ON SH8 (Attachment M)

78. Viewpoint 5 (Refer to Attachment M) from the entrance to the Bendigo Station Homestead off Tarras-Cromwell Highway (SH8) approximately 800m from the northern boundary of the proposed development. At this location, the viewer has passed from the open agricultural landscapes around SH8 and into a more modified landscape in the vicinity of the Bendigo Station homestead, a landscape typified by established enclosing exotic trees and glimpses of agricultural buildings.

79. From this location views of the proposed development will be restricted to include glimpses of the proposed communal development immediately south of Bendigo Loop Road (approximately 425m), portions of dwellings located on proposed RBPs 29 and 30 (elevated, 510 metres distance) and a dwelling on proposed Lot 33 (390 metres)
80. Taking into account the modified landscape within which this viewpoint lies, the scale of structures, their colour and form, potential adverse effects are considered to be low. The existing level of coherence, naturalness and scenic value of the landscape will be retained.

Summary:

Distance to site: Varies – see above

Structures on BPs potentially visible from this location: 31-33, 29, 30

Scale of potential adverse effects: LOW

VIEWPOINT 6 – VIEW FROM CROMWELL – LUGGATE ROAD SH6 (Attachment N)

81. Viewpoint 6 (Attachment N) shows a typical view looking east towards the proposed development from the intersection of Mount Pisa Road and Luggate–Wanaka Highway (SH6) at approximately 2.6km west of the proposed development with the closest potentially visible dwellings being those on proposed Lots 1-9, being that area referred to in this report as the Lake Plateau. From this view some minor glimpses may also be seen (albeit difficult to detect) of future dwellings on RBPs 15, 20 and 27. This photograph typifies views towards the site from this road, with many views from SH6 at greater distance
82. Dwellings on Lots 1-9, being those on the area referred to as the 'Plateau' are potentially the most visible, being a cluster of dwellings on a clear plateau. The proposed design controls, both architectural and landscape, are restrictive, allowing a very limited palette of materials and only Kanuka planting. To that end, that cluster will present itself to distant western views as a continuous mass of dark coloured forms and, taking that and the viewing distance into account, will be reasonably difficult to perceive.
83. The chalets (proposed Lots 10-19) will be hidden within topography and not visible from this view Dwellings on proposed lots 14, 20 and 27, although potentially visible from these views, will be very difficult to detect as (along with the controls) they are to be located on small platforms discretely located. Interestingly, from these views there are several built dark coloured consented dwelling on slopes above the eastern shore of Lake Dunstan, all of which are very difficult, albeit impossible, to perceive from these distances.
84. It is also noted that none of the proposed dwellings on the site will be visible from SH8, or any of the established legal roads above the State Highway, where it flanks the eastern shores of Lake Dunstan.
85. Taking the above into account, the current level of coherence, naturalness and scenic value of the lower foothills and Dunstan Mountain Range will be retained.

Summary:

Distance to site: Varies – approximately 2.6km.

Structures on BPs potentially visible from this location: 1-9, 14, 20 & 27

Scale of potential adverse effects: VERY LOW

VIEWPOINT 7 – VIEW FROM LUGGATE - CROMWELL ROAD (Attachment O)

86. Viewpoint 7 (Refer Attachment O) shows the existing view from the intersection of Mount Pisa Road and Luggate–Wanaka Highway (SH6). This viewpoint is located approximately 2.5km west of the proposed development.
87. The viewpoints, description and assessment from this view point reach similar conclusions to those discussed above for Viewpoint 6, with a similar number of structures potentially visible from this location, being structures on proposed Lots 1-9, 28, 29+30. Potential adverse effects are mitigated by the contiguous and restrictive design controls, distance of views and the overall integration of structure into landscape. The matter of cumulative effects is potentially relevant but is mitigated by those measures described above. Put simply, the structure will be very difficult to detect without optical aids.
88. Taking the above into account, the current level of coherence, naturalness and scenic value of the lower foothills and Dunstan Mountain Range will be retained.

Summary:

Distance to site: Varies – approximately 2.5km.

Structures on BPs potentially visible from this location: 1-9, 28, 29+30

Scale of Potential adverse effects: VERY LOW

VIEWPOINT 8 – VIEW FROM LAKE DUNSTAN (Attachment P)

89. The viewpoint (Refer to Attachment P) shows a typical view towards the site from the upper end of Lake Dunstan, looking east towards the site. The distance at which the proposed development may be seen from the lake varies but is generally around 1.1-1.3km to the closest proposed RBP. . Dwellings on proposed lots 1-9, 14, 20, and 27 are all potentially visible from the surface of Lake Dunstan. With regards to proposed lots 1-9, the same mitigation principles apply as those discussed above. Appropriately clad buildings, at an appropriate scale, within the existing and proposed Kanuka plantings, as proposed, will be difficult to detect from lake views. The same applies to future buildings on proposed lots 14, 20 and 27 however these will be even more difficult to detect as these are on considerably smaller building platforms and smaller and discrete curtilage areas.
90. Any potential effects on lake viewers / users arising from the proposed development on landscape and visual amenity values will be very low. The current level of coherence, naturalness and scenic value of the lower foothills and wider Dunstan Mountain Range will be retained.

Summary:

Distance to site: Varies – approximately 1.2 – 1.3km, elevated views.

Structures on BPs potentially visible from this location: 1-9, 14, 20, and 27

Scale of potential adverse effects: LOW

VIEWPOINT 9 – VIEW FROM BENDIGO LOOP ROAD – SH8 INTERSECTION (Attachment M1)

91. The viewpoint (Refer Attachment M1) shows a view towards the lower part of the site looking west towards Lots 31-33. The distance at which the proposed development may be seen from this viewpoint is approximately 275 metres to Lot 31 and 325 metres to the centre between lots 32 & 33. From this viewpoint no other structures on other proposed lots on the site will be visible. All structures on these lots will be subject to design control with structures on lots 31 and 32 subject to the communal controls and a dwelling on Lot 33 subject to dwelling controls. As described above, the landscape context of this area is one of a modified agricultural landscape.
92. The proposed structures on lots 31 & 32, will appear as 'farm' buildings, similar in form and character to those north across the road in the cluster of building around the Bendigo Station homestead. A dwelling on the proposed RBP on proposed Lot 33 will be approximately 250 metres east of an established dwelling located south of the intersection of Bendigo Loop Road and SH8. Another dwelling, with that separation and in that location will not be an unexpected component of this modified landscape.
93. Whilst the future structures will be occupying locations where no structures currently exist the wider landscape values of this landscape differ from the rest of the site and does not display the natural characteristics of the wider site. Any potential effects on views arising from the proposed development on landscape and visual amenity values will be very low. The current level of coherence, naturalness and scenic value of this modified landscape will be retained.

Summary:

Distance to site: Varies – approximately 275 – 325m

Structures on BPs potentially visible from this location: 31-33

Scale of potential adverse effects: LOW

VIEWPOINT 10 – VIEW FROM BENDIGO LOOP ROAD (Attachment M2)

94. The viewpoint (Refer Attachment M2) shows a view east towards the lower part of the site towards Lots 32 & 33. The distance at which the proposed development may be seen from this viewpoint is approximately 250 metres to Lot 31 & 32. From this viewpoint a dwelling on proposed Lot 33 will not be visible as that sits below existing landform. No other structures on other proposed lots on the site will be visible from this location. Structures on the BPs on lots 31 & 32 will appear as 'rural' structures given the specific design controls applied to the communal lots. These controls steer the architectural outcome to traditional gabled rural forms, similar to those visible further to the east on Bendigo Loop Road,

in the cluster of forms within the Bendigo Station homestead cluster. As described earlier, the landscape context of this area is one of a modified agricultural landscape.

95. Whilst the future structures will be occupying locations where no structures currently exist the wider landscape values of this landscape differ from the rest of the site and does not display the natural characteristics of the wider site. Any potential effects on views arising from the proposed development on landscape and visual amenity values will be very low. The current level of coherence, naturalness and scenic value of this modified landscape will be retained.

Summary:

Distance to site: Varies – approximately 250m

Structures on BPs potentially visible from this location: 31 & 32

Scale of potential adverse effects: LOW

VISIBILITY ASSESSMENT - CONCLUSION

96. The proposed development seeks to subdivide Lots 1 DP 561457 into 32 lots including residential dwelling sites and communal activities within the Rural Resource Area and the Rocky Point Recreation Zone. Portions of the site are within an ONL overlay as shown on Attachment C. The proposed development includes building platforms, with crafted design controls that are sympathetic to the existing landform and respecting the character of the receiving environment. It is considered that the application site can absorb the proposed scale of development.
97. The areas of proposed development included within the ONL have been located and designed to minimise visibility from Lake Dunstan in such a way as to retain and protect the existing values attributed to this landscape, as a backdrop to Lake Dunstan. Furthermore, the proposed design control ensures development are sympathetic to the underlying landscape values and will ensure an ongoing high-quality landscape outcome.
98. The proposed development will provide for future development that is appropriate to the area and will not result in significant adverse landscape effects on the application site or to the wider landscape and Dunstan Mountain Range. The proposed development is seen to be an extension of existing residential and small-scale communal operations along the foothills above Lake Dunstan and along the terrace above Bendigo respectively, albeit with a raft of controls tailored to the site. The proposed development result in a low level of change but will not result in adverse landscape or visual amenity effects that cannot be either avoided or mitigated.
99. As previously outlined, an ONL overlay covers a significant portion of the overall site, with an area located approximately in the centre of the site excluded from the ONL (refer to Attachment B) being that part of the site within the Rural Resource Area 2 and subject to the Rocky Point Recreation Zone (Concept Plan in Schedule 19.16). The ONL identifies the elevated areas as a distinctive landform providing a visual backdrop to Lake Dunstan with minimal visible human modification and is perceived as a coherent landscape. It displays a high level of naturalness with large distinctive rocky outcrops and large swathes of Kanuka forest, and overall is of a high level of landscape quality.

100. The proposed development has been designed so the bulk of the proposed development is contained within the development area excluded from the ONL in the Schedule 19.16 Concept Plan (refer to Attachment B and Attachment C). Where built development has been proposed to occur within the ONL area, these building platforms have been located to reduce or eliminate adverse effects on views from Lake Dunstan to the site and to maintain and extent the existing cloak of Kanuka (refer Attachment C). The proposed development is set out to with appropriate design controls, been tailored to minimise isual impact of development against the natural colours and form of the landscape. Prescribed building heights, limited building platforms, materiality and roof pitch and colour aid in blending the proposed development with the landscape. Building platforms are to be set down into the landscape and levelled, allowing for the built form to be set into the sloping topography recessed into the landscape. Those building platforms within the ONL will retain the large stone outcrops and have a requirement to replace Kanuka which has been removed for the requirement of construction (refer to Appendix A).
101. In summary, given the considered placement of the proposed building platforms within the ONL, the overall low-density scale of the development, and the design controls, the proposed development mitigates or avoids adverse landscape and visual amenity effects on the ONL and therefore protects the values of the ONL overall.

EFFECTS ON LANDSCAPE CHARACTER

102. The proposed site sits within a wider landscape that contains both highly natural features and slightly modified landscape elements. The wider landscape character of Bendigo and the lower foothills can be described as a rural character with a viticulture presence. Along Lake Dunstan, the landscape character conveys a rural character, modified by existing and/or consented residential and agricultural development. As the topography rises above Lake Dunstan the character takes on a more natural landscape, with natural vegetation and natural landscape features dominating the landscape however, accessways and transmission lines are still present on the site.
103. The proposed building platforms avoid any development near or on the character features of this natural landscape, such as the large rocky knolls and densely vegetated gullies. The required implementation of design controls also requires the restitution of removed Kanuka. Design controls over bulk and location of the proposed building platforms will maintain the scale, height, and materiality of buildings to an appropriate form consistent with the materiality anticipated within this landscape. When compared to the wider landscape, which contains modified elements including other residential developments, the scale and distribution of the proposed development will deliver a level of change that can be absorbed by this landscape.
104. The proposed development introduces a low level of change into the landscape character. The bulk, location, and scale of the development in combination with the proposed design controls will avoid and mitigate any adverse effects on the overall landscape character. The proposal does not degrade the quality of the surrounding environment, with the scale of the development appearing as a logical extension of existing residential development to the south, which has been successfully absorbed into the landscape. The proposed communal facilities will appear as a logical extension of the extensive viticulture-based rural landscape to the north of the proposal.

EFFECTS ON LANDSCAPE AMENITY

105. The application site has a significant level of amenity providing a natural landscape backdrop to Lake Dunstan and the landscapes of the Clutha Valley and environs. The scale, form and topography of the higher areas of the site enable the proposed development to be visually absorbed into this landscape, avoiding the lower more visible lower slopes of the Dunstan Range foothills. A large portion of the development is to be located within the centre of the site, where the level of change on the amenity and landscape character will not be evident from wider views.
106. The proposed design controls restrict the bulk, location, form, and materiality of development within the site and promote a contiguous character. The design controls ensure that development is highly sympathetic to the landscape and consistent with the local vernacular, enabling a high visual absorption capability. The proposed residential building platform and communal lots at the entrance to the site are located adjacent to a landscape that is already modified and will be perceived as an extension to the cluster of existing development at the intersection of Bendigo Loop Road and SH8.
107. Although the site has a high level of amenity when viewed from Lake Dunstan and the flats of Bendigo, the proposed development will complement the character and quality of the application site and surroundings. This is achieved by prescribed design controls that ensure development is complementary to the materiality and colours of the landscape and is recessive in the wider landscape. Building platforms are sited to work with the existing landform to enable built form to sit within the landscape character of the wider receiving environment. Overall, the proposal is seen to provide a low level of change on landscape amenity with low adverse effects.

SUMMARY OF LANDSCAPE EFFECTS

108. The proposed development will generate a low level of change on the landscape character and amenity of the site. The proposed bulk and location of building platforms and prescriptive design controls will avoid and mitigate any potential adverse effects development would have on the natural character and amenity values. With regard to the ONL, the extent of loss to the outstanding natural landscape character is assessed to be very low. The overall level of change is seen to be very low and the proposed development will create less than minor effects on the values of the ONL, and those values will be protected.
109. In summary, the proposed development occupies a site that is still largely a 'natural' landscape, between a highly modified landscape to the east (Chinaman's Terrace viticulture) and the modified landscape south of the site, parallel to Lake Dunstan. The proposed development acknowledges the inherent naturalness of the site and has been crafted to retain this overriding natural character, preserving the existing pivotable location of the site.
110. The existing Rocky Point Recreation Zone boundary appears to loosely follow the valleys and terraces in the upper elevations of the site without specifically following topography. The bulk of the proposed development is located within the Rocky Point Recreation Zone and some components of the proposed development fall outside of that

zone boundary. However, there are parts of the landscape within the zone that would be appropriate for development where development is not proposed. It is considered that, taking the overall landscape character into account, within and outside the Rocky Point Recreation Zone, the ONL values of the site will still be retained and protected.

Objectives and Policies – a ssessment

Objective 4.3.2 – Outstanding Natural Landscapes and Outstanding Natural Features, and Land in the Upper Manorburn/Lake Onslow Landscape Management Area

To protect the Districts outstanding natural landscapes and outstanding natural features, and land in the Upper Manorburn/Lake Onslow Landscape Management Area (including landforms) from the adverse effects of inappropriate subdivision, use and development.

111. Response:

From the foregoing assessment, and taking into account the location of the Rocky Point Recreation Zone and the development proposed, any potential adverse effects will be low and less than minor, and the development is appropriate in the ONL. The values of the ONL overall will be protected, and the objective is achieved by the proposal. This is further addressed in the policies below.

Objective 4.3.3 – Landscape and Amenity Values

To maintain and where practicable enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural environment, and to maintain the open natural character of the hills and ranges.

112. Response: also from the foregoing assessment, rural amenity values will be maintained by the proposal. The open natural character of the hills and ranges will be maintained, taking into account the configuration of development anticipated within the Rocky Point Recreation Zone.

113. 4.4.1 Policy - *Outstanding Natural Landscapes and Outstanding Natural Features and Land in the Upper Manorburn/Lake Onslow Landscape Management Area. To recognise the District's outstanding natural landscapes and outstanding natural features and land in the Upper Manorburn / Lake Onslow Landscape Management Area which:*

- (a) Are unique to the district, region or New Zealand; or*
- (b) Are representative of a particular landform or land cover occurring in the Central Otago District or of the collective characteristics and features which give the District its particular character; or*
- (c) Represent areas of cultural or historic significance in the district, region or New Zealand; or*
- (d) Contain visually or scientifically outstanding geological features; or*
- (e) Have characteristics of cultural, historical and spiritual value that are significant to Kai Tahu ki Otago;*

- (f) *Have high natural character values and high landscape quality that can be distinguished from the general landscapes of the Central Otago District and provide protection for them from inappropriate subdivision, use and development.*

114. Response:

Whilst the majority of the proposed development occurs within the Rocky Point Recreation Zone, which is the same area excluded from the ONL, proposed development to the north including Lots 27-30 are within the ONL. The area is recognised for its outstanding landscape values as a backdrop to Lake Dunstan and its unique rocky outcrops and Kanuka-covered slopes. The proposed development responds to the existing landscape character values and high-quality landscape by locating and distributing building platforms away from visually significant features reducing the overall visual impact of development. Building platforms avoid areas of high visual significance, such as rocky outcrops, and dense areas of existing Kanuka vegetation, especially when viewed from Lake Dunstan. Additionally, the provision of prescriptive design controls ensures that built form, and materiality will be sympathetic to the existing landscape topography ensuring that development sits as part of the landscape.

115. 4.4.2 Policy – *Landscape and Amenity Values To manage the effects of land use activities and subdivision to ensure that adverse effects on the open space, landscape, natural character and amenity values of the rural environment are avoided, remedied or mitigated through:*

- (a) *The design and location of structures and works, particularly in respect of the open natural character of hills and ranges, skylines, prominent places and natural features,*
- (b) *Development which is compatible with the surrounding environment including the amenity values of adjoining properties,*
- (c) *The ability to adequately dispose of effluent on site,*
- (d) *Controlling the generation of noise in backcountry areas,*
- (e) *The location of tree planting, particularly in respect of landscape values, natural features and ecological values,*
- (f) *Controlling the spread of wilding trees.*
- (g) *Encouraging the location and design of buildings to maintain the open natural character of hills and ranges without compromising the landscape and amenity values of prominent hillsides and terraces*

116. Response:

The proposed development has carefully considered the location of building platforms and structures and has resolved the densities of the development to avoid locating near highly sensitive areas such as natural features or skylines. Development has been avoided in highly prominent areas including natural features and skylines while prescriptive design controls ensure that built form, bulk and location, and materiality of development are highly sympathetic to the existing character and amenity values of the site. Furthermore, the proposed design controls ensure the vernacular of

architecture seen along the foothills above Lake Dunstan is continued into the proposed development. Communal activity at the entrance to the site will be compatible with existing surrounding landscape uses given the existence of surrounding communal activity and the potential connection with surrounding viticulture. The proposed design controls have strict requirements over vegetation planting to ensure the existing landscape, natural features, and ecological values are all respected. Additionally, the proposed development incorporates areas of existing natural features into a wider open space network.

117. 4.4.8 Policy – Adverse Effects on the Amenity Values of Neighbouring Properties To ensure that the effects associated with some activities including (but not limited to):

- (a) Noise (including noise associated with traffic generation, night time operations), and vibration,*
- (b) The generation of a high level of traffic, in particular heavy vehicles,*
- (c) Glare, particularly from building finish,*
- (d) A reduction in visual amenity due to excessive signage and the storage of goods or waste products on the application site,*
- (e) The generation of odour, dust, wastes and hazardous substances, and*
- (f) The use and/or storage of hazardous goods or substances do not significantly adversely affect the amenity values and privacy of neighbouring properties or the safe and efficient operation of the roading network.*

118. Response:

The proposal includes design controls that prescribe materials and reflectivity rates that reduce any adverse effects on neighbouring properties to an acceptable level.

119. 4.4.10 Policy – Rural Subdivision and Development To ensure that the subdivision and use of land in the Rural Resource Area avoids, remedies or mitigates adverse effects on:

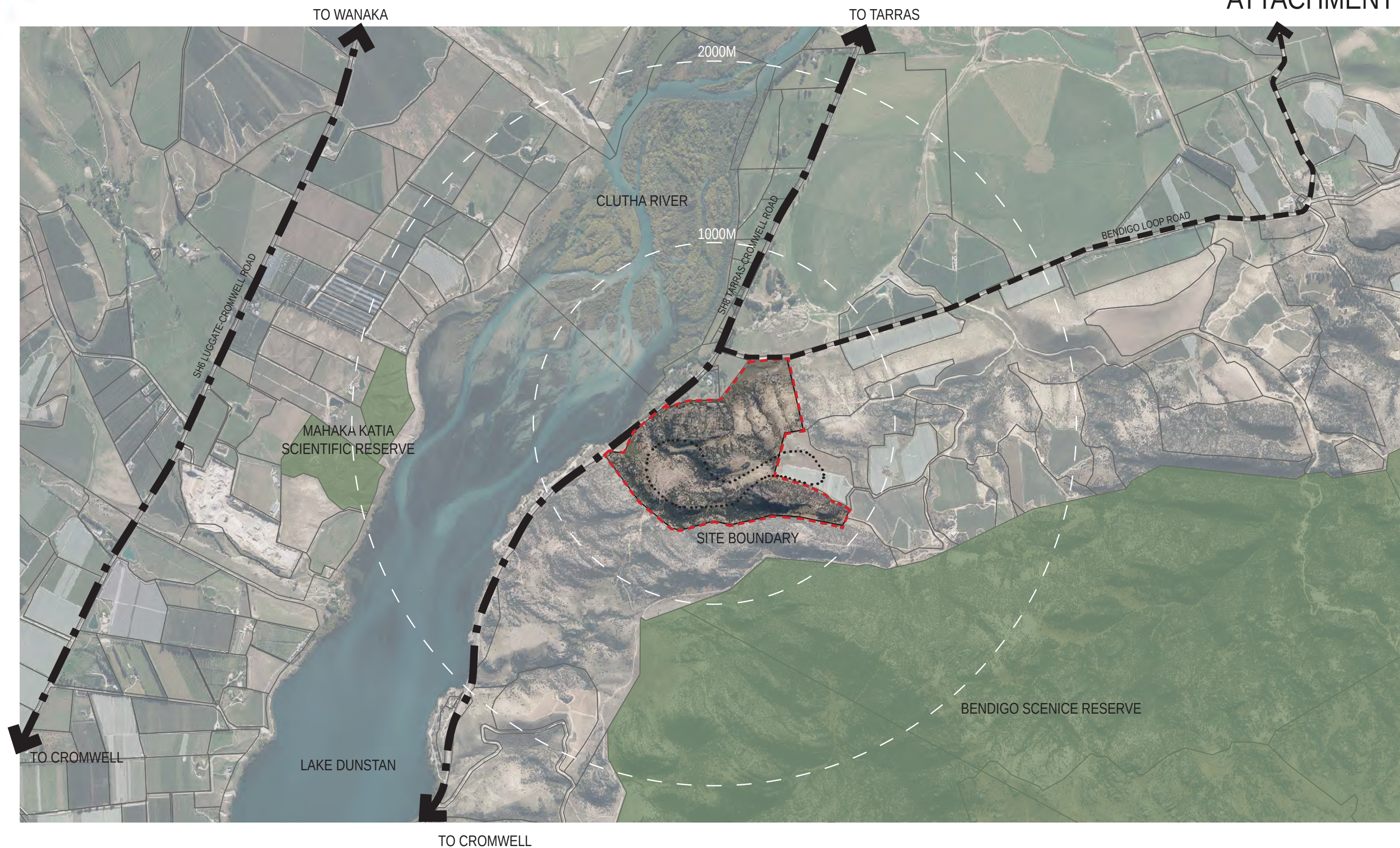
- (a) The open space, landscape and natural character amenity values of the rural environment in particular the hills and ranges,*
- (b) The natural character and values of the District's wetlands, lakes, rivers and their margins,*
- (c) The production and amenity values of neighbouring properties,*
- (d) The safety and efficiency of the roading network,*
- (e) The loss of soils with special qualities,*
- (f) The ecological values of significant indigenous vegetation and significant habitats of indigenous fauna,*
- (g) The heritage and cultural values of the District,*
- (h) The water quality of the District's surface and groundwater resources, and*
- (i) Public access to or along the rivers and lakes of the District, particularly through the use of minimum (and average) allotment sizes.*

120. Response:

The proposal will avoid adverse effects on the existing amenity values of the rural environment by the careful location of all building platforms and access ways. Prescriptive design controls on development form, bulk, location, and materiality will avoid and mitigate any adverse effects of development on amenity values. The proposed design controls have strict requirements surrounding the reestablishment and protection of Kanuka planting surrounding the proposed development. This is particularly relevant to the areas of the proposed development that occur within the ONL.

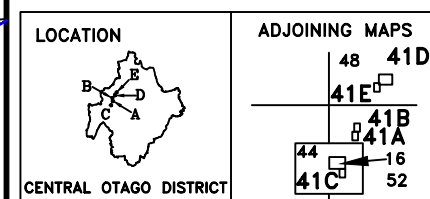
CONCLUSION

121. The proposed subdivision avoids adverse effects on the existing amenity values of the rural environment by careful location of all building residential and communal platforms and access ways. The development is predominantly located within the Rocky Point Recreation Zone within which clustered housing and travellers' accommodation is anticipated by the District Plan. Prescriptive design controls on development form, bulk, location, and materiality avoid and mitigate any adverse effects of development on amenity values. Furthermore, the proposed design controls have strict requirements surrounding the reestablishment and protection of Kanuka planting surrounding the proposed development.
122. Where development is visible along Bendigo Loop Road, this development occurs within a tight cluster of existing development surrounding the Bendigo Station Homestead and does not occur on an area of the site which displays the natural characteristics of the wider site
123. The areas of proposed development within the ONL have been located to avoid visibility from Lake Dunstan in such a way as to retain the existing values attributed to this area as a backdrop to Lake Dunstan. Furthermore, the proposed design controls ensure development is sympathetic to the underlying landscape values and safeguards high-quality landscape outcomes. Overall the values of the ONL will be protected, and the development within the ONL is appropriate.
124. Any potential adverse cumulative effects will be low to negligible due to the careful placement of building platforms and associated access ways in combination with the architectural and landscape design controls to apply to all lots.
125. Overall, this report finds that there is a low to very low level of adverse effects on landscape and visual amenity values.

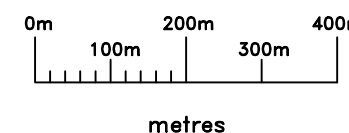
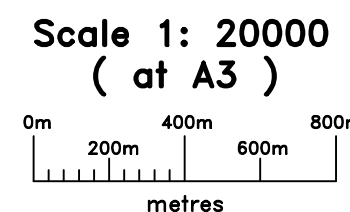


INDICATIVE ONLY





Scale 1: 10000
(at A3)



 Northpoint Vertical

See LEGEND for key
to map notations

Amended: 15 July 2013

Publicly Notified : 18 July 1998

Amended by Decisions : 1 July 2000

Operative Date : 1 April 2008

CENTRAL OTAGO DISTRICT PLAN

**MAPS
41 A-E
NORTHBURN,
QUARTZ REEF,
BREWERY CREEK,
CRIPPLETOWN &
ROCKY POINT**

SCHEDULE 19.16 : CONCEPT PLAN - RURAL RESOURCE AREA (2) (See Rule 4.7.2(ii)(a)(iii), p 4:38)

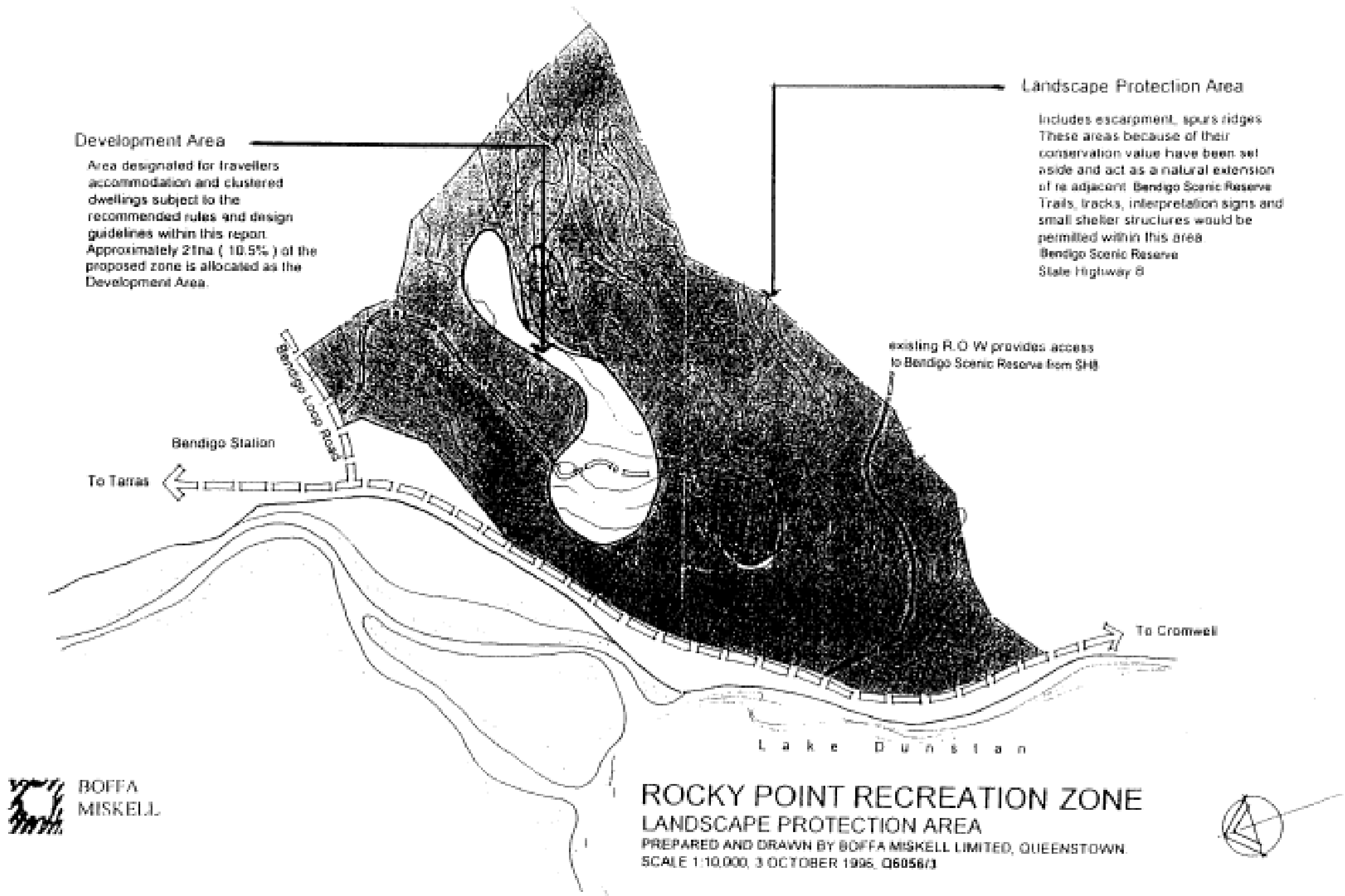


Figure 4.1D



LAKE DUNSTAN
/ CLUTHA RIVER

SH8 - TARRAS-CROMWELL ROAD

BENDIGO LOOP ROAD

communal building platform

communal building platform

SITE BOUNDARY

communal building platform

Rocky Point Recreation Zone

note:
Roads and driveways to be designed by
engineer or surveyor

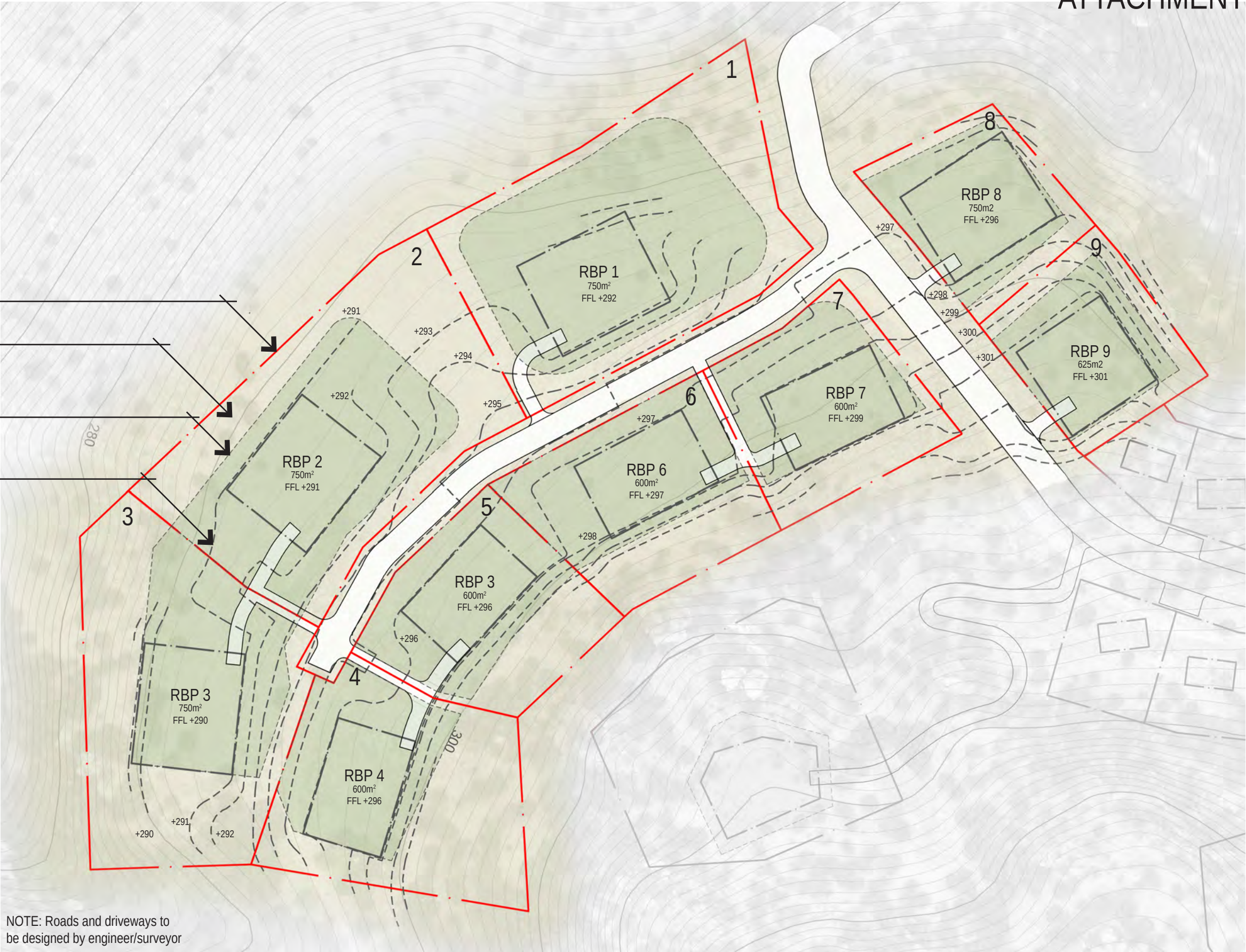








- Proposed Lot Boundary (Legal only)
- Proposed Protected Areas of Existing Landscape
- Proposed Curtilage Areas
- Proposed Earthworks To Enable Level Residential Building Platform (RBP)

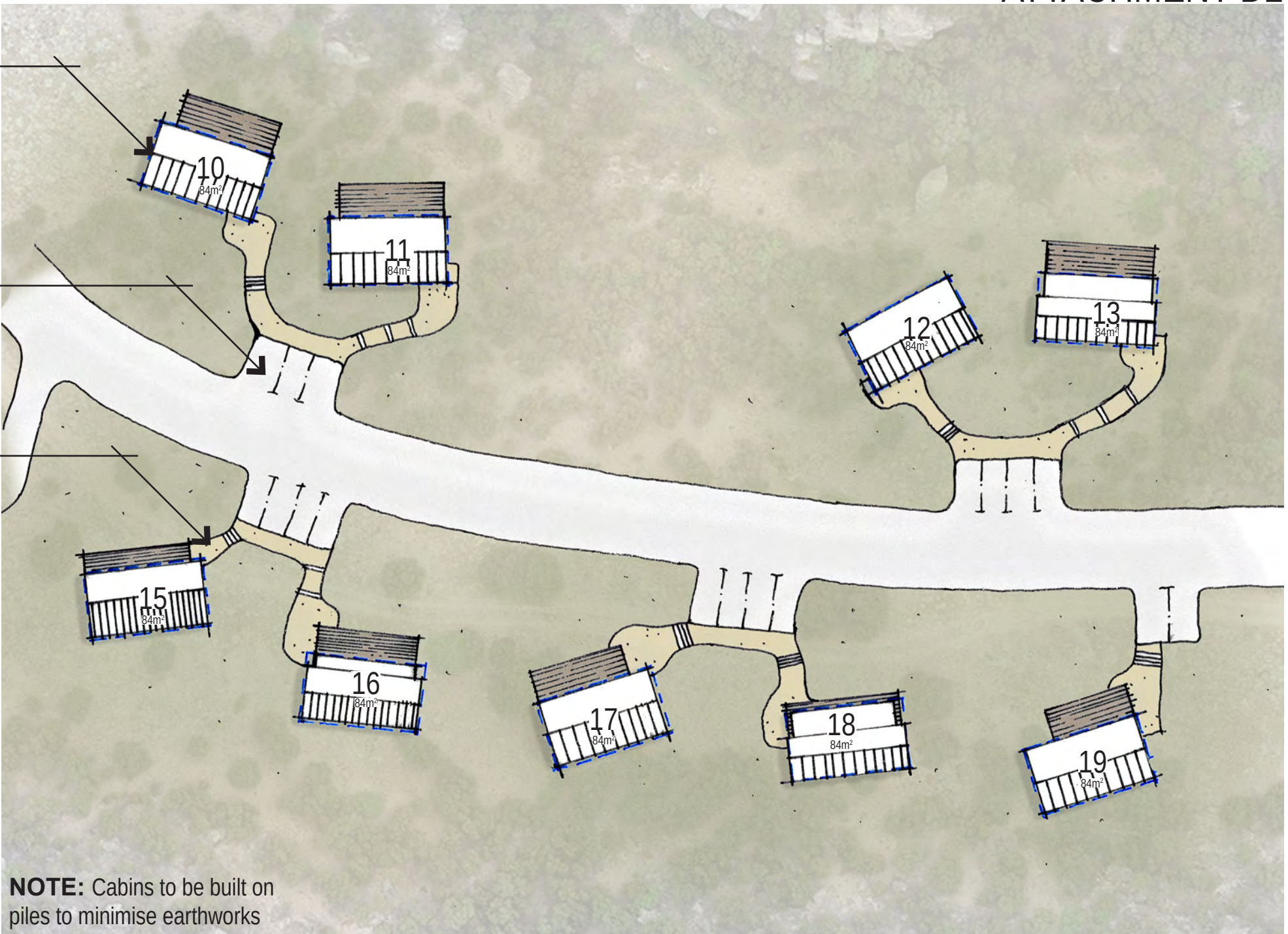




12x7m building platform

off street parking

walk up access





Proposed Lot Boundary (Legal only)







- Proposed Lot Boundary (Legal only)
- Proposed Protected Areas of Existing Landscape
- Proposed Curtilage Areas
- Proposed Earthworks To Enable Level Residential Building Platform (RBP)



NOTE: Roads and driveways to be designed by engineer/surveyor





- Proposed Lot Boundary (Legal only)
- Proposed Protected Areas of Existing Landscape
- Proposed Curtilage Areas
- Proposed Earthworks To Enable Level Residential Building Platform (RBP)
- Indicative 900mm Retaining Wall





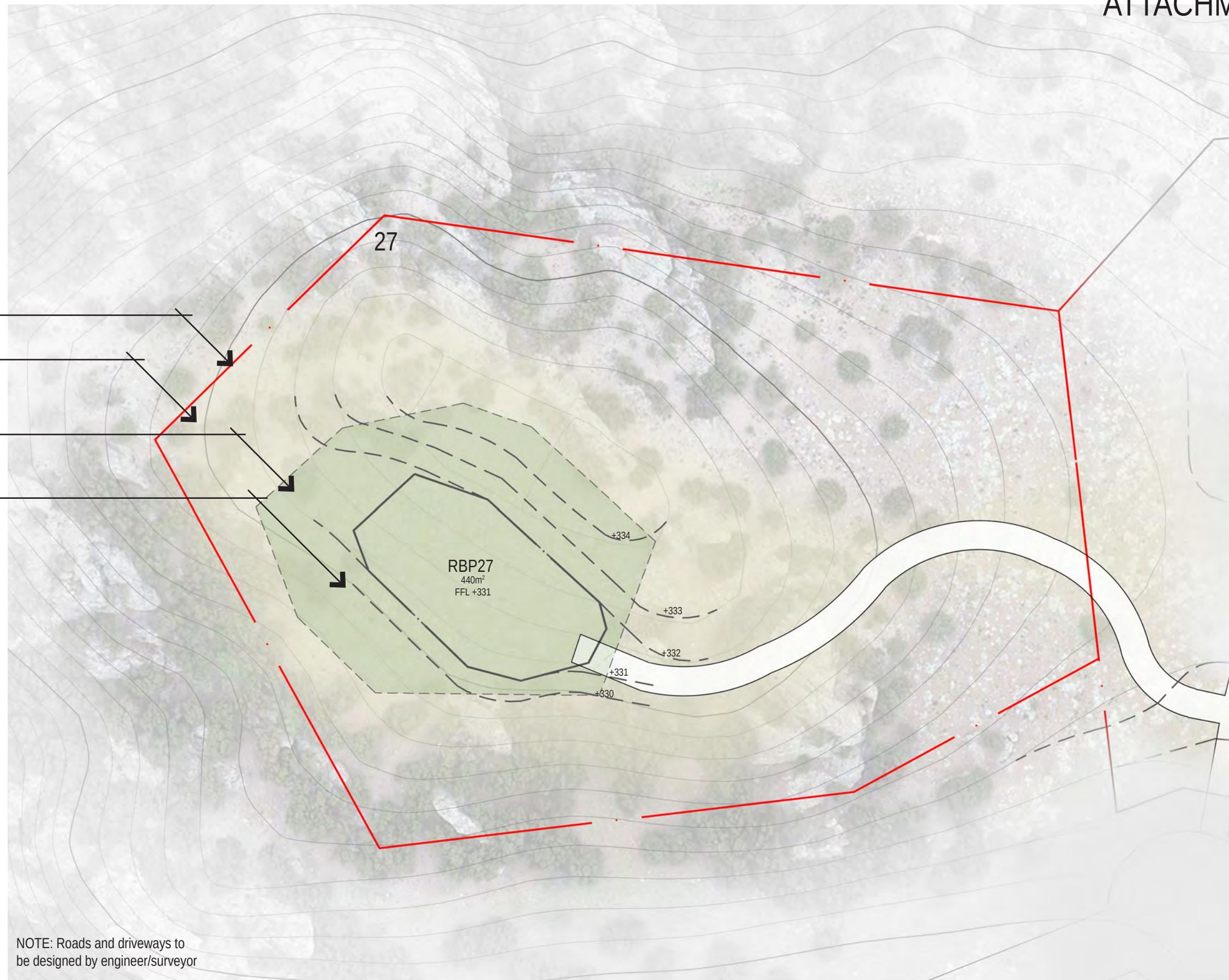


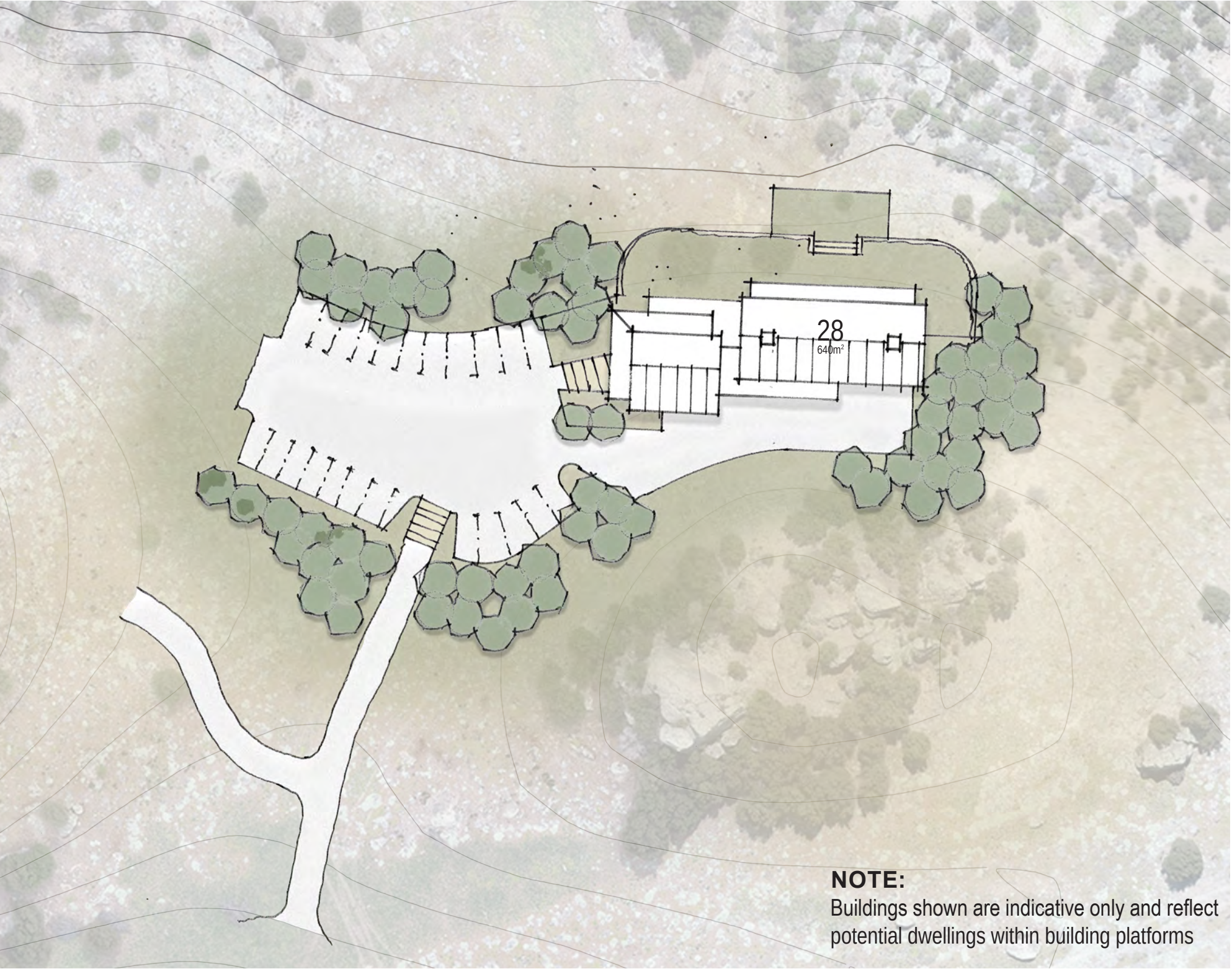
Proposed Lot Boundary (Legal only)

Proposed Protected Areas of Existing Landscape

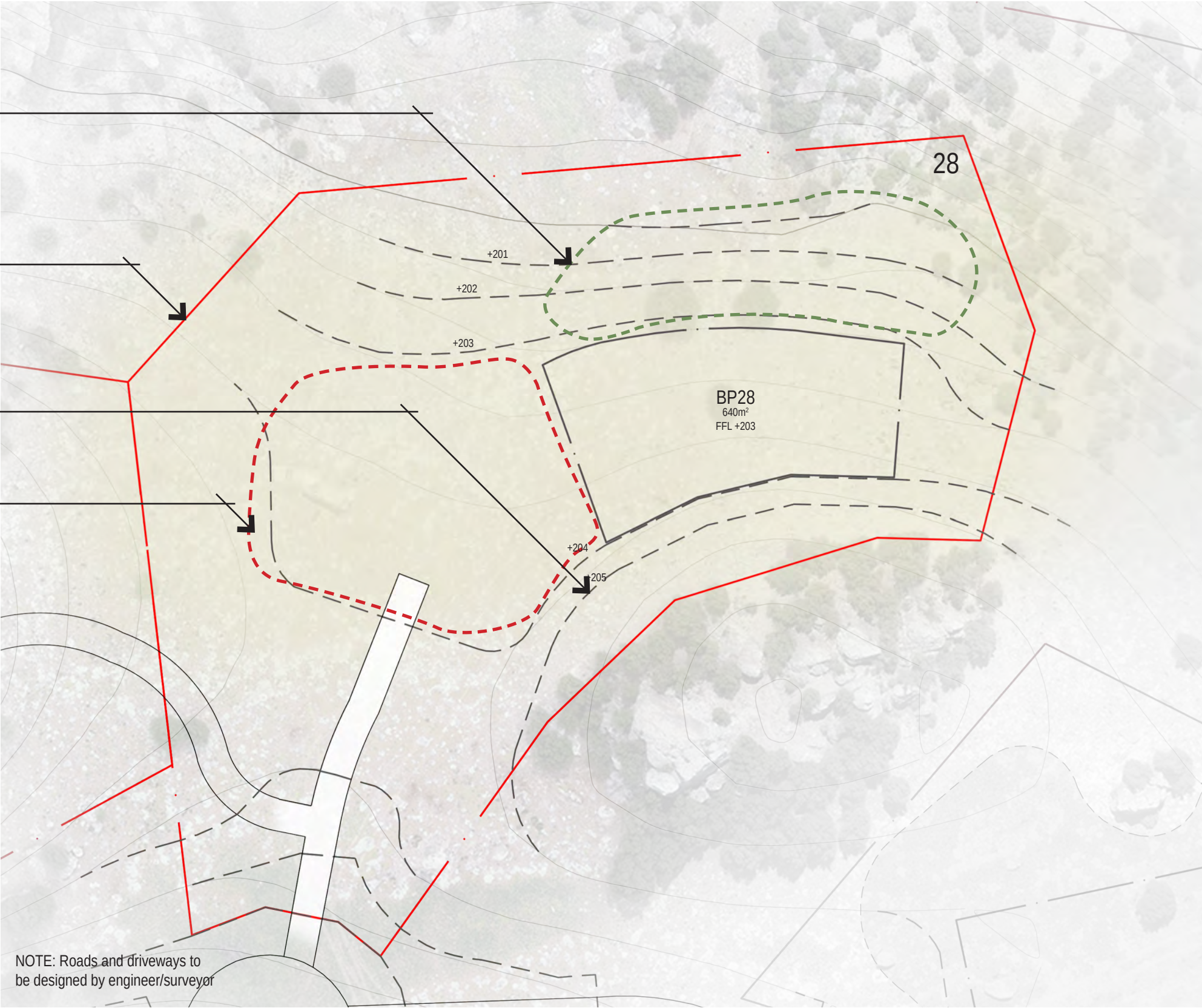
Proposed Curtilage Area

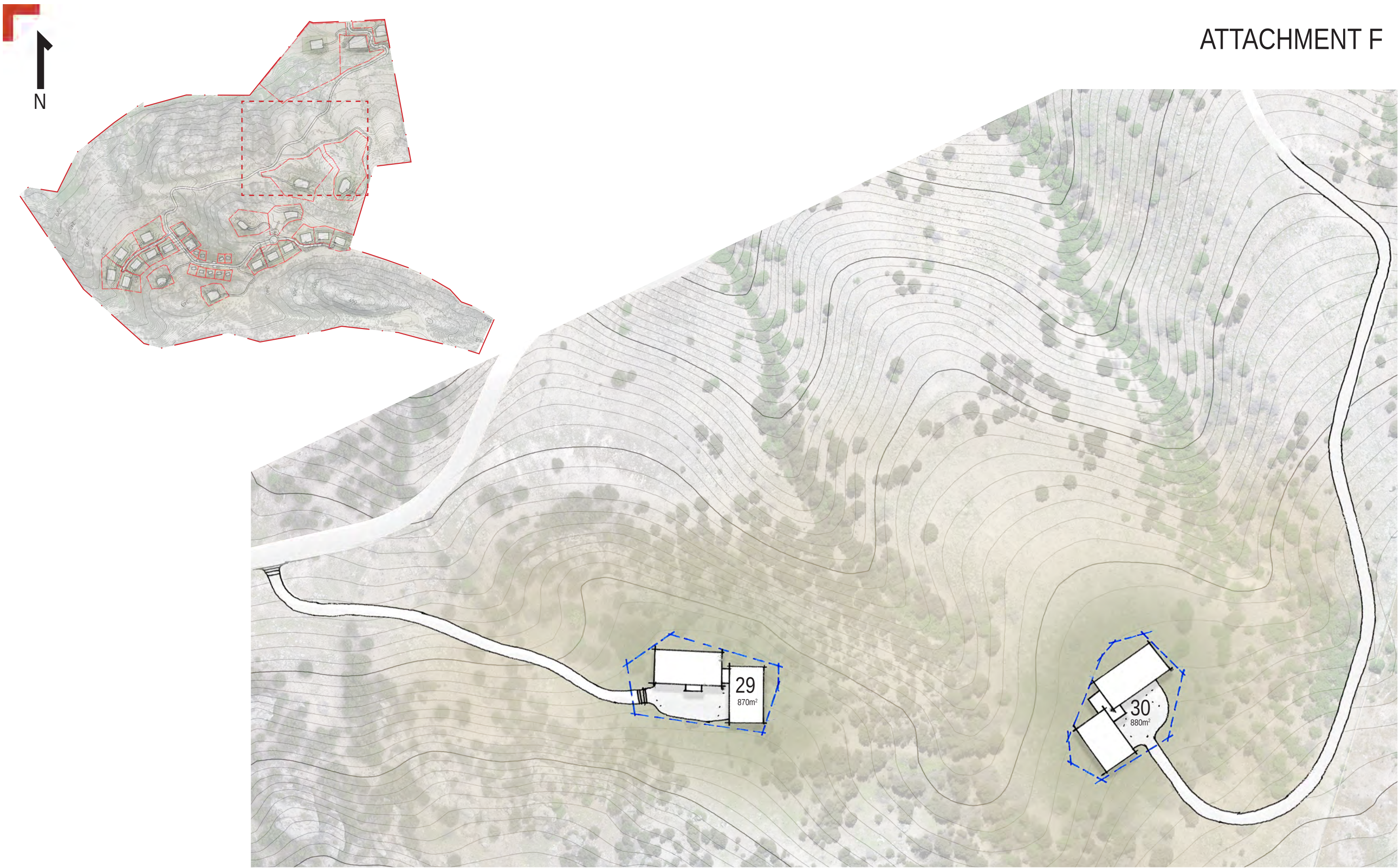
Proposed Earthworks To Enable Level Residential Building Platform (RBP)





- Passive outdoor use
- Proposed Lot Boundary (Legal only)
- Proposed Earthworks To Enable Level Residential Building Platform (RBP)
- Carparking area





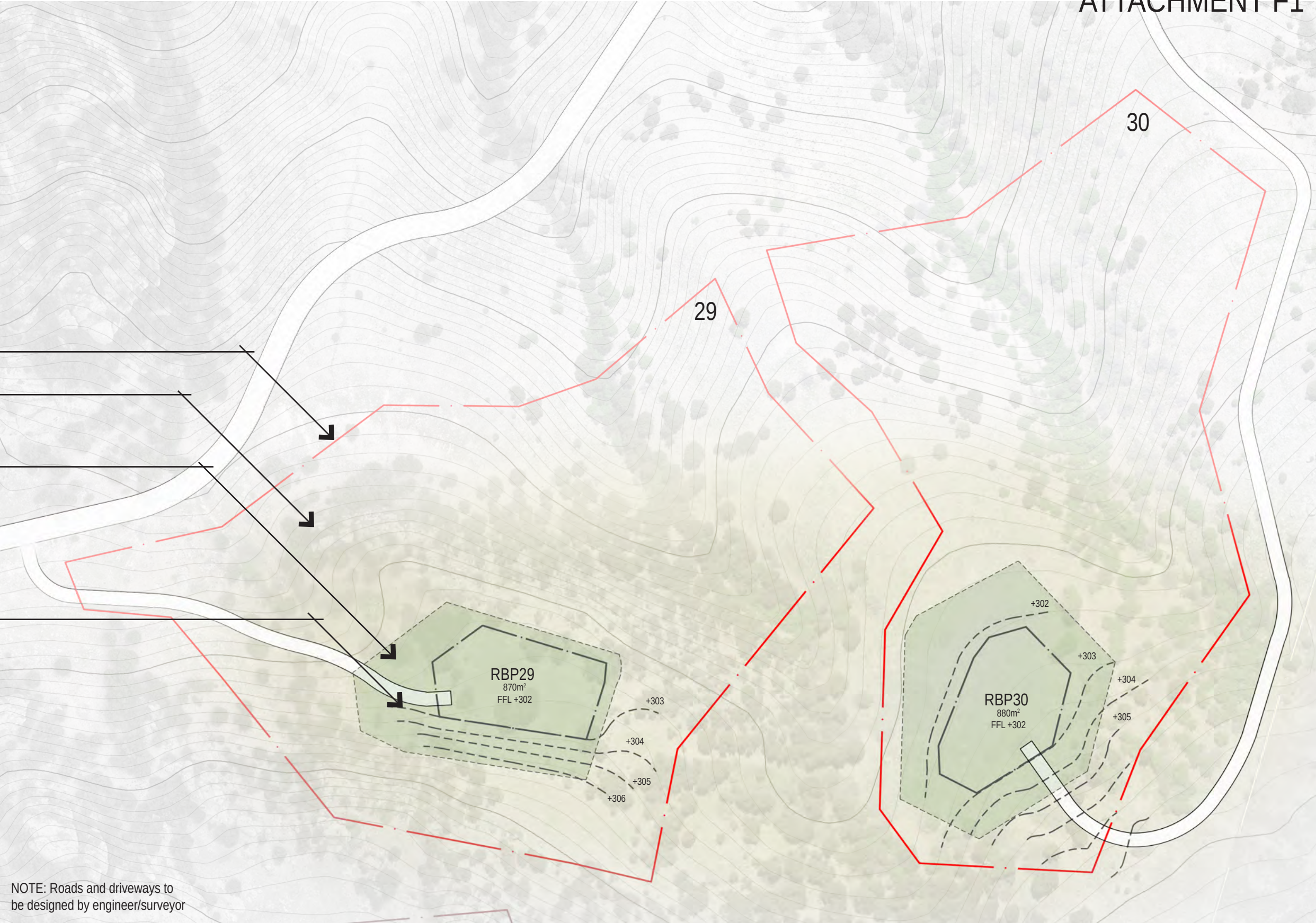


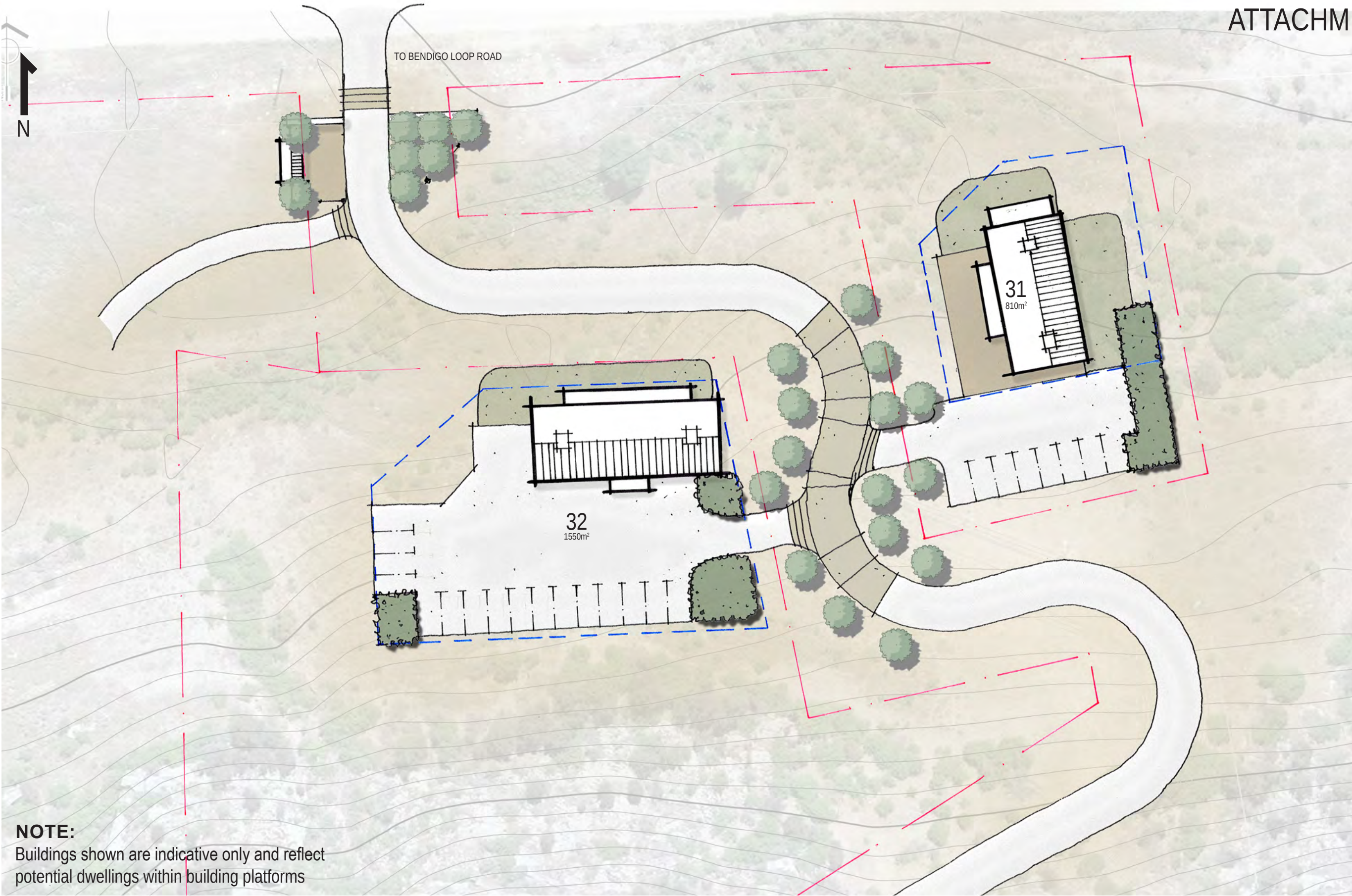
Proposed Lot Boundary (Legal only)

Proposed Protected Areas of Existing Landscape

Proposed Curtilage Areas

Proposed Earthworks To Enable Level Residential Building Platform (RBP)





NOTE:
Buildings shown are indicative only and reflect potential dwellings within building platforms

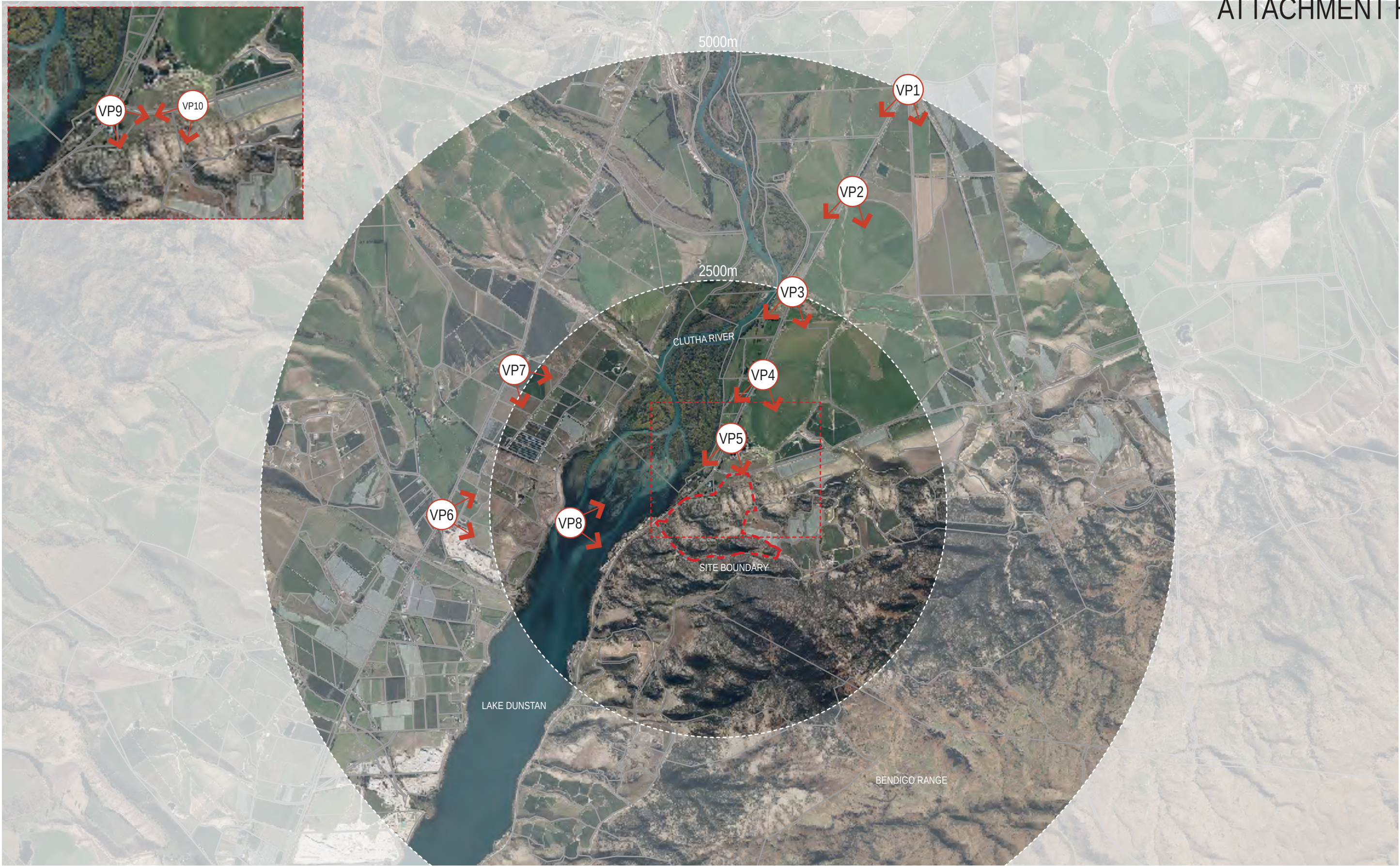
INDICATIVE ONLY





- Proposed Lot Boundary (Legal only)
- Proposed Curtilage Areas
- Proposed Earthworks To Enable Level Residential Building Platform (RBP)





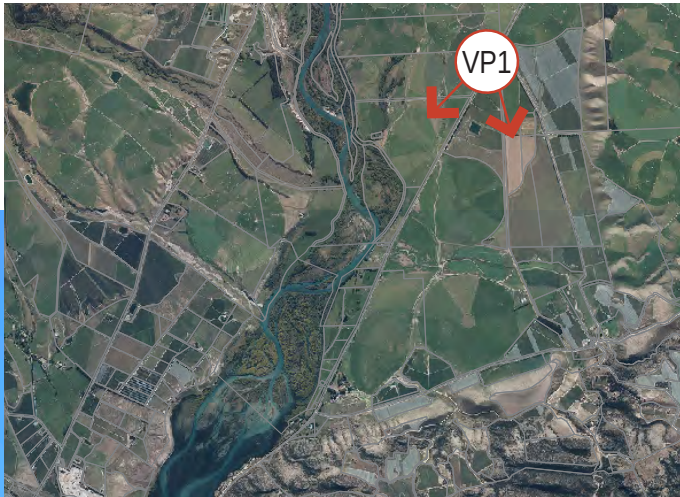


FIG A. Viewpoint Location



FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint
Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



FIG A. Viewpoint Location

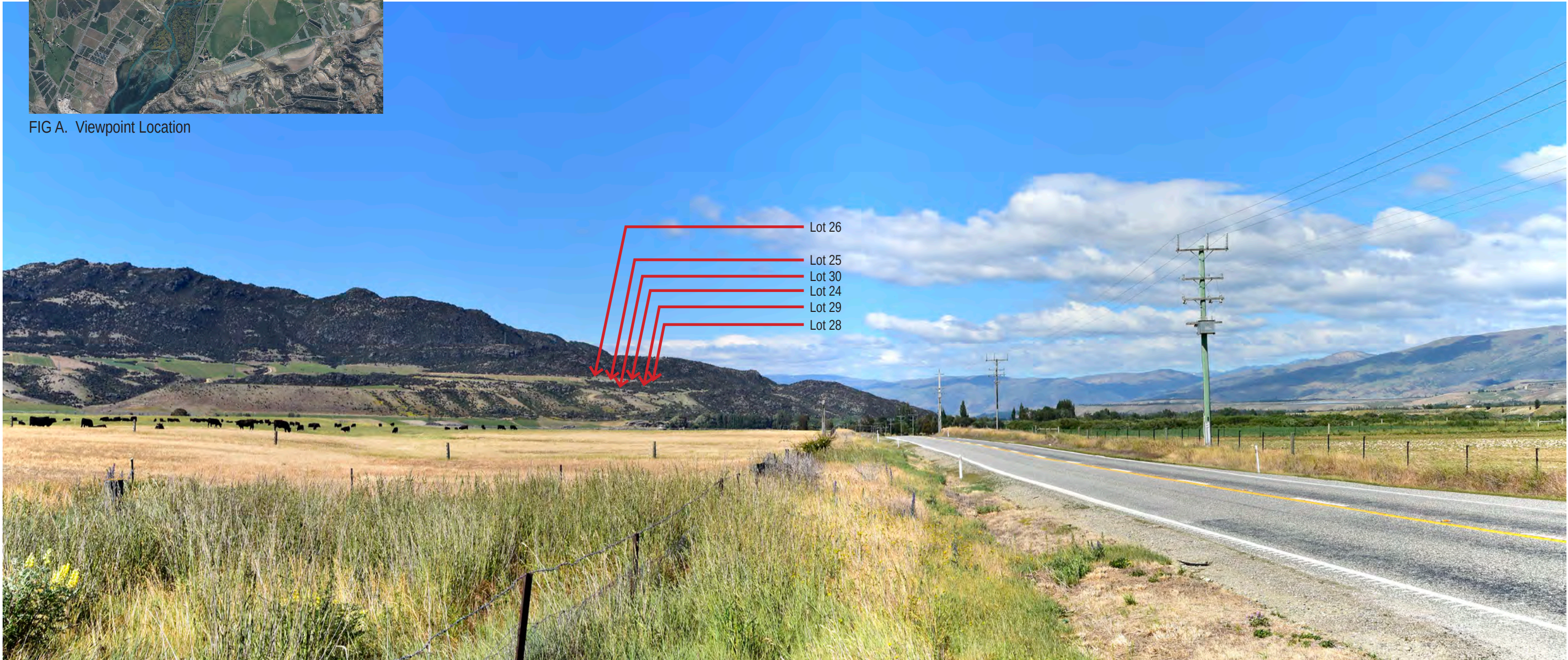


FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



FIG A. Viewpoint Location



FIG B. Panoramic Image

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Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



FIG A. Viewpoint Location



FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.

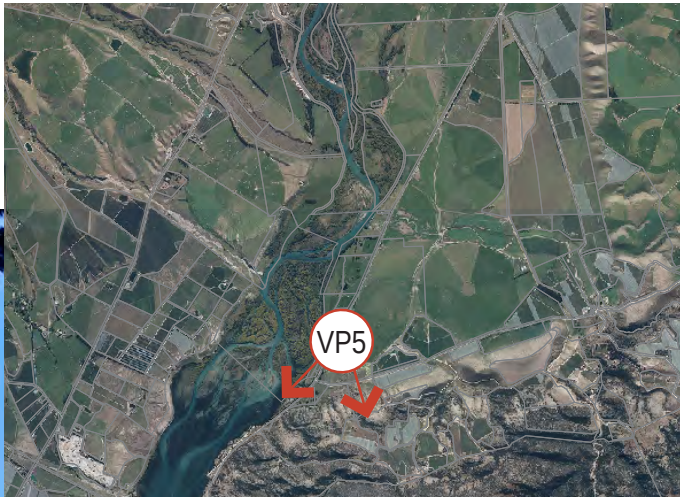


FIG A. Viewpoint Location



FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.

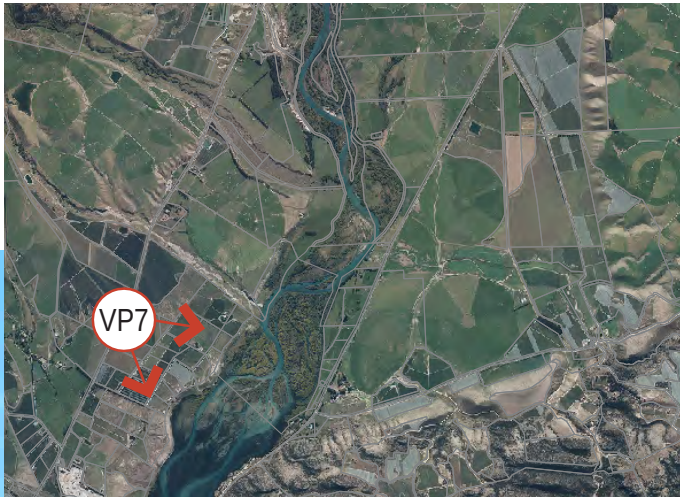


FIG A. Viewpoint Location

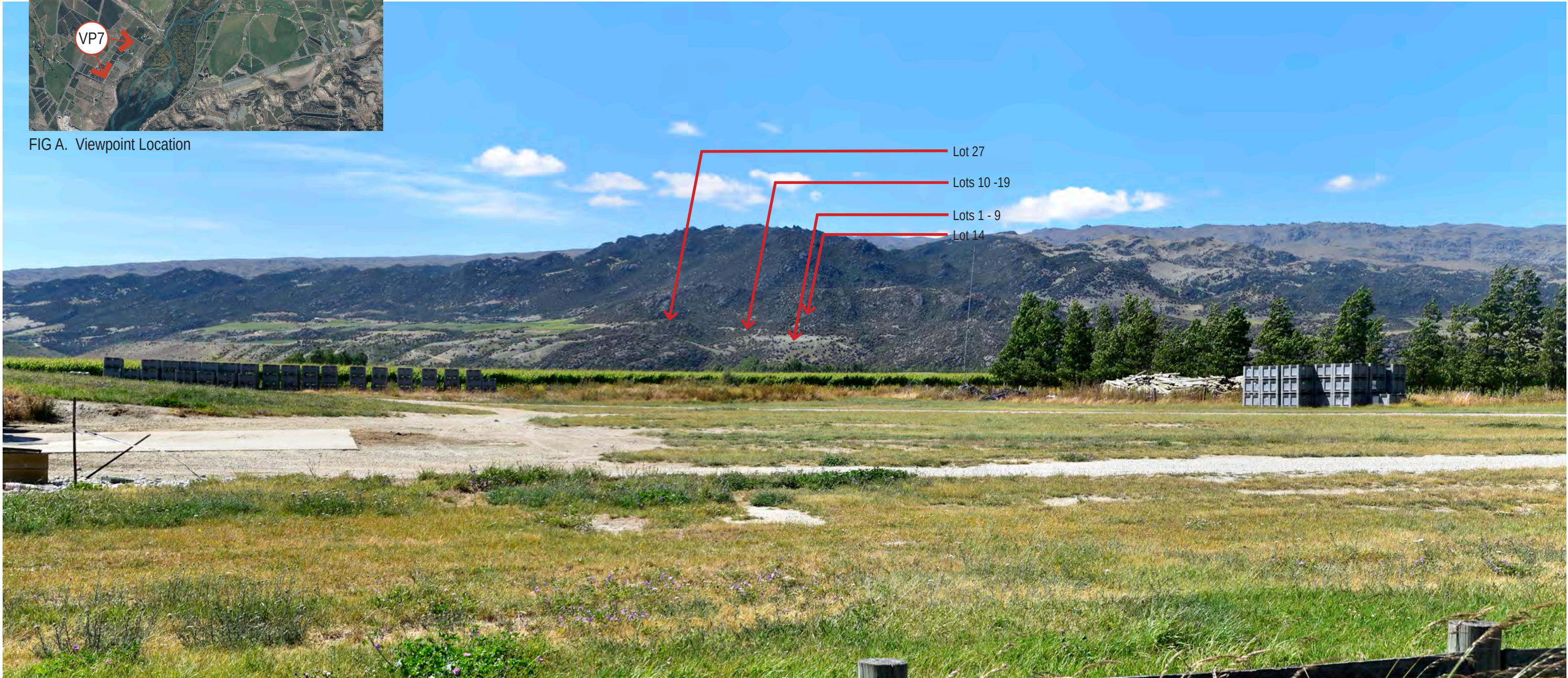


FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



FIG A. Viewpoint Location



FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.

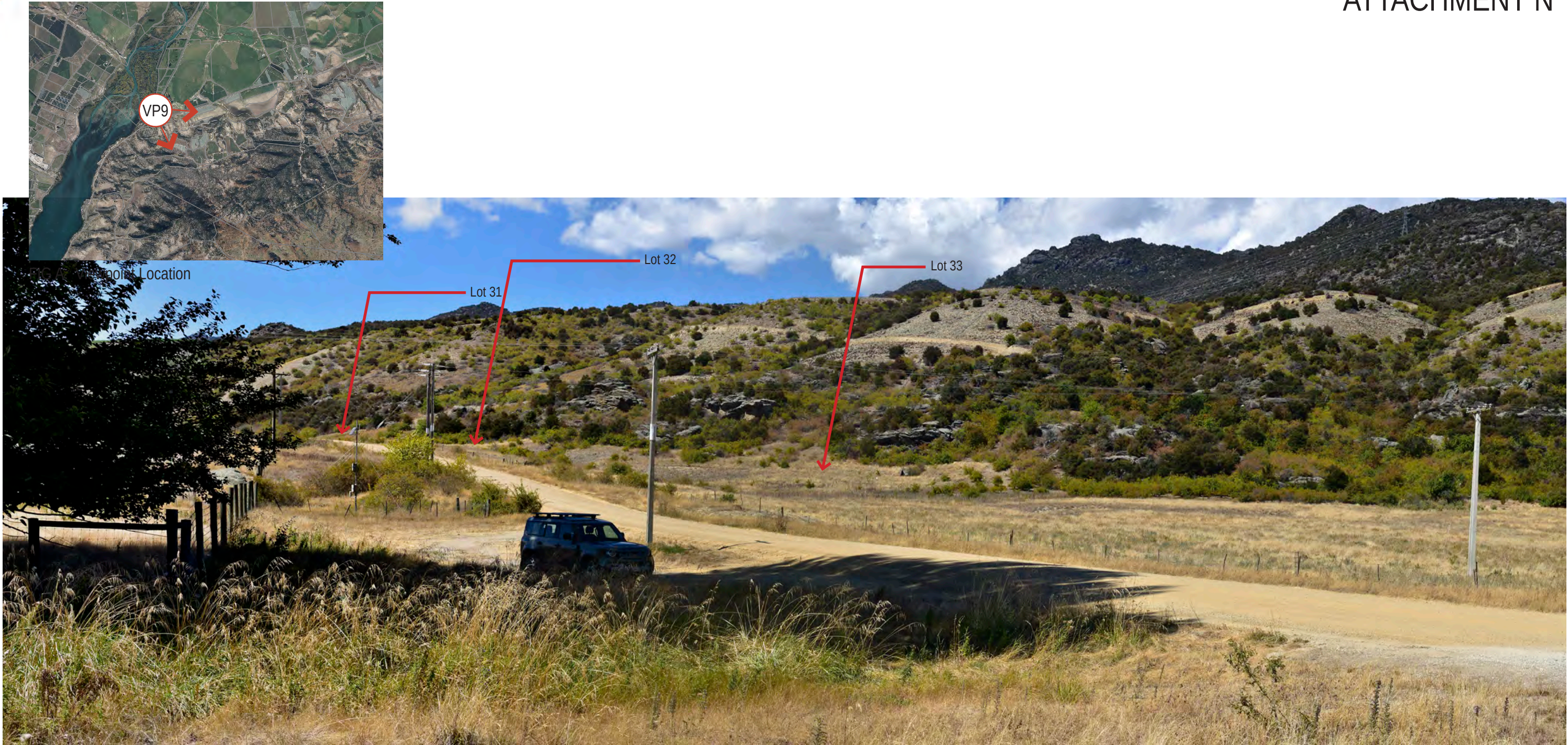


FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



FIG A. Viewpoint Location

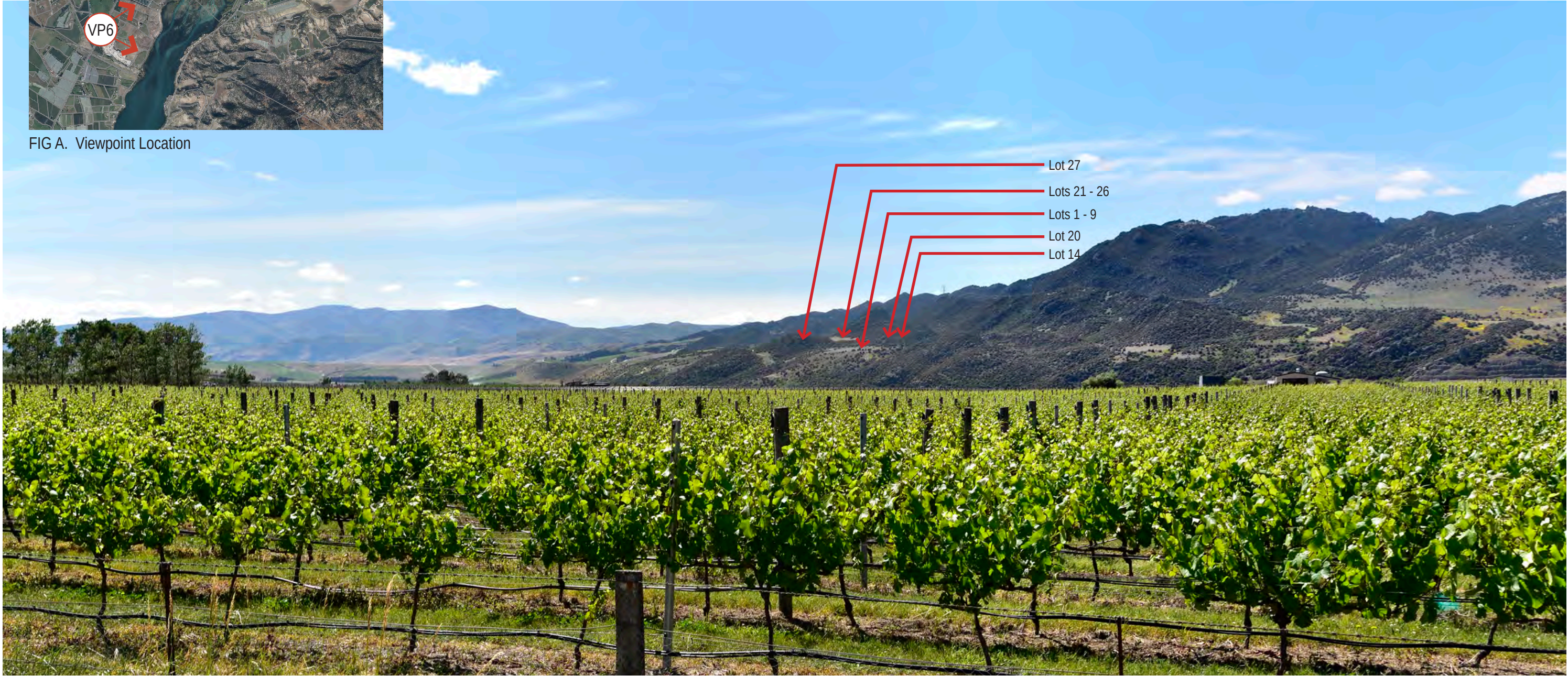


FIG B. Panoramic Image

NOTE:
Arrows indicate approximate location of structures potentially visible from this viewpoint

Panoramic image created from four portrait images captured at 50mm Full Frame Equivalent with minimum 25% overlap then stitched together using Image Composite Editor.



Notes:

ATTACHMENT Q

2) Area marked --A-- is approximate extent of area designated as "Development Area" on CODC District Plan Schedule 19:16.

3) Proposed Staging

Stage 1 : Lots 31-33
Stage 2 : Lots 1-9, 29, 30
Stage 3 : Lots 10-20
Stage 4 : Lots 21-28

4) Areas and dimensions are subject to survey.

5) Aerial image on Sheet 1 has been sourced from Landpro Ltd. Detailed aerial on Sheets 2-4 C Hughes and Assoc Ltd UAV.

6) Residential building platforms on Lots 1-3, 8 & 24 are shown magenta and have dimensions of 25m x 30m (750m²).

6) Residential building platforms on Lots 4, 6, 7, 21-23, 25 & 26 are shown magenta and have dimensions of 20m x 30m (600m²).

7) Residential building platforms on Lots 10-13 & 15-19 are shown magenta and have dimensions of 8.5m x10m (85m²).

8) Residential building platforms on Lots 5, 9, 14, 20 & 27 have bespoke shapes and sizes.

9)) Lots 28, 31-33 are intended for commercial use and have bespoke platform sizes.

10) Refer Landscape Architect design guidelines for site coverage and other building restrictions for specific sites.

11) Proposed walking / cycling tracks

REVISION	DETAIL	DATE
B	Subdivision layout	29 Nov 2022
C	Layout	30 Jan 2023
D	Lots 29,30 & tracks	3 Feb 2023
E	Entrance and Lots 30-32	11 May 2023
F	Road alignments and Platforms	9 June 2023

C HUGHES & ASSOCIATES LTD
Surveying and Resource Management • Central Otago

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CROMWELL
17A MURRAY TERRACE
P.O. BOX 51
03 445 0376

www.chasurveyors.co.nz

Project

ROCKY POINT
TKO Properties Ltd
Overall and Staging

Title

Proposed Subdivision
of Lot 1 DP 561457.

FOR CONSENT

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The Contractor shall verify all dimensions on site.

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Scale: 1:3500

Job No:	Drawn By:	Datum:
5925	MJS	LP2000
Drawing No:	Sheet No:	Revision: Date Created:
W1665	1	F June 2023

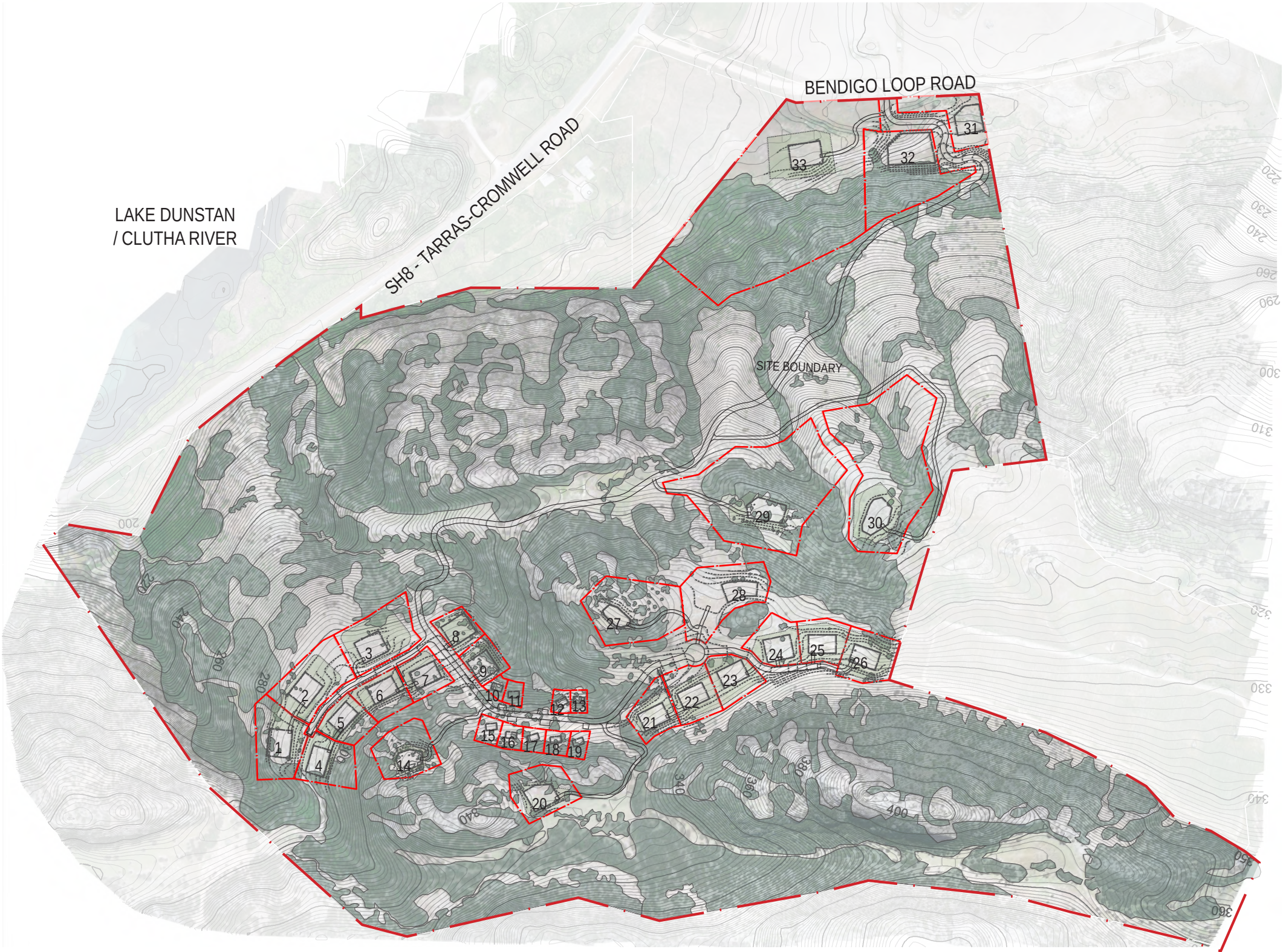


Lot	Residential Building Platform (M²)	Site Coverage of RBP	Curtilage Area (excluding RBP)	Area Outside Curtilage Area
1	750m²	50%	1035m²	2230m²
2	750m²	50%	1800m²	1990m²
3	750m²	50%	2215m²	1550m²
4	600m²	50%	810m²	1580m²
5	600m²	50%	970m²	650m²
6	600m²	50%	960m²	750m²
7	600m²	50%	740m²	720m²
8	750m²	50%	485m²	425m²
9	625m²	50%	485m²	560m²
10	84m²	100%	-	350m²
11	84m²	100%	-	430m²
12	84m²	100%	-	430m²
13	84m²	100%	-	371m²
14	515m²	100%	360m²	2465m²
15	84m²	100%	-	650m²
16	84m²	100%	-	610m²
17	84m²	100%	-	570m²
18	84m²	100%	-	620m²
19	84m²	100%	-	510m²
20	725m²	50%	650m²	1940m²
21	600m²	50%	775m²	960m²
22	600m²	50%	1260m²	1010m²
23	600m²	50%	1390m²	380M²
24	750m²	50%	970m²	760m²
25	600m²	50%	1460m²	300m²
26	600m²	50%	1690m²	795m²
27	440m²	50%	800m²	5120m²
28	640m²	80%	-	4840m²
29	870m²	50%	1190m²	13185m²
30	880m²	50%	1735m²	11895m²
31	810m²	80%	-	1220m²
32	1550m²	80%	-	2315m²
33	875m²	50%	2460m²	8890m²

Fig 1.0: Schedule of building platforms

note:
Roads and driveways to be deisgned by
engineer or surveyor





Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
1	750m²	1035m²	285m²	16%
2	750m²	1800m²	50m²	2%
3	750m²	2215m²	310m²	10%
4	600m²	810m²	104m²	7%
5	600m²	970m²	185m²	12%
6	600m²	960m²	15m²	1%
7	600m²	740m²	80m²	6%
8	750m²	485m²	185m²	15%
9	625m²	485m²	435m²	40%
10	84m²	-	50m²	60%
11	84m²	-	84m²	100%
12	84m²	-	20m²	24%
13	84m²	-	50m²	60%
14	515m²	360m²	150m²	17%
15	84m²	-	0m²	0%
16	84m²	-	20m²	24%
17	84m²	-	20m²	24%
18	84m²	-	15m²	18%
19	84m²	-	45m²	54%
20	725m²	650m²	280m²	20%
21	600m²	775m²	40m²	3%
22	600m²	1260m²	20m²	1%
23	600m²	1390m²	110m²	6%
24	750m²	970m²	30m²	2%
25	600m²	1460m²	10m²	<1%
26	600m²	1690m²	140m²	8%
27	440m²	800m²	210m²	13%
28	640m²	-	25m²	4%
29	870m²	1190m²	615m²	30%
30	880m²	1735m²	110m²	4%
31	810m²	-	0m²	0%
32	1550m²	-	40m²	<1%
33	875m²	2460m²	0m²	0%

Fig 1.0: Schedule of area of Kanuka on RBP and Curtilage Areas

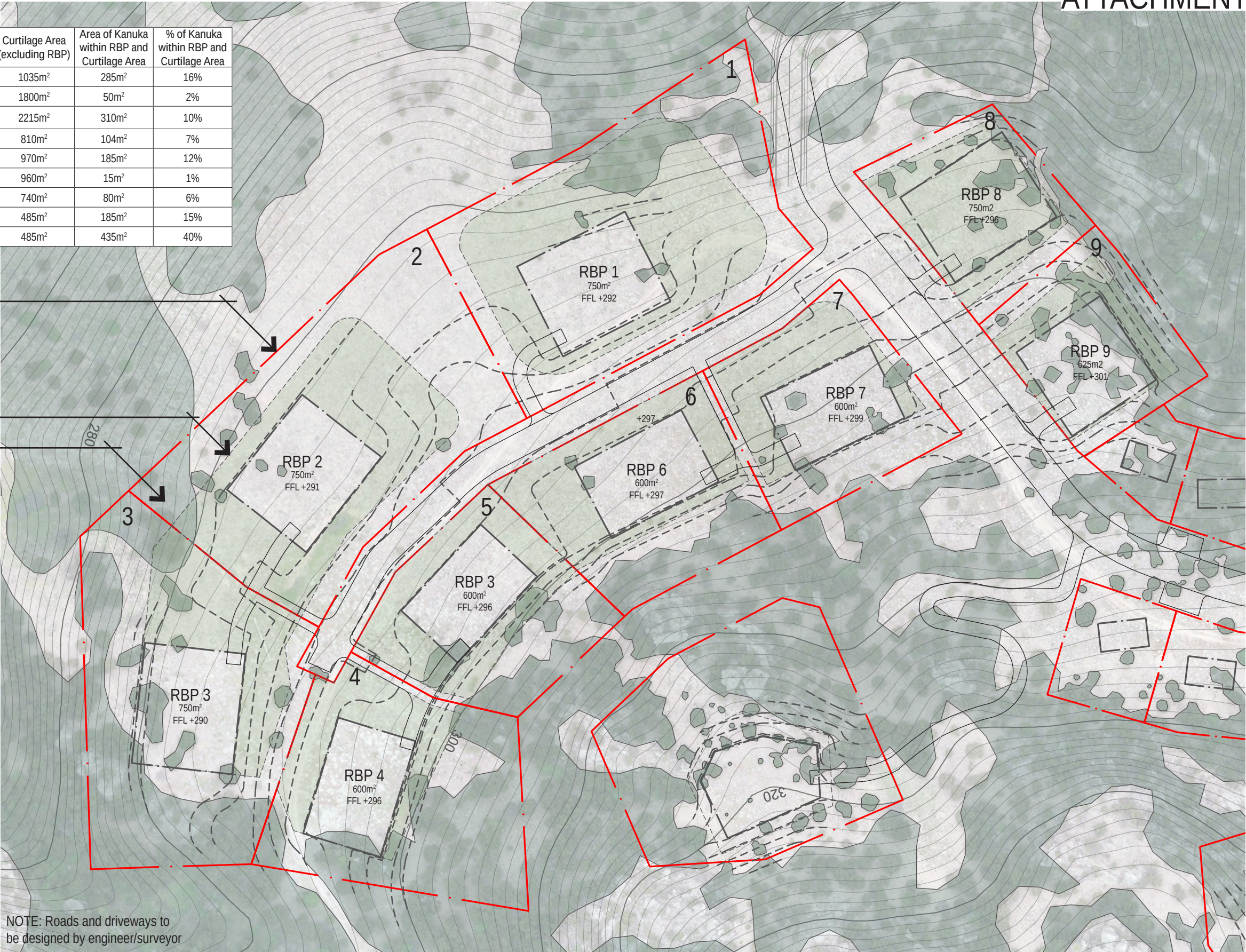
note:
While care has been taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.

Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
1	750m²	1035m²	285m²	16%
2	750m²	1800m²	50m²	2%
3	750m²	2215m²	310m²	10%
4	600m²	810m²	104m²	7%
5	600m²	970m²	185m²	12%
6	600m²	960m²	15m²	1%
7	600m²	740m²	80m²	6%
8	750m²	485m²	185m²	15%
9	625m²	485m²	435m²	40%

Proposed Lot Boundary (Legal only)

Proposed Curtilage Areas

Area of existing Kanuka



NOTE: Roads and driveways to be designed by engineer/surveyor



Proposed Lot Boundary (Legal only)

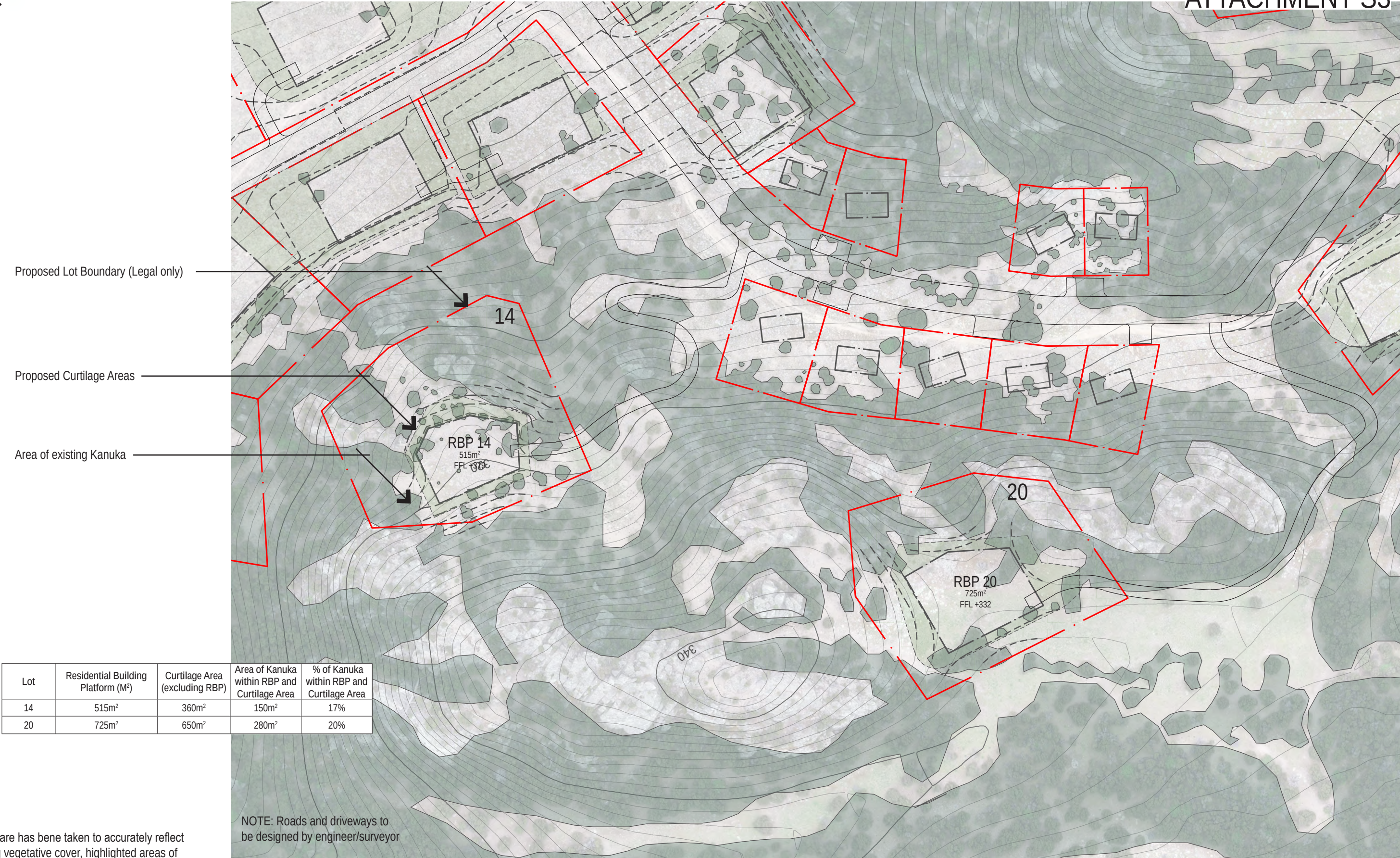
Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
10	84m²	-	50m²	60%
11	84m²	-	84m²	100%
12	84m²	-	20m²	24%
13	84m²	-	50m²	60%
15	84m²	-	0m²	0%
16	84m²	-	20m²	24%
17	84m²	-	20m²	24%
18	84m²	-	15m²	18%
19	84m²	-	45m²	54%

Area of existing Kanuka



note:
While care has been taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.

NOTE: Roads and driveways to be designed by engineer/surveyor



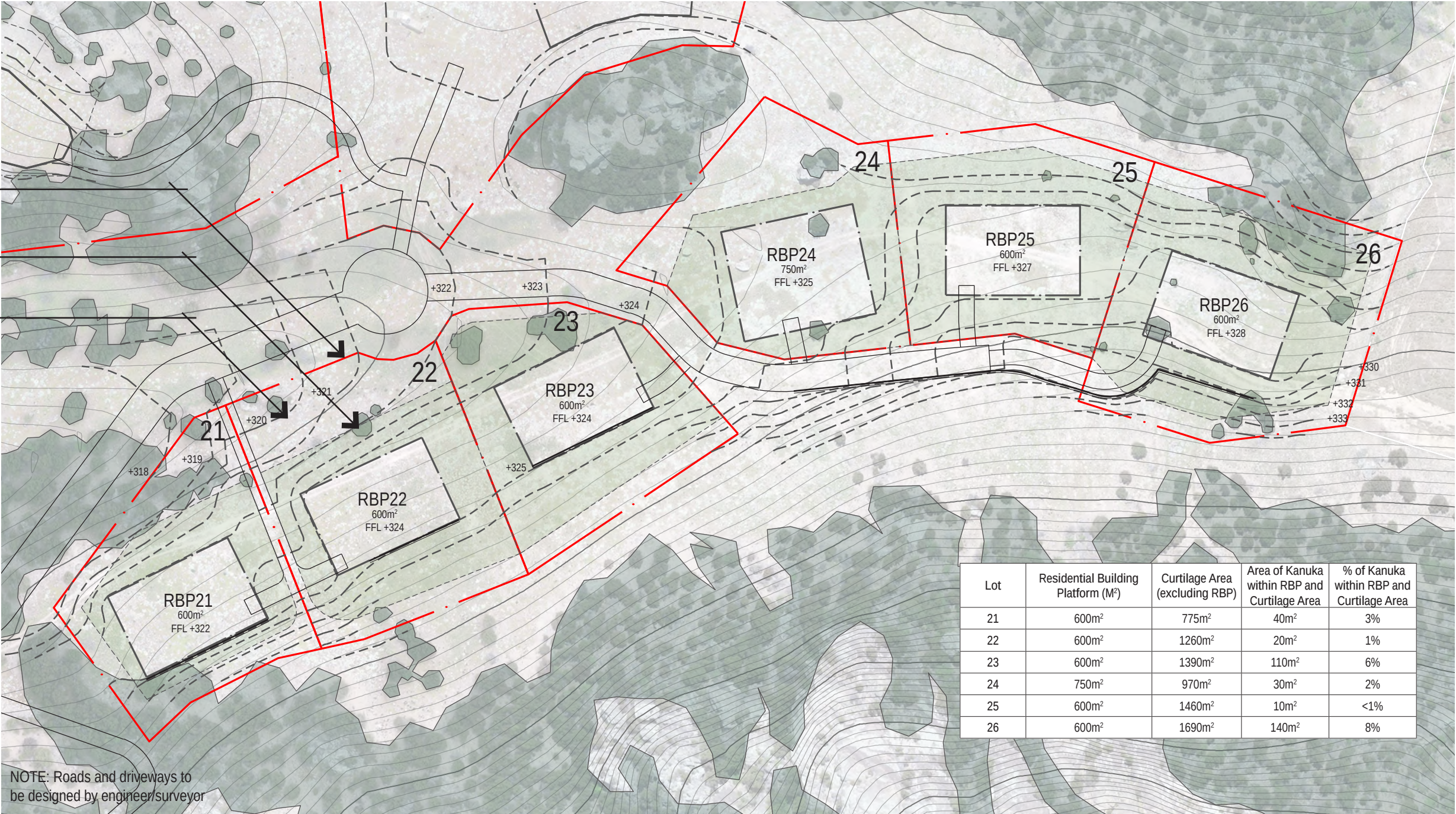
note:
While care has been taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.



Proposed Lot Boundary (Legal only)

Existing Kanuka

Proposed Curtilage Areas



note:
While care has bene taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.



Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
27	440m²	800m²	210m²	13%

Proposed Lot Boundary (Legal only)

Area of existing Kanuka

Proposed Curtilage Area

RBP27
440m²
FFL +331

NOTE: Roads and driveways to be designed by engineer/surveyor

note:
While care has bene taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.



Area of existing Kanuka

Passive outdoor use

Proposed Lot Boundary (Legal only)

Carparking area

Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
28	640m²	-	25m²	4%

NOTE: Roads and driveways to be designed by engineer/surveyor

note:
While care has been taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.

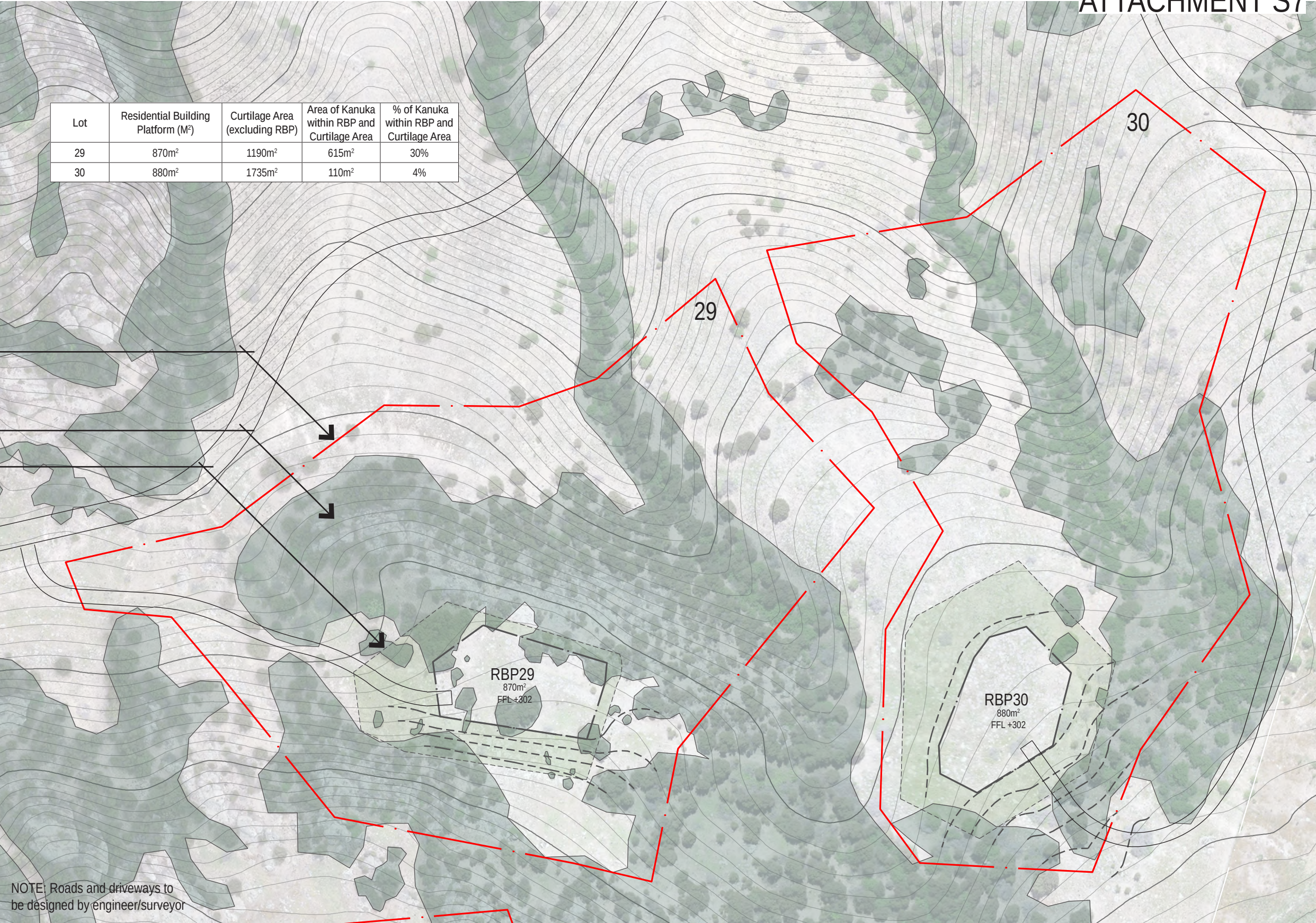


Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
29	870m²	1190m²	615m²	30%
30	880m²	1735m²	110m²	4%

Proposed Lot Boundary (Legal only)

Area of existing Kanuka

Proposed Curtilage Areas



NOTE: Roads and driveways to be designed by engineer/surveyor

note:
While care has bene taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.

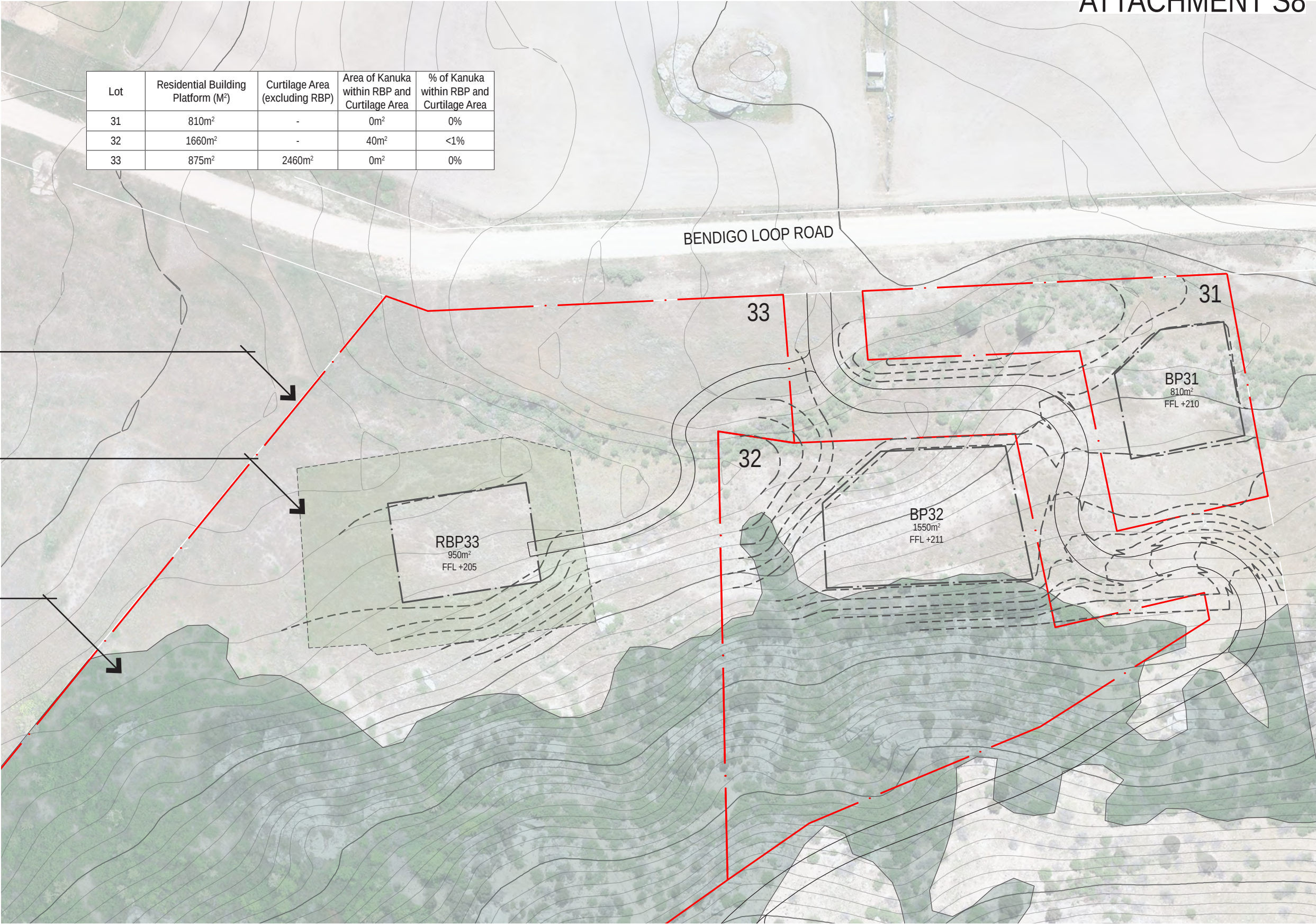


Lot	Residential Building Platform (M²)	Curtilage Area (excluding RBP)	Area of Kanuka within RBP and Curtilage Area	% of Kanuka within RBP and Curtilage Area
31	810m²	-	0m²	0%
32	1660m²	-	40m²	<1%
33	875m²	2460m²	0m²	0%

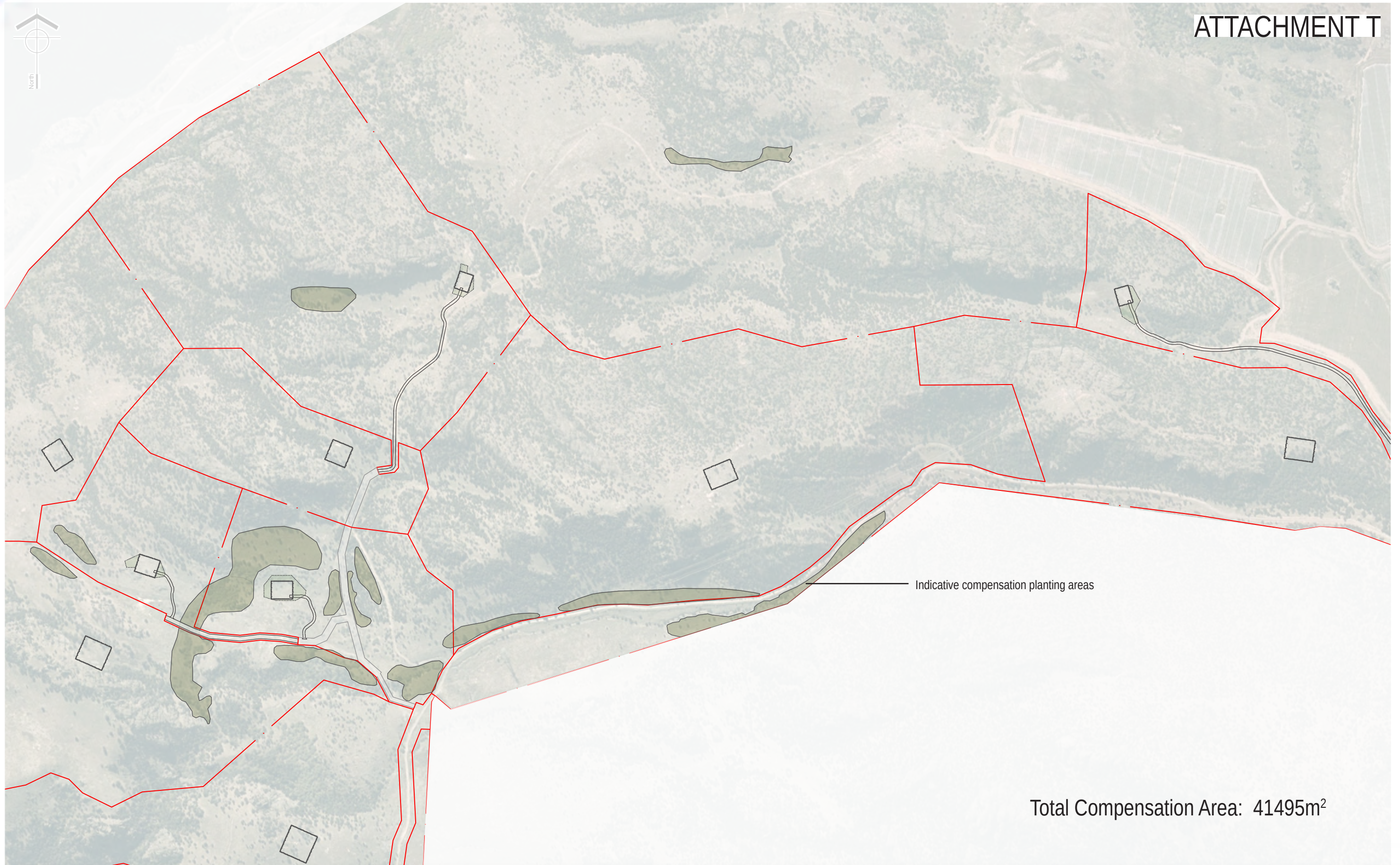
Proposed Lot Boundary (Legal only)

Proposed Curtilage Areas

Area of existing Kanuka



note:
While care has been taken to accurately reflect existing vegetative cover, highlighted areas of Kanuka are estimates only.





**SUITABILITY FOR ONSITE DOMESTIC WASTEWATER DISPOSAL
REPORT**

INFRACON BENDIGO GEOTECH

**BENDIGO HILLS
TARRAS CROMWELL ROAD**

CLIENT: INFRACON LTD

DATE: 06 June 2023

JOB REF: G23068

MT IRON GEODRILL



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(03) 443 7491



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Gavin Tippet

Engineering Geologist

B.Sc (Geol), P.G.Dip.Eng.Geol, M.Sc (Eng.Geol), MEngNZ



1 INTRODUCTION

This report is for inclusion in Consent applications for a proposed multi-lot subdivision. The scope of this report is to assess the suitability for onsite domestic wastewater and stormwater disposal for the proposed development.

The proposed development comprises a sub-division of land into multiple lots with variable areas. There are two distinct development areas. These are Bendigo Hills, LOT 2 DP 561457 (to the south, with only three lots needing assessment) and Rocky Point LOT 1 DP 561457, the northern development area, with 33 Lots.

Each lot has a building platform for it, however, it is understood that at the time of the assessment, no buildings had been designed for any of the lots.

Therefore, no designs have been undertaken and this report only deals with the suitability of each lot for onsite wastewater disposal. Full design should be undertaken for each site by a suitably qualified person at the time of building design.

Limitations

Findings presented as a part of this report are for the sole use of Infracon and the Central Otago District Council in accordance with the specific scope and the purposes outlined above. While other parties may find this reporting useful the findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practising in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.

1.1 RELATED DOCUMENTS

In this report, reference is made to the following documents:

- AS/NZS 1547:2012 Onsite Domestic-wastewater management.
- Central Otago District Council (CODC) GIS Maps
- New Zealand Building Code (NZBC), Section E1 & Section G13
- NZS 4404:2010 Land Development and Sub-division Infrastructure
- NIWA High Intensity Rainfall System V4 (<http://hirds.niwa.co.nz/>)

2 EVALUATION PHILOSOPHIES

The evaluation and assessment for the suitability to dispose of wastewater and stormwater used in this report are as follows.

2.1 WASTEWATER

Suitability for disposal of wastewater has been undertaken per AS/NZS1547:2012 with infiltration testing being carried out as per the method set in Appendix G of the above document.

Consideration has been given to the likely separation distances to both surface water and groundwater for each lot as part of the evaluation.

Where lots are considered to be unsuitable for onsite disposal, evaluation of using a communal reticulated system has been undertaken, which includes likely required infrastructure at each lot, required downstream infrastructure, likely disposal area location(s) and size(s) and likely ground



disturbance for the construction of a reticulated system. it shall be noted that no formal design for a reticulated system is presented herein.

2.2 STORMWATER

Suitability for disposal of stormwater has been undertaken with NZBC E1 and NZS 4404:2010 Section 4 in mind. Consideration of the possible location of wastewater disposal fields and natural overland flow paths is also given.

Stormwater runoff should mimic the natural (predevelopment) as closely as possible.

3 SITE GEOLOGY

The site is situated on the west to northwest facing slopes of the Dunstan Mountains, locally known as Bendigo Hills.

The geology of the site is mapped by the Qm18 as comprising:

Undifferentiated Rakaia terrane Permian - Triassic TZIV schist – Strongly foliated and segregated/quartz-laminated psammitic and pelitic schist; minor greenschist; rare metachert; TZ4

This is overlain (in Part) by

OIS12 (Middle Pleistocene) glacier deposits - Till consisting of moderately weathered, poorly sorted, bouldery sandy gravel with silt lenses

The Qmap is at a 1:250,000 scale so only details the larger units present. Site investigations have confirmed both the till deposits and the schist rock.



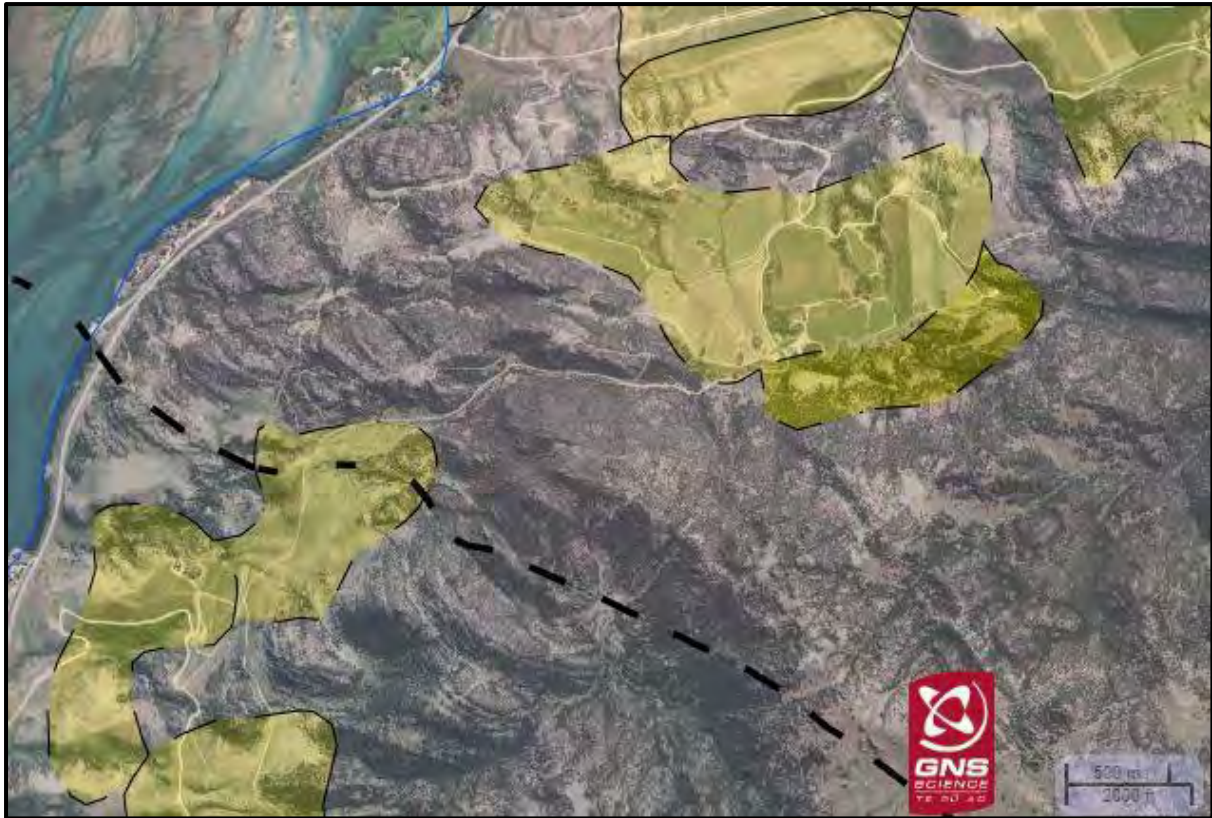


Figure 1 - Geology map of the Bendigo Hills, Rocky Point area. Yellow areas are alluvial deposits. The bold dashed line is the inactive Green Valley Fault

The sites are generally situated on schist rock with a variable cover of alluvial material, as described above, with outcrops in numerous locations across the site. Past glacial activity in the valley to the northwest which formed lakes Wanaka and Hawea and to a lesser extent the Lindis Valley, has resulted in several outwash alluvial deposits across the region. These range in age from hundreds of thousands to tens of thousands of years. The most notable of these deposits are mapped as Q12 (OIS12) and locally known as the Lindas Formation, which is understood to have an age range of 423,000 to 478,000 years before the present.

Since the deposition of these materials erosion has taken place which has re-exposed the schist rock and formed the gullies which cut across the site from east to west and drain into Lake Dunstan. Most, if not all, of these gullies, are ephemeral.

On the lower slopes along Bendigo Loop Road, is a younger deposit of Gravels, which have a lot less fines in the deposit. These deposits are mapped as:

OIS10 (Middle Pleistocene) outwash deposits - Slightly to moderately weathered, sandy to bouldery clayey gravel in outwash terrace remnants

And

OIS2 (Late Pleistocene) outwash deposits - Unweathered to slightly weathered, well sorted, sandy gravel forming large outwash terraces in Clutha catchment

The investigation of the site along the southern side of Bendigo Loop Road would suggest that the OIS2 and OIS10 materials extend further to the west towards Lake Dunstan than is mapped at this

location. Given that a small channel runs through this area is it considered likely that the material is a mix of both units due to alluvial processes in the past.

4 SITE & SOIL EVALUATION

4.1 BENDIGO HILLS

While a test pit and general assessment were undertaken for the Bendigo Hills site this was limited due to the requirement of a detailed assessment of the site and site conditions which would be required at the building consent stage. Furthermore, the likely area of disposal for these sites is complex and also depends on the layout and size of the house, amenity buildings and accessways for those sites.

It is considered that each of the Bendigo Hills sites would have low permeability soils. While it is considered that each site is suitable for onsite wastewater disposal further testing and evaluation are highly recommended at the time of system design.

The rationale for this is that the exact location of the disposal fields will depend on the design layout and placement of buildings. furthermore, the number of bedrooms generally defines the size of the disposal field as does the disposal method used.

It is highly recommended that treatment systems are to a minimum of secondary treatment level, as defined by AS/NZS 1546 and AS/NZS1547 (the versions of which are current in New Zealand at the time of the system design and consent)

4.2 ROCKY POINT

Each of the sites was evaluated for the suitability of onsite stormwater and wastewater disposal. This included eight infiltration tests undertaken in boreholes approximately 100mm diameter and at variable depths but generally between 500mm to 600mm depth. Borehole logs are attached in Appendix B.

Testing and investigation were undertaken as an area approach in the Rocky Point Development Area of the sub-division.

Table 1 Below outlines the Infiltration test results undertaken in the Rocky Point area. Test location refers to the borehole each was undertaken in.



TABLE 1 – SUMMARY OF PERMEATION TESTING

TEST LOCATION	SOIL TYPE	PERMEABILITY mm/hr	PERMEABILITY m/day	SOIL CATEGORY
BH05	Gravelly CLAY	17	0.40	4 weakly structured, Clay Loam
BH07	Gravelly CLAY	5	0.11	4 massive, Clay Loam
BH09	Gravelly CLAY	5	0.12	4 massive, Clay Loam
BH13	Gravelly CLAY	5	0.12	4 massive Clay Loam
BH15	Gravelly CLAY	10	0.24	4 weakly structured, Clay Loam
BH18	Gravelly CLAY	12	0.28	4 weakly structured, Clay Loam
BH19	Gravelly CLAY	17	0.40	4 weakly structured, Clay Loam
BH20	Gravelly CLAY	15	0.36	4 weakly structured, Clay Loam

Soil category as per AS/NZS1547:2012, Table 5.1

5 SITE IMITATIONS (ROCKY POINT)

The limitations for each of the lots that were assessed are outlined in Table 2 below.

TABLE 1 – SUMMARY OF PERMEATION TESTING

Lot	LIMITATIONS
1 & 2	Low permeability soils
3 & 4	Possible shallow depth to rock and may be close to a waterway along the south side
5 - 7	Smaller lot size may limit the disposal area
8 - 13	Small lot size and proximity to a watercourse
14	May have a shallow depth to rock
15 - 19	Small lot size and possible shallow depth to rock
20	Possible shallow depth to rock
21 - 23	Highly likely to require pumping to the disposal field to stay away from the waterway
24 - 26	Low permeability soils

27 & 28	Possible shallow depth to rock. May be able a disposal area south of the lot but may require resource consent due to a waterway
29 & 30	Larger lot areas, the final placement of the building platform unknown, some overland flow paths noted crossing each lot
31 - 33	An old water channel runs across each lot, the final location of disposal fields is unknown

6 DISCUSSION AND RECOMMENDATIONS

6.1 WASTEWATER (ROCKY POINT)

It is considered that lots 1 through 7 and 21 through 33 are suitable for onsite wastewater disposal. testing of the soils across the area does show some variability in permeation, however, this is considered to be minimal and falls within category 4 class clay loam soils (other than lots 31 through 33. Lots 31 through 33 are situated on river gravels at the base of the hill and are likely to have a higher permeability and thus soil category. The actual permeation rate has not been tested in these locations due to not knowing where and what type of development is likely to take place.

Furthermore, it is understood that some earthworks could occur which may impact the final design.

It is recommended that all lots use secondary treatment as a minimum.

For Lots 8 through 20 the lot size and/or the shallow depth to rock are considered factors which would prohibit on-site wastewater disposal. As such it is recommended that a communal reticulated system is installed to cater for these lots.

6.1.1 Reticulated Wastewater Concept

The following parameters have been used to provide a concept system for a reticulated system to cater for Lots 8 through 20;

- Each house is three bedrooms
- Allowance for 5 persons per house
- Daily flow is 165l/person per day (use of standard water reduction fixtures)
- All waste is directed to the foul sewer connection
- Disposal is by means of sub-surface beds
- Soil category 4 , massive, used with secondary treatment

Therefore, the maximum daily flow could be 9,900L in total. The design load rate (DLR) for the soil category used is 10mm/d.

Based on the above assumptions the disposal field requirements would be a total of five beds, 10m wide by 20m long with a minimum of 1m spacing between each bed. The total depth of each bed below ground surface would be variable to allow for a flat base of beds on the sloping surface. The bed thickness in ground would be 0.3m. expected total area of beds is 1000m² not including the spaces between beds. It is envisaged that the beds would be placed end to end with sequencing valves to allow for even distribution across the field. Different bed dimensions could be used to allow for alternative layouts

The treatment plant could be placed along the northwestern side of Lot 8. This would consist of a secondary treatment system sized to allow for the expected maximum daily flow. Effluent would be pumped to the disposal beds which could be placed to the northwest and downslope of Lots 1 & 2.



The use of beds would allow for the transplanting of the mosses back post construction.

It shall be noted that this is an indicative concept and shall not be taken as a design for the reticulated system.

6.2 STORMWATER

It is considered that onsite stormwater disposal could be problematic across both the Bendigo Hills and Rocky Point developments.

6.2.1 Bendigo hills

Stormwater from each lot could either be directed to soak pits or via a modified runoff system to allow for controlled disposal to nearby gullies and overland flow paths.

6.2.2 Rocky Point

Stormwater from each lot could either be directed to soak pits or to a semi-reticulated system. Most sites would likely have limited suitability for soak pits due to a combination of low permeability soils and depth to rock.

Stormwater runoff from the site should mimic that of the pre-development up to and including AEP 1% (1 in 100) and shall include allowance for climate change (NZS4404:2010, Section 4.2.9).

6.2.3 Modified Runoff

A modified runoff system uses a combination of modifications to the natural flow paths with detention tanks and/or soak pits at each lot to mimic the predevelopment runoff as means of drainage of stormwater runoff.

It is understood that a small pond is planned for the site and is to be situated near lot 13. This pond could have detention capability included in the design.

6.2.4 Soak pits

A typical soak pit is installed to a depth of approximately 2m depth, although shallower depths are possible.

Based on the typical infiltration rates tested on site a house with a roof area of 250m² would require a soak pit approximately 11m³ to 11.4m³. The following assumptions have been made:

- AEP 10% RCP 8.5 2081 - 2100, 1-hour event (19.1mm/hr intensity)
- 0.5 clogging reduction
- Infiltration rates of 5mm/hr to 17mm/hr have been evaluated
- Catchment area of 250m² with a runoff coefficient of 0.9
- Half the sidewall height of the soak pit used for infiltration
- Design is a rock-filled soak pit with 38% void volume

It is therefore considered that a semi-reticulated system be used for this development

For Lot 31 through 33 soak pits are considered likely to be suitable for stormwater disposal

7 APPLICABILITY

This report is only to be used by the parties named above for the purpose that it was prepared and shall not be relied upon or used for any other purpose without the express written consent of the Client and Mt Iron Geodrill.



The extent of testing associated with this assessment is limited to discrete locations, and variations in ground conditions can occur between and away from such locations. If subsurface conditions encountered during construction differ from those given in this report further advice should be sought without delay.

8 COMPETENCY STATEMENT

I, Gavin Tippett, am a member of Engineering New Zealand (MEngNZ 1153129), and hold the following qualifications:

- BSc (Geology),
- PGDip Engineering Geology,
- M.Sc (Engineering Geology).

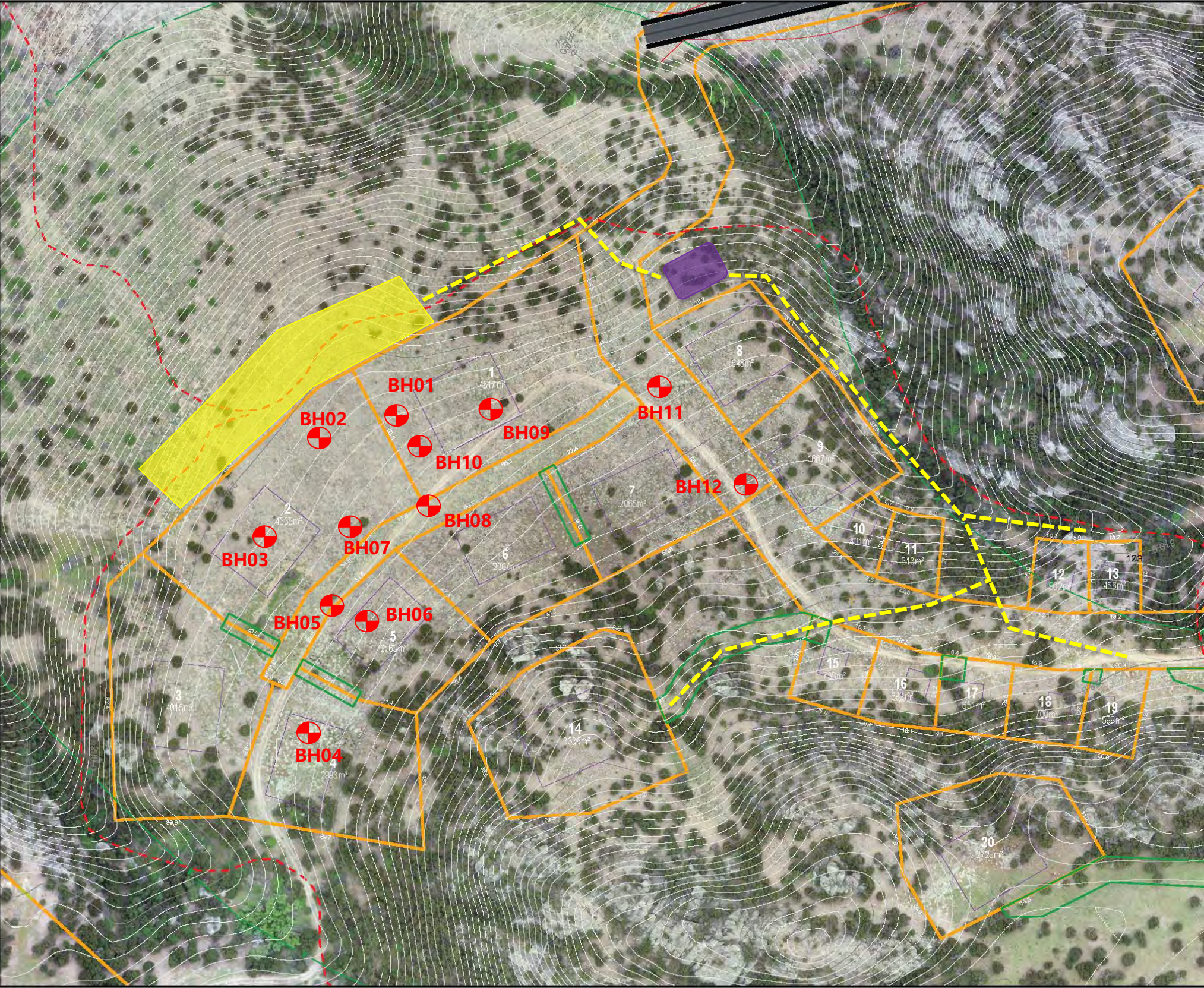
Mt Iron Geodrill holds a current policy of Professional Indemnity Insurance of no less than \$200,000.



Appendix A – SITE PLANS

- Testing location plan (Figure 1)



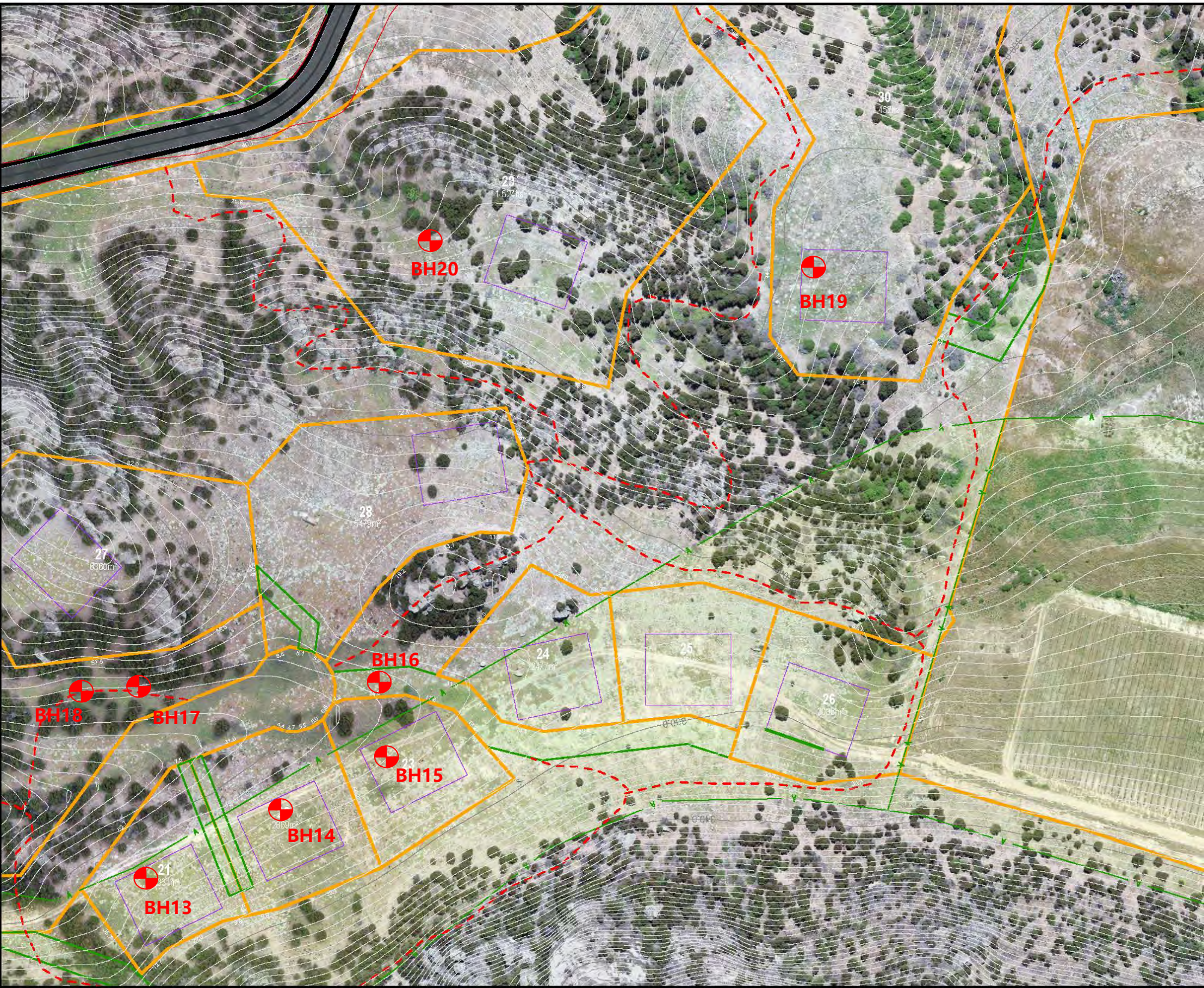


LEGEND

-  **BH01 Borehole Location**
-  **Proposed Wastewater Disposal Area**
-  **Proposed Treatment Plant Location**
-  **Proposed Foul Sewer Line (Indicative)**

All test locations are approximate only
Base plan taken from CHA Plans

	Project: Infracon Bendigo Geotech Bendigo Hills Bendigo	Client: Infracon	Drawing Title: Site investigation Plan	Scale: As shown	Drawing Number Figure 1
				Job No. G23068	Revision: 04/05/2023



LEGEND

 **BH01 Borehole Location**

All test locations are approximate only

Base plan taken from CHA Plans



Project:
Infracon Bendigo Geotech
Bendigo Hills
Bendigo

Client:
Infracon

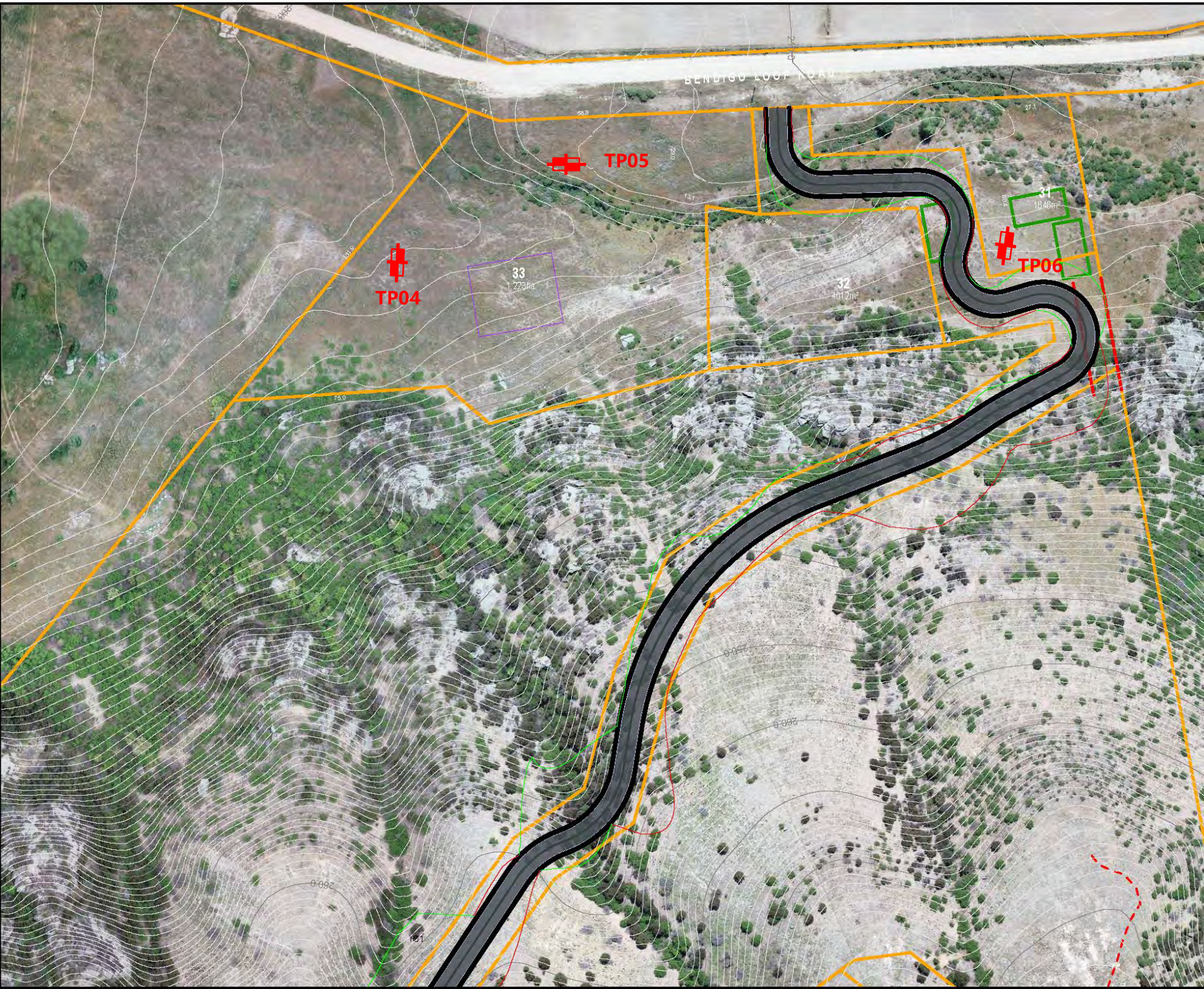
Drawing Title:
Site investigation Plan

Scale:
As shown

Drawing Number
Figure 1

Job No.
G23068

Revision:
04/05/2023



LEGEND

 **TP04** Test Pit Location

All test locations are approximate only

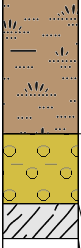
Base plan taken from CHA Plans

	Project: Infracon Bendigo Geotech Bendigo Hills Bendigo	Client: Infracon	Drawing Title: Site investigation Plan	Scale: As shown	Drawing Number Figure 1
				Job No. G23068	Revision: 04/05/2023

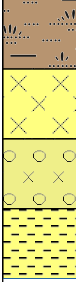
Appendix B – ENGINEERING LOGS

- Test Pit Logs (TP01 - TP06)
- Borehole Logs (BH01 - BH20)
- Infiltration Results

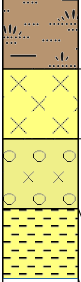


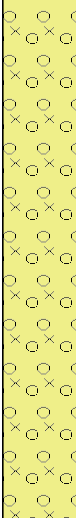
TP01		TEST PIT LOG							
CO-ORDINATES: 365632 5022334 ± m: 6m ELEVATION: 294 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet					
DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		PIT DIMENSIONS: Wide: 0.5m Long: 2.4m							
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
E	0					TOPSOIL: brown organic rich sandy loam.	D	St	TOPSOIL
	Clayey GRAVEL: yellow brown, fine to coarse grained, sub-rounded to angular, well graded gravel; high plasticity clay; some fine to coarse grained, well graded sand.					D - M	vSt	COLLUVIUM	
	SCHIST: grey, slightly weathered, moderately strong to strong thinly laminated and thinly foliated.							ROCK	
	END @ 0.7m (Refusal)								
	1								
	2								
	3								
	4								

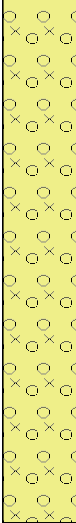
METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
N Natural Exposure	U50 Undisturbed Sample	D Dry	VS Very Soft	A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
X Existing Excavation	50mm Diameter	M Moist	S Soft	
E Excavator	D Disturbed Sample	W Wet	F Firm	
HA Hand Auger	V Vane Shear (kPa)	S Saturated	St Stiff	
	Bs Bulk Disturbed Sample		VS Very Stiff	WATER:
	E Environmental Sample		H Hard	◁ Water Inflow
	INF Infiltration test		Fb Friable	▼ Standing Water Level
				▽ Estimated High Water Level
				N Nil Water Observed

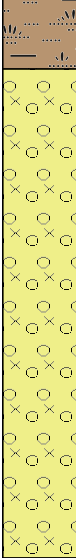
TP02		TEST PIT LOG							
CO-ORDINATES: 365408 5021914 ± m: 6m ELEVATION: 312 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet					
DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		PIT DIMENSIONS: Wide: 0.5m Long: 2.4m							
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
E	0			N		TOPSOIL: brown, organic rich sandy loam	D	F - St	TOPSOIL
	SILT: yellow, low dilatancy silt, trace fine sand.					D	St - VSt	AEOLIAN	
	Gravelly SILT: yellow grey, low dilatancy silt; fine to coarse grained, sub-angular to angular, well graded gravel; some fine to coarse grained well graded sand.					D - M	St - VSt	COLLUVIUM	
	CLAY: yellow, high plasticity clay; minor fine to medium grained, poorly graded sand END @ 0.8m (practical refusal in hard clay)					M	VSt	RESIDUAL	
	1								
	2								
	3								
	4								

METHOD: N Natural Exposure X Existing Excavation E Excavator HA Hand Auger	SAMPLES: U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration test	MOISTURE: D Dry M Moist W Wet S Saturated	CONSISTENCY / DENSITY: VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable	NOTE: A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed
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TP03		TEST PIT LOG							
CO-ORDINATES: 365237 5021870 ± m: 4m ELEVATION: 300 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet					
DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		PIT DIMENSIONS: Wide: 0.5m Long: 2.4m							
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
E	0			N		TOPSOIL: brown, organic rich sandy loam	D	F - St	TOPSOIL
	SILT: yellow, low dilatancy silt, trace fine sand.					D	St - VSt	AEOLIAN	
	Gravelly SILT: yellow grey, low dilatancy silt; fine to coarse grained, sub-angular to angular, well graded gravel; some fine to coarse grained well graded sand.					D - M	St - VSt	COLLUVIUM	
	CLAY: yellow, high plasticity clay; minor fine to medium grained, poorly graded sand					M	VSt	RESIDUAL	
	END @ 0.8m (practical refusal in hard clay)								
	1								
	2								
	3								
	4								
METHOD: N Natural Exposure X Existing Excavation E Excavator HA Hand Auger		SAMPLES: U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration test		MOISTURE: D Dry M Moist W Wet S Saturated		CONSISTENCY / DENSITY: VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		NOTE: A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed	

TP04		TEST PIT LOG								
CO-ORDINATES: 366223 5023113 ± m: 4m ELEVATION: 202 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet						
DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		PIT DIMENSIONS: Wide: 0.5m Long: 2.4m								
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
E	0					TOPSOIL: brown, organic rich sandy loam	D	F	TOPSOIL	0
						Silty GRAVEL: yellow grey, fine to coarse grained, rounded to sub angular, well graded gravel; high dilatancy silt; some fine to coarse grained, well graded sand; minor rounded to sub-rounded cobbles and small boulders.	D	St - VSt	ALLUVIUM	1
						END @ 1.8m (minor collapsing of hole)				2
										3
	4								4	
METHOD: N Natural Exposure X Existing Excavation E Excavator HA Hand Auger		SAMPLES: U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration test		MOISTURE: D Dry M Moist W Wet S Saturated		CONSISTENCY / DENSITY: VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		NOTE: A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed		

TP05		TEST PIT LOG									
CO-ORDINATES: 366271 5023142 ± m: 6m ELEVATION: 206 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracore Bendigo Geotech LOCATION: Bendigo Hills BENDIGO		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet		PIT DIMENSIONS: Wide: 0.5m Long: 2.4m					
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional		
E	0					TOPSOIL: brown, organic rich sandy loam	D	F	TOPSOIL	0	
						Silty GRAVEL: yellow grey, fine to coarse grained, rounded to sub angular, well graded gravel; high dilatancy silt; some fine to coarse grained, well graded sand; minor rounded to sub-rounded cobbles and small boulders.	D	St - VSt	ALLUVIUM	1	
	2									2	
	3									3	
	4									4	
METHOD: N Natural Exposure X Existing Excavation E Excavator HA Hand Auger		SAMPLES: U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration test		MOISTURE: D Dry M Moist W Wet S Saturated		CONSISTENCY / DENSITY: VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		NOTE: A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed			

TP06		TEST PIT LOG							
CO-ORDINATES: 366427 5023117 ± m: 6m ELEVATION: 212 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet					
DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		PIT DIMENSIONS: Wide: 0.5m Long: 2.4m							
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
E	0					TOPSOIL: brown, organic rich sandy loam	D	F	TOPSOIL
	Silty GRAVEL: yellow grey, fine to coarse grained, rounded to sub angular, well graded gravel; high dilatancy silt; some fine to coarse grained, well graded sand; minor rounded to sub-rounded cobbles and small boulders.					D	St - VSt	ALLUVIUM	
	END @ 1.6m (refusal in gravels)								
	1								
	2								
	3								
	4								
METHOD: N Natural Exposure X Existing Excavation E Excavator HA Hand Auger		SAMPLES: U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration test		MOISTURE: D Dry M Moist W Wet S Saturated		CONSISTENCY / DENSITY: VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		NOTE: A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed	

BOREHOLE LOG



CO-ORDINATES: 365772
5022551
± m: 6m
ELEVATION (m): 293
GPS DATUM: UTM
HEIGHT DATUM: NZVD16

JOB NUMBER: G23068
PROJECT: Infracon Bendigo Geotech
LOCATION: Bendigo Hills
BENDIGO
DATE: 7, 8 & 9 March 2023
LOGGED BY: G Tippet

EQUIPMENT TYPE & MODEL: Yanmar ViO17
COMPANY: Mt Iron Geodrill
OPERATOR: G Tippet
BOREHOLE DIAMETER: 350mm

METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOSITURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0	Scala Not Undertaken	N			TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.6m (refusal in gravels)	D D	F St - VSt	TOPSOIL ALLUVIUM
	1								
	2								
	3								
	4								

METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
AS Auger screwing	U50 Undisturbed Sample	D Dry	VS Very Soft VL Very Loose	A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
AD Auger drilling	50mm Diameter	M Moist	S Soft L Loose	
RR Roller/Tricone	D Disturbed Sample	W Wet	F Firm MD Medium Dense	
CB Claw / Blade bit	V Vane Shear (kPa)	S Saturated	St Stiff D Dense	
TC TC bit	Bs Bulk Disturbed Sample		VSt Very Stiff VD Very Dense	
HA Hand auger	E Environmental Sample	<i>for cohesive soils moisture can be further related to:</i>	H Hard	WATER:
	INF Infiltration Test	LL Liquid Limit	Fb Friable	◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed
		PL Plastic Limit		

BOREHOLE LOG



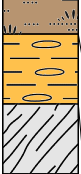
CO-ORDINATES: 365725
5022506
± m: 4m
ELEVATION (m): 292
GPS DATUM: UTM
HEIGHT DATUM: NZVD16

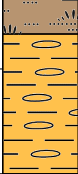
JOB NUMBER: G23068
PROJECT: Infracon Bendigo Geotech
LOCATION: Bendigo Hills
BENDIGO
DATE: 7, 8 & 9 March 2023
LOGGED BY: G Tippet

EQUIPMENT TYPE & MODEL: Yanmar ViO17
COMPANY: Mt Iron Geodrill
OPERATOR: G Tippet
BOREHOLE DIAMETER: 350mm

METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOSITURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
AD	0	Scala Not Undertaken	N			TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand.	D	F	TOPSOIL	0
	Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.6m (refusal in gravels)					D	St - VSt	ALLUVIUM		
	1									1
	2									2
	3									3
	4									4

METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
AS Auger screwing	U50 Undisturbed Sample	D Dry	VS Very Soft VL Very Loose	A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
AD Auger drilling	50mm Diameter	M Moist	S Soft L Loose	
RR Roller/Tricone	D Disturbed Sample	W Wet	F Firm MD Medium Dense	
CB Claw / Blade bit	V Vane Shear (kPa)	S Saturated	St Stiff D Dense	
TC TC bit	Bs Bulk Disturbed Sample		VSt Very Stiff VD Very Dense	
HA Hand auger	E Environmental Sample	<i>for cohesive soils moisture can be further related to:</i>	H Hard	WATER:
	INF Infiltration Test	LL Liquid Limit	Fb Friable	◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed
		PL Plastic Limit		

BH04		BOREHOLE LOG								
CO-ORDINATES: 365739 5022436 ± m: 6m ELEVATION (m): 297 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 350mm						
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
AD	0	Scala Not Undertaken	N			TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. SCHIST: grey, slightly weathered, moderately strong to strong thinly laminated and thinly foliated. END @ 0.5m (refusal in rock)	D D	F St - VSt	TOPSOIL ALLUVIUM ROCK	0
	1									1
	2									2
	3									3
	4									4
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:		
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed		

BH05		BOREHOLE LOG								
CO-ORDINATES: 365745 5022481 ± m: 6m ELEVATION (m): 295 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Hand Auger COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm						
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
HA	0	Scala Not Undertaken	N	INF		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.5m (Limit of Investigation)	D D	F St - VSt	TOPSOIL ALLUVIUM	0 1 2 3 4
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:		
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed		

BH06

BOREHOLE LOG



CO-ORDINATES: 365757
5022480
± m: 4m
ELEVATION (m): 296
GPS DATUM: UTM
HEIGHT DATUM: NZVD16

JOB NUMBER:	G23068	EQUIPMENT	
PROJECT:	Infracon Bendigo Geotech	TYPE & MODEL:	Yanmar ViO17
LOCATION:	Bendigo Hills	COMPANY:	Mt Iron Geodrill
	BENDIGO	OPERATOR:	G Tippet
DATE:	7, 8 & 9 March 2023		
LOGGED BY:	G Tippet	BOREHOLE DIAMETER:	350mm

EQUIPMENT
TYPE & MODEL: Yanmar ViO17
COMPANY: Mt Iron Geodrill
OPERATOR: G Tippett

BOREHOLE DIAMETER: 350mm

METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0			N		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.6m (refusal in gravels)	D	F	TOPSOIL
	1						D	St - VSt	ALLUVIUM
	2								
	3								
	4								

METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
AS Auger screwing	U50 Undisturbed Sample	D Dry	VS Very Soft VL Very Loose	A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
AD Auger drilling	50mm Diameter	M Moist	S Soft L Loose	
RR Roller/Tricone	D Disturbed Sample	W Wet	F Firm MD Medium Dense	
CB Claw / Blade bit	V Vane Shear (kPa)	S Saturated	St Stiff D Dense	
TC TC bit	Bs Bulk Disturbed Sample	<i>for cohesive soils moisture can be further related to:</i>	VSt Very Stiff VD Very Dense	WATER:
HA Hand auger	E Environmental Sample		H Hard	▽ Water Inflow
	INF Infiltration Test		Fb Friable	▼ Standing Water Level
		LL Liquid Limit	▽ Estimated High Water Level	
		PL Plastic Limit		N Nil Water Observed

BH07

BOREHOLE LOG



CO-ORDINATES: 365755
5022511
± m: 6m
ELEVATION (m): 294.5
GPS DATUM: UTM
HEIGHT DATUM: NZVD16

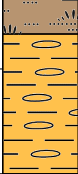
JOB NUMBER:	G23068	EQUIPMENT	
PROJECT:	Infracon Bendigo Geotech	TYPE & MODEL:	Hand Auger
LOCATION:	Bendigo Hills	COMPANY:	Mt Iron Geodrill
	BENDIGO	OPERATOR:	G Tippet
DATE:	7, 8 & 9 March 2023		
LOGGED BY:	G Tippet	BOREHOLE DIAMETER:	100mm

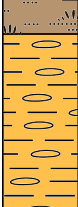
EQUIPMENT
TYPE & MODEL: Hand Auger
COMPANY: Mt Iron Geodrill
OPERATOR: G Tippett

BOREHOLE DIAMETER: 100mm

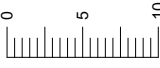
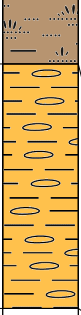
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
HA	0	Scala Not Undertaken	N	I N F		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand.	D	F	TOPSOIL	0
						Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.4m (refusal in gravels)	D	St - VSt	ALLUVIUM	
	1									1
	2									2
	3									3
	4									4

METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
AS Auger screwing	U50 Undisturbed Sample	D Dry	VS Very Soft VL Very Loose	A scala result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
AD Auger drilling	50mm Diameter	M Moist	S Soft L Loose	
RR Roller/Tricone	D Disturbed Sample	W Wet	F Firm MD Medium Dense	
CB Claw / Blade bit	V Vane Shear (kPa)	S Saturated	St Stiff D Dense	
TC TC bit	Bs Bulk Disturbed Sample	<i>for cohesive soils moisture can be further related to:</i>	VSt Very Stiff VD Very Dense	WATER:
HA Hand auger	E Environmental Sample		H Hard	▽ Water Inflow
	INF Infiltration Test		Fb Friable	▼ Standing Water Level
		LL Liquid Limit		▽ Estimated High Water Level
		PL Plastic Limit		N Nil Water Observed

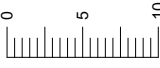
BH09		BOREHOLE LOG									
CO-ORDINATES: 365807 5022552 ± m: 6m ELEVATION (m): 294.5 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Hand Auger COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm							
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional		
HA	0			N		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.5m (Limit of Investigation)	D	F	TOPSOIL	0	
				INF			D	St - VSt	ALLUVIUM		
	1										1
	2										2
	3										3
	4										4
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:			
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed			

BH11		BOREHOLE LOG								
CO-ORDINATES: 365862 5022557 ± m: 4m ELEVATION (m): 297.5 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 350mm						
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
AD	0			N		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.6m (refusal in gravels)	D	F	TOPSOIL	0
							D	St - VSt	ALLUVIUM	
	1									1
	2									2
	3									3
	4									4

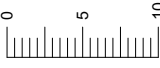
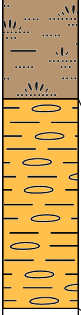
METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
AS Auger screwing	U50 Undisturbed Sample	D Dry	VS Very Soft VL Very Loose	A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
AD Auger drilling	50mm Diameter	M Moist	S Soft L Loose	
RR Roller/Tricone	D Disturbed Sample	W Wet	F Firm MD Medium Dense	WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed
CB Claw / Blade bit	V Vane Shear (kPa)	S Saturated	St Stiff D Dense	
TC TC bit	Bs Bulk Disturbed Sample	for cohesive soils moisture can be further related to:	VSt Very Stiff VD Very Dense	
HA Hand auger	E Environmental Sample	LL Liquid Limit	H Hard	
	INF Infiltration Test	PL Plastic Limit	Fb Friable	

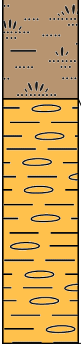
BH13		BOREHOLE LOG								
CO-ORDINATES: 366096 5022484 ± m: 4m ELEVATION (m): 322 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm						
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional	
AD	0			N		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand.	D	F	TOPSOIL	0
	Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.9m (refusal in gravels)					D	St - VSt	ALLUVIUM	1	
	1									1
	2									2
	3									3
	4									4
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:		
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed		

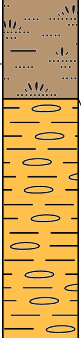
BH14		BOREHOLE LOG							
CO-ORDINATES: 366141 5022511 ± m: 4m ELEVATION (m): 322 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet		BOREHOLE DIAMETER: 350mm			
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0					TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.8m (refusal in gravels)	D	F	TOPSOIL
	1						D	St - VSt	ALLUVIUM
	2								
	3								
	4								
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:	
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed	

BH15		BOREHOLE LOG							
CO-ORDINATES: 366177 5022529 ± m: 4m ELEVATION (m): 322.5 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm					
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0			N	INF	TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.7m (refusal in gravels)	D D	F St - VSt	TOPSOIL ALLUVIUM
	1								
	2								
	3								
	4								

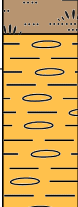
METHOD:	SAMPLES:	MOISTURE:	CONSISTENCY / DENSITY:	NOTE:
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger	U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test	D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit	VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable	A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed

BH16		BOREHOLE LOG							
CO-ORDINATES: 366174 5022555 ± m: 4m ELEVATION (m): 322 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 350mm					
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0					TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand.	M	F	TOPSOIL
	Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.9m (refusal in gravels)					D - M	St - VSt	ALLUVIUM	
	1								
	2								
	3								
	4								
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:	
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed	

BH17		BOREHOLE LOG							
CO-ORDINATES: 366074 5022552 ± m: 4m ELEVATION (m): 322 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 350mm					
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0			N		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand.	M	F	TOPSOIL
	Gravelly CLAY: orange yellow, high plasticity clay; fine to medium grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders.					D - M	St - VSt	ALLUVIUM	
	1					END @ 0.9m (refusal in gravels)			
	2								
	3								
	4								
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:	
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed	

BH18		BOREHOLE LOG							
CO-ORDINATES: 366095 5022549 ± m: 4m ELEVATION (m): 321 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm					
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
HA	0		N	I N F		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand.	M	F	TOPSOIL
	Gravelly CLAY: orange yellow, high plasticity clay; fine to medium grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders.					D - M	St - VSt	ALLUVIUM	
	1					END @ 0.9m (refusal in gravels)			
	2								
	3								
	4								

METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:		
AS	Auger screwing	U50	Undisturbed Sample	D	Dry	VS	Very Soft	VL	Very Loose	A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.
AD	Auger drilling		50mm Diameter	M	Moist	S	Soft	L	Loose	
RR	Roller/Tricone	D	Disturbed Sample	W	Wet	F	Firm	MD	Medium Dense	
CB	Claw / Blade bit	V	Vane Shear (kPa)	S	Saturated	St	Stiff	D	Dense	
TC	TC bit	Bs	Bulk Disturbed Sample	for cohesive soils moisture can be further related to:		VSt	Very Stiff	VD	Very Dense	WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed
HA	Hand auger	E	Environmental Sample	LL	Liquid Limit	H	Hard			
		INF	Infiltration Test	PL	Plastic Limit	Fb	Friable			

BH19		BOREHOLE LOG									
CO-ORDINATES: 366327 5022703 ± m: 4m ELEVATION (m): 301.5 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm							
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional		
AD	0			N		TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.6m (refusal in gravels)	D	F	TOPSOIL	0	
				I			D	St - VSt	ALLUVIUM		
	1										1
	2										2
	3										3
	4										4
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:			
AS Auger screwing		U50 Undisturbed Sample		D Dry		VS Very Soft VL Very Loose		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7.			
AD Auger drilling		50mm Diameter		M Moist		S Soft L Loose		WATER:			
RR Roller/Tricone		D Disturbed Sample		W Wet		F Firm MD Medium Dense		◀ Water Inflow			
CB Claw / Blade bit		V Vane Shear (kPa)		S Saturated		St Stiff D Dense		▼ Standing Water Level			
TC TC bit		Bs Bulk Disturbed Sample		for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VSt Very Stiff VD Very Dense		▽ Estimated High Water Level			
HA Hand auger		E Environmental Sample				H Hard		N Nil Water Observed			
		INF Infiltration Test				Fb Friable					

BH20		BOREHOLE LOG							
CO-ORDINATES: 366194 5022710 ± m: 4m ELEVATION (m): 302 GPS DATUM: UTM HEIGHT DATUM: NZVD16		JOB NUMBER: G23068 PROJECT: Infracon Bendigo Geotech LOCATION: Bendigo Hills BENDIGO DATE: 7, 8 & 9 March 2023 LOGGED BY: G Tippet		EQUIPMENT TYPE & MODEL: Yanmar ViO17 COMPANY: Mt Iron Geodrill OPERATOR: G Tippet BOREHOLE DIAMETER: 100mm					
METHOD	DEPTH (m)	BLOWS/50mm	WATER	SAMPLES	GRAPHIC	DESCRIPTION: Soil Name, Plasticity or Particle Characteristics, Colour, Secondary Components & Minor Components	MOISTURE	CONSISTENCY DENSITY	Structure and Additional Observations Geological / Depositional
AD	0			N	INF	TOPSOIL: brown, clay loam; some fine to coarse grained, rounded to sub-angular, well graded gravel and some fine to coarse grained, well graded sand. Gravelly CLAY: orange yellow, high plasticity clay; fine to coarse grained, rounded to sub-angular, well graded gravel; some fine to coarse grained, well graded sand; some rounded to sub-rounded cobbles and boulders. END @ 0.7m (refusal in gravels)	D D	F St - VSt	TOPSOIL ALLUVIUM
	1								
	2								
	3								
	4								
METHOD:		SAMPLES:		MOISTURE:		CONSISTENCY / DENSITY:		NOTE:	
AS Auger screwing AD Auger drilling RR Roller/Tricone CB Claw / Blade bit TC TC bit HA Hand auger		U50 Undisturbed Sample 50mm Diameter D Disturbed Sample V Vane Shear (kPa) Bs Bulk Disturbed Sample E Environmental Sample INF Infiltration Test		D Dry M Moist W Wet S Saturated for cohesive soils moisture can be further related to: LL Liquid Limit PL Plastic Limit		VS Very Soft VL Very Loose S Soft L Loose F Firm MD Medium Dense St Stiff D Dense VSt Very Stiff VD Very Dense H Hard Fb Friable		A scale result of 2.5 blows per 50mm is equivalent to a geotechnical ultimate bearing capacity of 300kPa in accordance with NZS 3604-2011, Section 3.3.7. WATER: ◁ Water Inflow ▼ Standing Water Level ▽ Estimated High Water Level N Nil Water Observed	

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH05

Test Date:

8-Mar-23

Operator: Gavin Tippet

Test Time:

11:22 AM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 500 mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

17

mm/hr

0.40

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.5m	Water Level in hole 300mm
11:22:00 AM	0	912	0		
11:23:00 AM	0:01:00	860	52		
11:24:00 AM	0:01:00	816	44		
11:25:00 AM	0:01:00	766	50		
11:26:00 AM	0:01:00	722	44		
11:27:00 AM	0:01:00	682	40		
11:28:00 AM	0:01:00	642	40		
11:29:00 AM	0:01:00	602	40		
11:30:00 AM	0:01:00	562	40		
11:31:00 AM	0:01:00	522	40		

Infiltration Capacity Test Sheet

Project:	Infracon Bendigo		
Site Location:	Bendigo Hills		
Test Number:	BH07	Test Date:	8-Mar-23
Operator:	Gavin Tippet	Test Time:	10:52 AM
Auger Ø:	100 mm	Permeameter Ø ID:	46 mm
Depth of Auger Hole:	400mm	Average Hole Ø:	100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat = 5 mm/hr 0.11 m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.4m	Water Level in hole 200mm
10:52:00 AM	0	1038	0		
10:53:00 AM	0:01:00	1030	8		
10:54:00 AM	0:01:00	1020	10		
10:55:00 AM	0:01:00	1012	8		
10:56:00 AM	0:01:00	1002	10		
10:57:00 AM	0:01:00	994	8		
10:58:00 AM	0:01:00	986	8		
10:59:00 AM	0:01:00	978	8		
11:00:00 AM	0:01:00	972	6		
11:01:00 AM	0:01:00	966	6		
11:02:00 AM	0:01:00	960	6		
11:03:00 AM	0:01:00	954	6		
11:04:00 AM	0:01:00	948	6		
11:05:00 AM	0:01:00	942	6		
11:06:00 AM	0:01:00	936	6		
11:07:00 AM	0:01:00	930	6		
11:08:00 AM	0:01:00	924	6		

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH09

Test Date:

8-Mar-23

Operator: Gavin Tippet

Test Time:

10:36 AM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 500mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

5

mm/hr

0.12

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.5m	Water Level in hole 300mm
10:36:00 AM	0	1348	0		
10:37:00 AM	0:01:00	1338	10		
10:38:00 AM	0:01:00	1326	12		
10:39:00 AM	0:01:00	1312	14		
10:40:00 AM	0:01:00	1300	12		
10:41:00 AM	0:01:00	1288	12		
10:42:00 AM	0:01:00	1276	12		
10:43:00 AM	0:01:00	1264	12		
10:44:00 AM	0:01:00	1252	12		
10:45:00 AM	0:01:00	1240	12		
10:46:00 AM	0:01:00	1228	12		
10:47:00 AM	0:01:00	1216	12		

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH13

Test Date:

8-Mar-23

Operator: Gavin Tippet

Test Time:

11:46 AM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 900mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

5

mm/hr

0.12

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.9m	Water Level in hole 700mm
11:46:00 AM	0	1322	0		
11:47:00 AM	0:01:00	1268	54		
11:48:00 AM	0:01:00	1220	48		
11:49:00 AM	0:01:00	1176	44		
11:50:00 AM	0:01:00	1134	42		
11:51:00 AM	0:01:00	1094	40		
11:52:00 AM	0:01:00	1054	40		
11:53:00 AM	0:01:00	1014	40		
11:54:00 AM	0:01:00	974	40		
11:55:00 AM	0:01:00	934	40		
11:56:00 AM	0:01:00	894	40		
11:57:00 AM	0:01:00	854	40		

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH15

Test Date:

9-Mar-23

Operator: Gavin Tippet

Test Time:

10:21 AM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 700mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25} \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

10

mm/hr

0.24

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.7m	Water Level in hole 500mm
10:21:00 AM	0	1346	0		
10:22:00 AM	0:01:00	1278	68		
10:23:00 AM	0:01:00	1216	62		
10:24:00 AM	0:01:00	1158	58		
10:25:00 AM	0:01:00	1104	54		
10:26:00 AM	0:01:00	1052	52		
10:27:00 AM	0:01:00	1000	52		
10:28:00 AM	0:01:00	950	50		
10:29:00 AM	0:01:00	900	50		
10:30:00 AM	0:01:00	850	50		
10:31:00 AM	0:01:00	800	50		
10:32:00 AM	0:01:00	750	50		
10:33:00 AM	0:01:00	700	50		
10:34:00 AM	0:01:00	650	50		

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH18

Test Date:

9-Mar-23

Operator: Gavin Tippet

Test Time:

10:52 AM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 1000mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

12

mm/hr

0.28

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 1m	Water Level in hole 800mm
10:52:00 AM	0	1298	0		
10:53:00 AM	0:01:00	1136	162		
10:54:00 AM	0:01:00	986	150		
10:55:00 AM	0:01:00	850	136		
10:56:00 AM	0:01:00	724	126		
10:57:00 AM	0:01:00	600	124		
10:58:00 AM	0:01:00	478	122		
10:59:00 AM	0:01:00	358	120		
11:00:00 AM	0:01:00	238	120		
11:01:00 AM	0:01:00	118	120		

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH19

Test Date:

9-Mar-23

Operator: Gavin Tippet

Test Time:

12:43 PM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 600mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

17

mm/hr

0.40

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.6m	Water Level in hole 400mm
12:43:00 PM	0	1350	0		
12:44:00 PM	0:01:00	1272	78		
12:45:00 PM	0:01:00	1204	68		
12:46:00 PM	0:01:00	1140	64		
12:47:00 PM	0:01:00	1078	62		
12:48:00 PM	0:01:00	1018	60		
12:49:00 PM	0:01:00	960	58		
12:50:00 PM	0:01:00	900	60		
12:51:00 PM	0:01:00	840	60		
12:52:00 PM	0:01:00	780	60		
12:53:00 PM	0:01:00	718	62		
12:54:00 PM	0:01:00	658	60		
12:55:00 PM	0:01:00	598	60		

Infiltration Capacity Test Sheet

Project: Infracon Bendigo

Site Location: Bendigo Hills

Test Number: BH20

Test Date:

9-Mar-23

Operator: Gavin Tippet

Test Time:

1:18 PM

Auger Ø: 100 mm

Permeameter Ø ID:

46 mm

Depth of Auger Hole: 700mm

Average Hole Ø:

100 mm



$$K_{sat} = \frac{4.4Q \left[0.5 \sinh^{-1} \left(\frac{H}{2r} \right) - \sqrt{\left\{ \left(\frac{r}{H^2} \right) + 0.25 \right\} + \frac{r}{H}} \right]}{2\pi H^2}$$

Ksat =

15

mm/hr

0.36

m/day

Where

Ksat = saturated hydraulic conductivity of the soil

4.4 = correction factor for the systematic under estimate of soil permeability in derivation of the equation

Q = rate of loss of water from the reservoir

H = depth of water in the test hole

r = radius of the test hole

Permeameter Readings

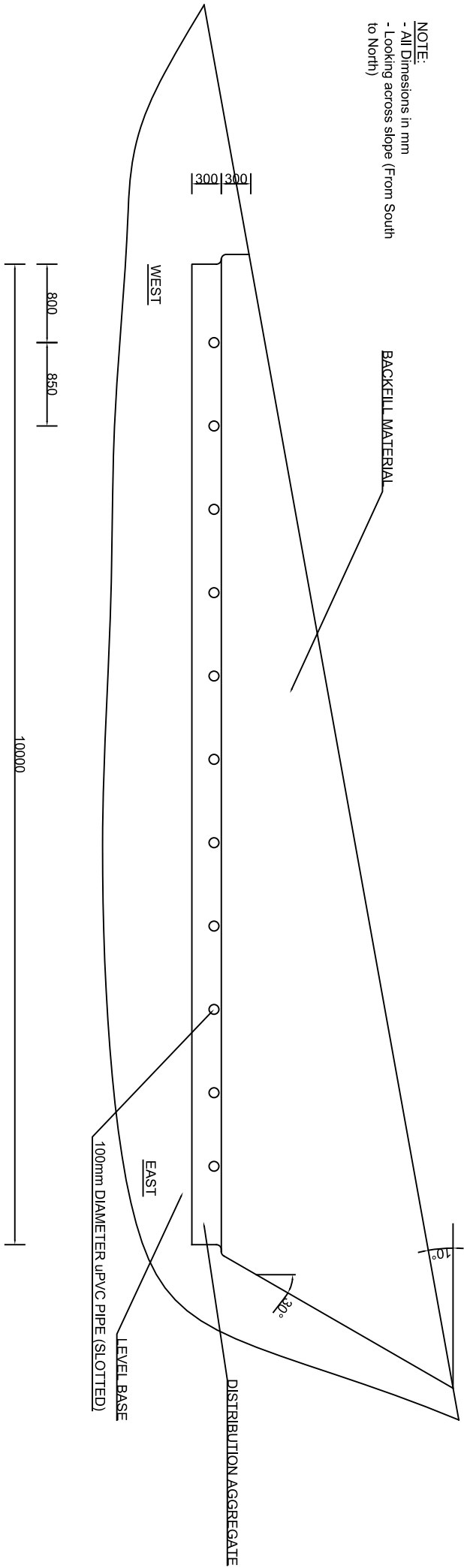
Time	Δ Time (hr)	Water Level (mm)	Δ Water Level (mm)	Permeameter test was conducted between 0.2m and 0.7m	Water Level in hole 500mm
1:18:00 PM	0	1314	0		
1:19:00 PM	0:01:00	1222	92		
1:20:00 PM	0:01:00	1132	90		
1:21:00 PM	0:01:00	1046	86		
1:22:00 PM	0:01:00	964	82		
1:23:00 PM	0:01:00	884	80		
1:24:00 PM	0:01:00	806	78		
1:25:00 PM	0:01:00	730	76		
1:26:00 PM	0:01:00	654	76		
1:27:00 PM	0:01:00	580	74		
1:28:00 PM	0:01:00	502	78		
1:29:00 PM	0:01:00	426	76		
1:30:00 PM	0:01:00	350	76		
1:31:00 PM	0:01:00	274	76		
1:32:00 PM	0:01:00	198	76		

Appendix C – CONCEPT DISPOSAL BED CROSS-SECTION



INDICATIVE WASTEWATER DISPOSAL BED CROSS SECTION

NOTE:
- All Dimensions in mm
- Looking across slope (From South to North)





Product : Sewage treatment plant

Type : Oxyfix® FIXEUC90
Model : 11.25 m³/day - C-90 CB 75 PE (3) Tri 3x230V
Process : Submerged Aerated Fixed Film (SAFF) Technology

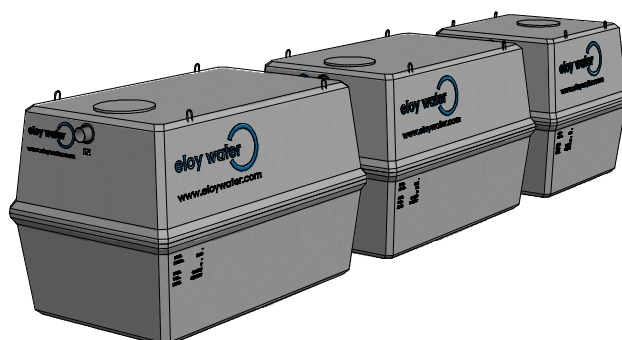
PERFORMANCE

Assumed Influent Values

Application :	Wastewater Treatment*
Pollutant load BOD ₅ :	400 mg/L
Pollutant load TSS :	600 mg/L
Pollutant load Ntot :	80 mg/L
Pollutant load Ptot :	13 mg/L

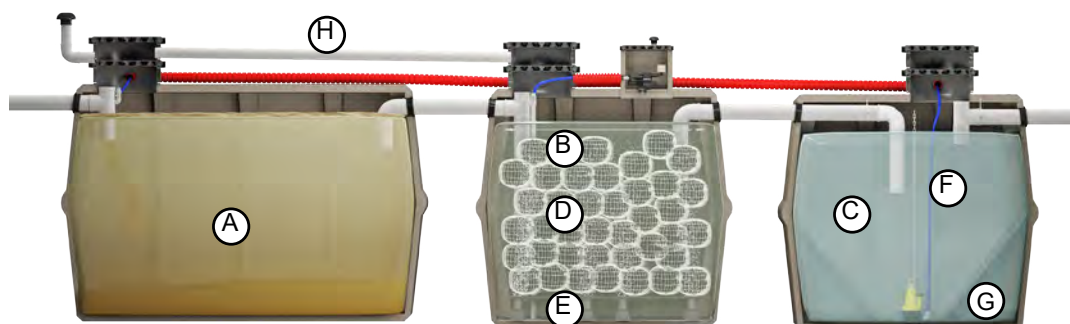
Purification performance

BOD ₅ :	20 mg/L
TSS :	30 mg/L



* We recommend placing a grease trap for treating waste water generated by a restaurant, kitchens used for commercial purposes, etc.

FEATURES



ELECTROMECHANICAL COMPONENTS

Blower

Quantity :	1 pc(s)
Type :	side channel air blower
Installed power :	1.10 kW
Power consumption :	0.82 kW
SPL (Sound Performance Lab) :	59 dB(A)
On / Off :	36/24 min.
Voltage :	3x230V

Air Diffusers

Quantity :	12 pc(s)
Type :	fine bubbles

Sludge recirculation

Type :	submerged pump
Installed power :	0.85 kW
Power consumption :	0.85 kW
On / Off :	11/49 min.

Control panel

Type :	inside
--------	--------

Legend

A	Primary settling compartment
B	Biological reactor
C	Secondary settling compartment
D	Bacterial support
E	Diffusers
F	Sludge recirculation
G	Settling cone

APPROVALS AND CERTIFICATES



: 2014/04/141/A

DIMENSIONS | VOLUMES | WEIGHTS

Measure	Unit	Tank 1	Tank 2	Tank 3
Total height* :	(cm)	240	240	240
Entry height* :	(cm)	213	213	213
Exit height* :	(cm)	209	209	209
Length :	(cm)	370	370	260
Width :	(cm)	238	238	238
Total volume :	(m³)	15.00	15.00	10.00
Useful volume :	(m³)	13.68	13.68	9.19
Weight :	(T)	7.50	8.36	5.82
Weight (w/o shipping cover):	(T)	-	-	-
Manhole(s) :	(cm)	1 x Ø60	1 x Ø60	1 x Ø60
Ø In / Out :	(mm)	160/160	160/160	160/160

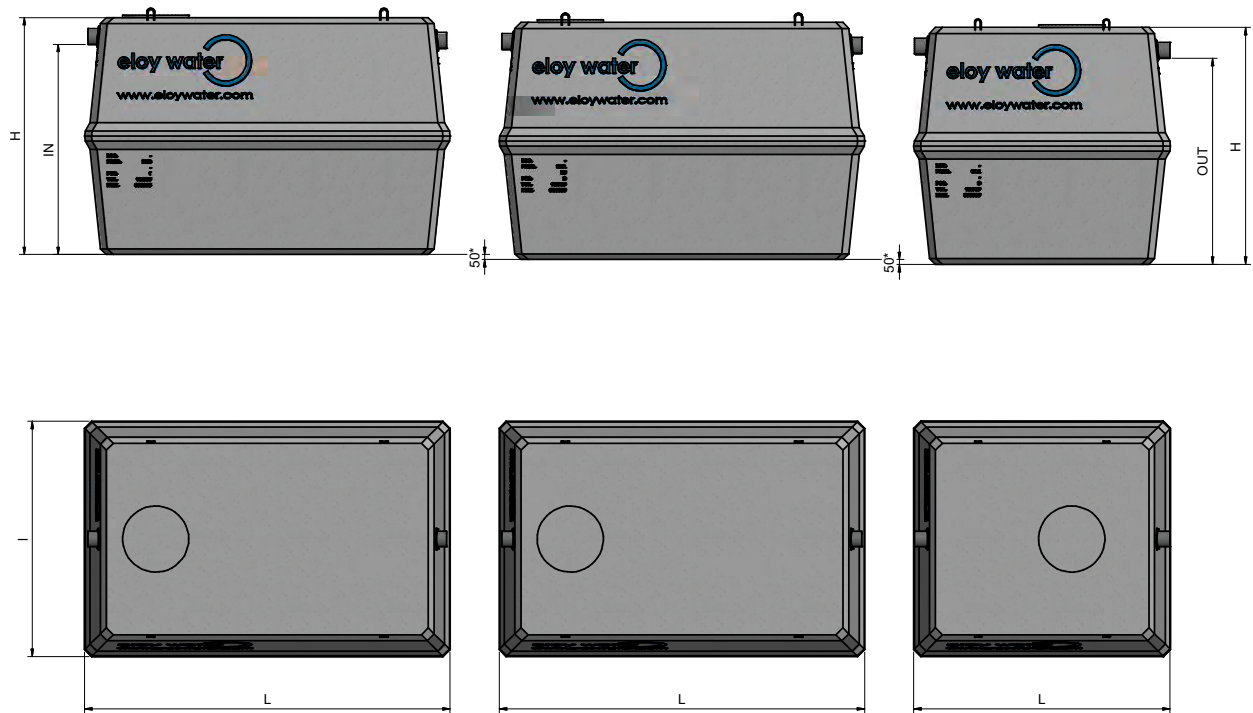
* tolerance ± 2 cm



Material

Tank(s):	High performance steel reinforced concrete
Biocarrier:	Recycled PP
Air feed pipes:	PVC PN16

TANK DIMENSIONS



OPERATION

Useful volumes/surfaces

Primary settling compartment:	13.68	m³
Biological reactor:	13.68	m³
Clarifier:	4.41	m²

Operation

Sampling chamber:	integrated
Theoretical desludging frequency:	every 13 months
Approximate energy consumption:	5,675 kW
Maintenance frequency :	annually (recommended)
Admissible load :	80 cm of fill + pedestrian load

Consumables

Blower filter:	annually
Blower membranes:	-
Air diffusers:	every 8 years

OPTIONS

Wall support for blower	
PE/concrete tank cover riser	3 pces
PE/steel tank cover	2 pces

GUARANTEES

Electromechanical kit :	2 years
Tanks :	10 years
Resistance :	B125

**BEALE
CONSULTANTS**

Bendigo Hills Estate and Rocky Point Subdivisions Terrestrial Ecology Impact Assessment

Prepared for TKO Properties Limited
June 2023



Contact Details

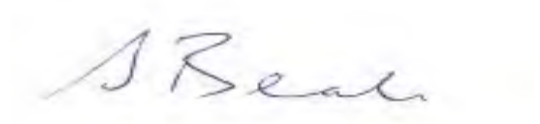
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Date: June 2023
Reference: INN01
Report No: 1
Status: Final

Prepared by:

A handwritten signature in dark ink, appearing to read 'S Beale', is centered on the page. The signature is written in a cursive, flowing style.

Simon Beale, Senior Ecologist

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1. Introduction

1.1. Background

TKO Properties Limited is proposing to subdivide two properties, Bendigo Hills Estate and Rocky Point which were formerly part of Bendigo Station.

The properties are located above the head of Lake Dunstan between the Tarras Cromwell Road (SH8) and the Bendigo Scenic Reserve as outlined on Figure 1-1. These properties cover an area of 133.60 ha and 64.2 ha respectively.

The two properties will be the subject of two separate consent applications. However, this assessment encompasses both properties owing to their interconnectedness at a landscape scale. Separate schedules are provided that document vegetation clearances specific to each property.



Figure 1-1: Location Plan.
Credit: Central Otago Maps.

The Bendigo Hills Estate site is the subject of an existing consent [RC210148] granting consent for a six lot subdivision.

Subdivision applications to the Central Otago District Council seek the creation of a further four Lots on Lot 2 DP 561457 comprising the Bendigo Hills Estate, taking the consented six lots to a total of ten. 30 Lots of Lot 1 DP 561457 will be created on the Rocky Point property. Most of the Rocky Point proposed lots are located in a development area designed for travels accommodation and clustered dwellings as defined in Schedule 19.16 Concept Plan in the Central Otago District Plan.

A network of internal roads will provide vehicular access to the lots and building platforms. The configuration of the lots and access road network are shown on the subdivision plans (Figures 1-2 and 1-3).

1.2. Purpose and Scope of Assessment

The purpose of this ecological impact assessment is to assess the effects of the proposed housing related development on the ecology of the Bendigo Hills and Rocky Point properties.

The land affected by the development i.e., construction of buildings, driveways, access roads and wastewater disposal fields is defined in this assessment as the project area. The areas within the building platforms on proposed Lots 1 to 6 of the Bendigo Hills property are consented (Section 1.1) and outside the scope of this assessment.

The assessment covers the following items:

- the ecological setting of the properties;
- a description of the vegetation communities, habitats and indigenous fauna encountered in the property and an assessment of their ecological value and ecological significance;
- an assessment of the magnitude and level of ecological effects arising from the development; and,
- measures proposed to avoid, mitigate and compensate for adverse ecological effects arising from the development.

An assessment of the ecological values and ecological significance of the affected indigenous vegetation and habitats of indigenous fauna has been undertaken in accordance with the criteria set out in the Environment Institute of Australia and NZ (EIANZ) Guidelines for Ecological Impact Assessment (2018) and as set out in Schedule 4 of the Partially Operative Regional Policy Statement 2019.

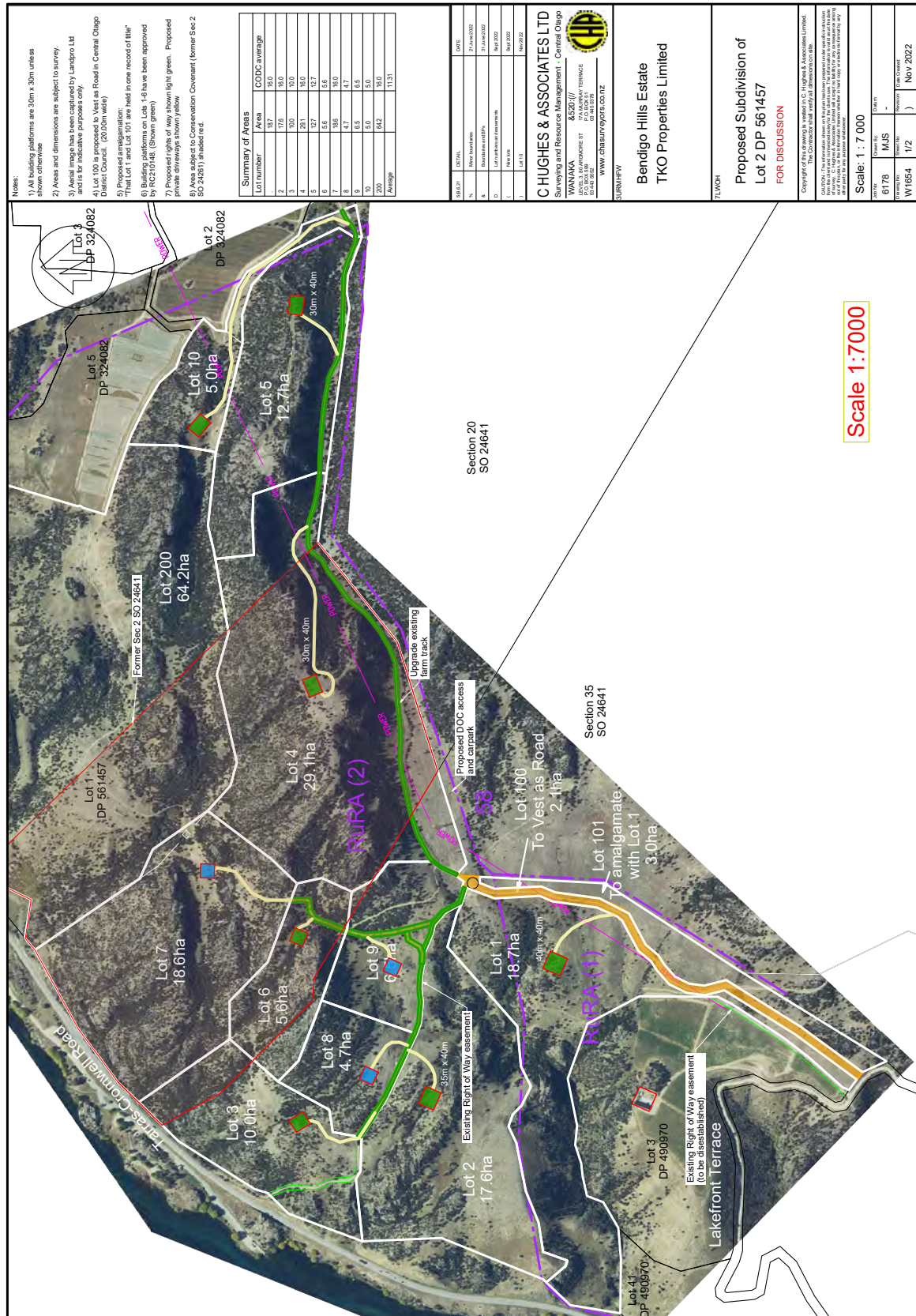
The assessment of ecological effects follows the criteria set out in the EIANZ guidelines for quantifying the magnitude of and level of ecological effect.

The assessment is accompanied by a lizard survey report prepared by Dr Mandy Tocher of LizardExpertNZ (refer Appendix 1). The report identifies species of lizard present on the properties, the lizard habitats that occur on the properties and the information required to support an application for a Wildlife Permit from DOC.

1.3. Assessment Methodology

A review of literature was undertaken in advance of the site investigation. This involved a review of any existing published and unpublished scientific literature that relate to the Bendigo area and review of historic and recent aerial and satellite imagery. The imagery was used to identify at a gross scale the vegetation communities and habitats occurring within the property. A survey involving a walk over of the Bendigo Hills Estate was conducted on 18 November 2022 and Rocky Point property on 2 December 2022 and 24 April 2023.

During the inspection of the properties indigenous and exotic vegetation communities and habitats were recorded along with native bird species, either observed or heard.



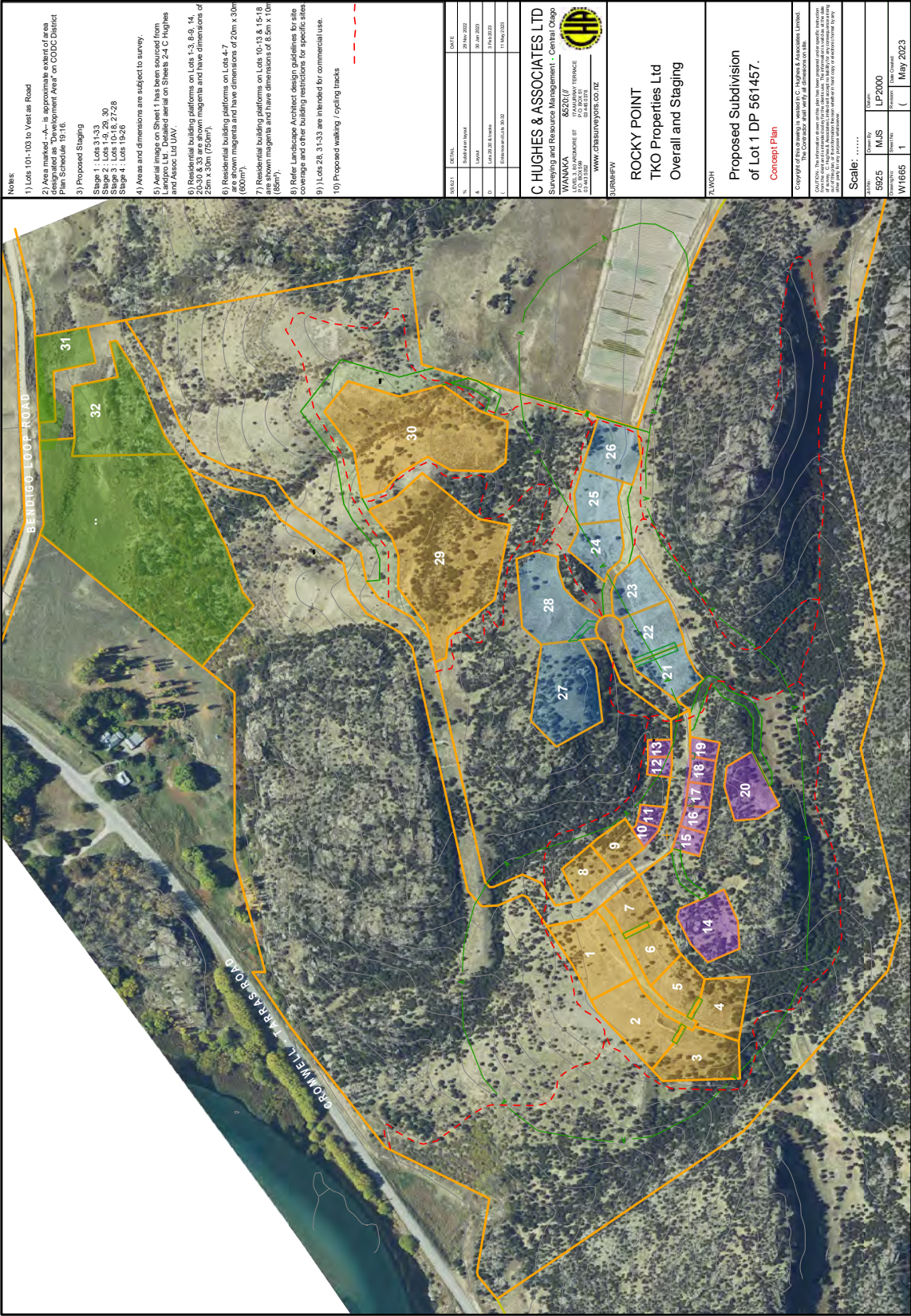


Figure 1-3: Rocky Point Subdivision Plan

2. Description of Proposal

2.1. Overview

2.1.1. Land use and vegetation clearance

TKO Properties Limited is proposing a hierarchy of controls around land use and clearance and modification of existing ground cover. These controls will be applied across both the Bendigo Hills and Rocky Point properties and are based on concentric areas of occupation. These concentric areas are further described in the Baxter Landscape Assessment report. The Baxter Landscape Assessment has been used as a means of defining and calculating the areas within each lot. The clearance calculations undertaken by Baxter Design forms the basis of this ecological assessment.

The innermost area of occupation for each lot will be the designated building platform. This will incorporate the dwelling, any garaging or supplementary building, and any metalised hard standing used for parking and egress around buildings. It is assumed that these areas will be cleared to make way for construction.

The next concentric area is the curtilage area. The curtilage areas have been specifically designed for each lot to enable suitable living space around each building platform. Covenants will be established enabling limited modification of the curtilage areas. Septic systems will be sited in the curtilage areas. For this assessment a conservative approach has been taken founded on the assumption that the entire vegetation cover within the curtilage areas will be cleared.

Beyond the curtilage areas there is a Landscape and Vegetation Protection Area (LVP). While privately owned, this area will be subject to covenants prohibiting vegetation clearance and imposing an obligation on owners to undertake weed control. In places walking tracks may be created through these areas.

The configuration of the building platforms, curtilage areas and driveways are shown on the Baxter Design plans.

A wastewater disposal field encompassing an area of 1050 m² will be located on Rocky Point property in the vicinity of Lots 1 and 2.

2.1.2. Common Space

The Rocky Point property includes a Scheduled Special Zone [Reference] will be managed slightly differently. As the special Zone anticipates a smaller lot size, the balance area surrounding each lot will be held in common, as undivided shares owned by each lot owner.

This common area will be protected in the same manner as the LVP areas described above. It will be managed by an owner representative group set up for this purpose, including protection of the existing vegetation cover.

2.1.3. Access

The Bendigo Hills site will be accessed off Lakefront Terrace and the Rocky Point property off Bendigo Loop Road.

A network of access roads will extend off Lakefront Terrace and Lot 100 (to be vested as road) and Bendigo Loop Road as shown on Figure 1-2 and Figure 1-3. Underground services will be installed within the road corridors.

The two properties will not be connected by way of a through road, although there may be provision made for connected walking access.

2.2. Vegetation Clearance

Within the project area, small stands of kanuka and individual trees along with areas of cushionfield, grassland vegetation and exotic herbfield will be permanently removed during construction of the buildings, driveways and access road upgrades. Vegetation will also be removed from within the curtilage areas. Gravel for the roads and track upgrades will be sourced from an off-site weed free source.

Areas affected by construction will be clearly defined on the ground in advance of the works to ensure the movement of machinery and other construction related activities avoid disturbance to adjoining areas of kanuka scrub and shrubland, grey shrubland, cushionfield, grassland and rocky terrain.

Vegetation cleared from within the project area will either be chipped to use as mulch, or crushed and buried at specific sites within the properties beyond areas of kanuka shrubland and cushionfield.

A schedule summarising the approximate areas of vegetation that would be cleared within the project areas in each property during construction is set out in Tables 2-1 and 2-2 below.

Table 2-1: Vegetation Clearance Schedule – Bendigo Hills Property

Facility	Approx. length (m)	Width (m)	Area (m ²)	Kanuka scrub and shrubland to be removed (m ²)	Cushionfield to be removed (m ²)	Exotic herbfield and exotic grassland to be removed (m ²)
Building platforms and curtilage areas			4880 ¹	265 ¹	1760 ¹	2855 ¹
Access road upgrades & ROW	2585	4.5	11633	300		11333
Driveways	2510	3.5	8785	0	1483	7302
Wastewater disposal fields			All contained within curtilage areas on each lot and included above.			
Total				565	3243	21490

Notes:

1 - Lots 7, 8, 9 and 10.

The difference between the sum of the extent of vegetation affected and the total driveway area comprises sections of driveway that have been formed for the most part.

Table 2-2: Vegetation Clearance Schedule – Rocky Point Property.

Facility	Approx. length (m)	Width (m)	Area (m ²)	Kanuka scrub and shrubland to be removed (m ²)	Cushionfield to be removed (m ²)	Exotic herbfield and exotic grassland to be removed (m ²)
Building platforms and curtilage areas			42186	4178	26823	11185
Access Road Upgrades	622	5.5	3425	795	1870	760
ROW	452	4.5	2034	-	1764	270
Driveways	280	3.5	980	392	105	483
Wastewater disposal field (Lots 10-19)			1050		1050	
Wastewater septic systems (Lots 1-9, 20-33)			Contained within curtilage areas on each lot and included above.			
Total				5365	31612	12698

3. Ecological Setting

3.1. Overview

The Bendigo Hills and Rocky Point properties are located within the Dunstan Ecological District and Central Otago Ecological Region. The Dunstan Ecological District as described by McEwen (1987) as :

“Tilted, block-faulted schist range to 1692 m a.s.l surrounding lowlands, glacial outwash gravels, moraines: dry, subcontinental climate, snow lies for weeks in winter; shallow to moderately deep soils with variable loess cover on rolling, hilly and steep slopes, shallow to deep soils on terrace and fans in valleys; formerly mostly tussockland, no beech forest, rare small Hall’s totara remnants E, extensive kānuka shrubland SW; local endemics; burnt, grazed , rabbits.”

The properties lie in the montane bio-climatic zone, ranging in altitude from c. 200 to c. 450 m a.s.l.

The properties and surrounding hill country is classified by Singers and Rogers (2014) as VS2: Kānuka scrub/forest occurring in semi-arid dryland zone where rainfall is <650 mm per annum. GrowOtago online maps indicate a median rainfall in the Bendigo area of between 400 – 500 mm per annum.

3.2. Land Environments

Land Environments of New Zealand (LENZ) classification is commonly used in ecological assessments to detail a project’s ecological setting. LENZ groups together land environments throughout the country with similar environmental characteristics such as climate, landform, geology and soils as these influence the distribution of indigenous vegetation and habitat types. The LENZ classification is hierarchical in scale, from the high Level 1 classification to the most detailed Level IV classification.

The properties encompass LENZ¹ Level IV Environments N4.1e and N8.1b. The landforms of these land environments are described as rolling lower hillslopes and basin floors to gently undulating floodplains. The soils are described as imperfectly to well drained, of moderate fertility derived from fine schist alluvium and colluvium with some loess (Leathwick et al, 2002). The soils experience moderate to very high annual water deficits, reflecting the semi-arid nature of the local climate as described previously. The land environments at Bendigo Hills are shown in polygon form on Figure 3-1.

An analogous Threatened Environments Classification 2012 (TEC²) was developed by Landcare Research (Walker et al., 2007) to help identify places in New Zealand in which the terrestrial indigenous ecosystems, vegetation types and habitats are much reduced and poorly protected. Examination of the TEC with respect to the LENZ Level IV Environments that occur at Bendigo Hills indicates that the indigenous vegetation remaining at a national scale in land environments N4.1e is 23.7% and in N8.1b 5.2%. The small amount of indigenous vegetation remaining in these land environments can be attributed to clearances that occurred in the past for pastoral development.

¹ Land Environments of New Zealand (LENZ) which is a national environment-based classification of ecosystems mapped across New Zealand’s landscape on the basis of fifteen climate, landform and soil parameters (Leathwick et. al., 2002).

² The TEC combines data from three national databases; LENZ, the Land Cover Database (LCDBv4.0, based on 2012 satellite imagery), and a 2012 update of the national protected areas network.

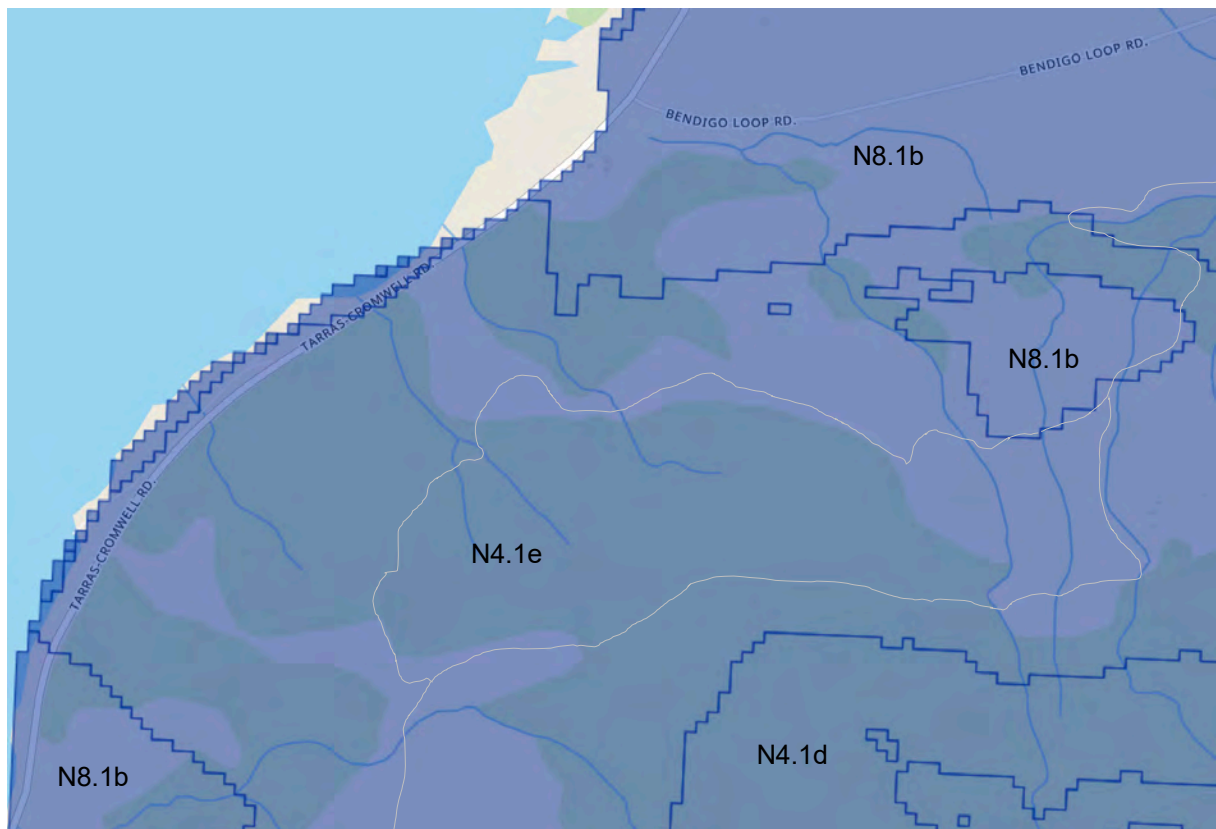


Figure 3-1: LENZ Level IV Land Environments at Bendigo Hills Estate and Rocky Point.

Source: <https://data.mfe.govt.nz/layer/52358-land-environments-new-zealand-lenz-level-4-polygons-2009/>

4. Original Vegetation

The original vegetation cover derived from statistical modelling by Leathwick (2001), and from newly available high-resolution environmental data layers used to reconstruct New Zealand's likely biological character in the pre-human past indicates that the land surrounding the eastern side of the Clutha River in the Bendigo area would have comprised a mosaic of scrub-shrubland and tussock grassland below the treeline.³

The vegetation of the dryland zones in the South Island in particular was deforested by fires associated with human arrival about 750 yr BP (McGlone 2001). These former forest and shrubland communities that had developed under exceptionally low natural frequencies of fire were rapidly converted to tussock grasslands, bracken fernland and successional shrubland assemblages as a consequence of the Polynesian fires (Rogers et al. 2007). Following European settlement the vegetation was further altered through burning for pastoralism and through the introduction of exotic plants and herbivores (Walker, et al 2009).

However in more recent times as reported by Walker et al (2009), woody shrubland communities arising through secondary succession now cover about one-fifth of remaining undeveloped land in South island drylands through secondary succession and may expand in future in the absence of deliberate interventions such as intensification of agriculture, herbicide spraying, or burning. A comparison of historic aerial imagery from 1958 (Figure 4-1) with Google Earth imagery from early November 2021 (Figure 5-1) indicates that kanuka shrubland at Bendigo Hills is similarly increasing in extent due to successional processes.

³ ourenvironment.scinfo.org.nz.

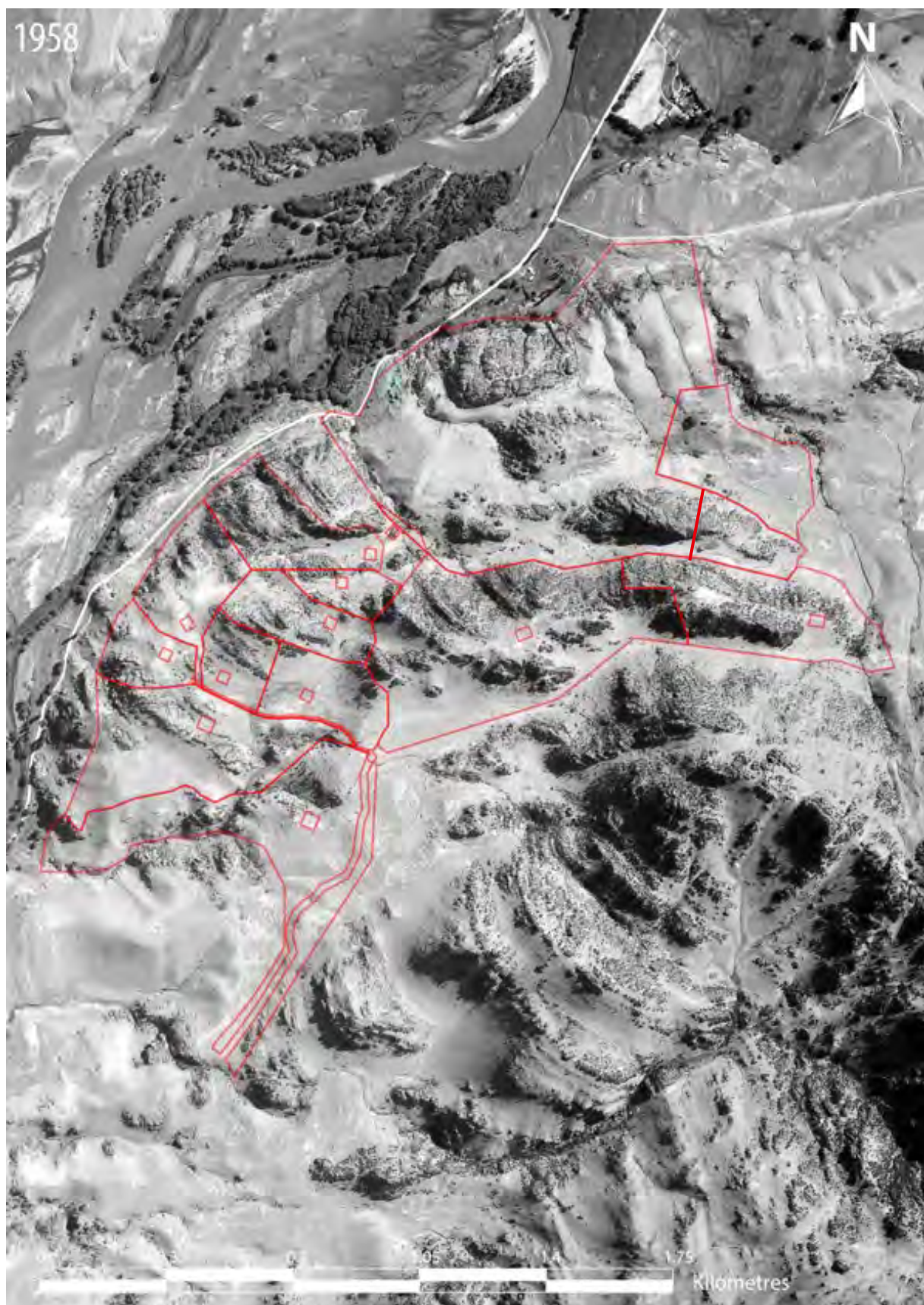


Figure 4-1: Historic aerial imagery of Bendigo Hills Estate and Rocky Point.

5. Current Vegetation and Habitats

5.1. Overview

The vegetation communities currently encountered within the Bendigo Hills Estate and Rocky Point are associated with the following habitats:

- Kanuka scrub and shrubland;
- Cushionfield;
- Grey shrubland;
- Sweet briar shrubland;
- Silver tussock grassland;
- Exotic herbfield;
- Exotic grassland; and
- Rocky substrates.

The Google Earth Image (Figure 5-1) shows that a large part of both properties, especially the rocky and steeper terrain is covered in kānuka (*Kunzea serotina*) scrub and shrubland while open areas within and bordering the shrubland features cushionfields dominated by golden scabweed (*Raoulia australis*) and exotic herbfield dominated by scarlet pimpernel (*Anagallis arevensis*).



Figure 5-1: Google Earth Image showing vegetation patterns within Bendigo Hills Estate and Rocky Point and surrounding hill country. The dark grey expanses represent areas of kanuka scrub and shrubland, the tan coloured patches, areas of cushionfield and grassland and the green patches, exotic herbfield.

Imagery date: 6-11-2021

In these open areas there are also patches of silver tussock (*Poa cita*) and exotic grassland. Fragmented areas of grey shrubland and relics specimens of small leaved shrubs occur within and around the margins of the kanuka shrubland.

Within the Bendigo Hills property the kanuka scrub and shrubland, including rocky terrain covers approximately 60% in area, cushionfield 7% and mixed herbfield-grassland 33%.

Within the Rocky Point property the kanuka scrub and shrubland, including rocky terrain covers approximately 55% in area, cushionfield 14%, mixed herbfield-grassland 25% and sweet briar shrubland 6%.

5.2. Kānuka scrub and shrubland

The kānuka canopy is generally between 3 to 4 metres in height and of a variable density with a closed canopy associated with the densest stands classified as scrub based on a classification of growth forms provided in Atkinson (1962). Figure 5-1 shows that the scrub tends to be associated with the southern facing rocky bluffs and outcrops and in the more confined gullies as opposed to the more undulating terrain where kanuka shrubland prevails.

In terms of species diversity the kanuka scrub and shrubland is monospecific, i.e. being almost completely dominated by one species, *Kunzea serotina*.

Over much of the property there is evidence of active regeneration of kanuka across rocky substrates and the cushionfields.



Figure 5-2: Kanuka scrub and shrubland occupying a basin and rocky terrain in Lot 7, Bendigo Hills. The basin floor is covered in exotic herbfield dominated by extensive mats of scarlet pimpernel.



Figure 5-3: Evidence of kānuka encroachment around the margins of a cushionfield in Lot 3, Bendigo Hills.

5.3. Grey shrubland

Within the kanuka shrubland and the scrub filled gullies there are small areas of grey shrubland. These typically feature stands of mature specimens of the tree daisy (*Olearia lineata*), and to a lesser extent mature matagouri (*Discaria toumatou*), mingimingi (*Coprosma propinqua*), corokia (*Corokia cotoneaster*), *Olearia odorata* and porcupine scrub (*Melicytus alpinus*). The lianes *Rubus schmidelioides*, *Muelenbeckia australis* and *Muelenbeckia complexa* festoon some of the mature shrubs.



Figure 5-5: Scattered shrubs of mature tree daisy (*Olearia lineata*) growing amongst mature kanuka in a gully head in Lot 2, Bendigo Hills.

Mature bushes of sweet briar (*Rosa rubiginosa*) are often co-dominant with small leaved native shrubs in grey shrubland. In some areas sweet briar growth dominates the shrublands such as across rocky terrain and within incised gullies overlooking Lots 31 to 33 in Rocky Point.

5.4. Cushionfield (Native Herbfield)

Extensive cushionfields generally occur on gently sloping terrain, especially across the terraces and broad ridge crests within and surrounding Lots 1 - 5 and 9 in Bendigo Hills and within and surrounding Lots 1 -13, 15-19 and 21-28 in Rocky Point and adjacent to the access road off the Bendigo Loop Road.

The cushionfields are dominated by golden scabweed (*Raoulia australis*) and to a lesser extent the scabweed *Raoulia beauverdii*). These plants provide suitable conditions for native herbaceous plants to persist such as *Geranium sessiliflorum*, white fuzzweed (*Vittadinia australis*) and on barer ground the woolly rock fern *Cheilanthes distans*. Invasive exotic plants are often locally dominant, most notably scarlet pimpernel (*Anagallis arevensis*), stonecrop (*Sedum acre*), moth mullein (*Verbascum virgatum*), Californian thistle (*Cirsium arvense*), stinging nettle (*Urtica urens*) and hemlock (*Conium maculatum*).

An ecological assessment of Bendigo Hills by Roger Gibson Land and Sea Services (RGLSS) in 2021 identified areas of saline-sodic soils sporadically distributed across parts of Bendigo Hills. These areas were associated with cushionfields. No halophytic plants were observed by the RGLSS or Beale Consultants during the respective site inspections. Halophytes are typically associated with the salt pans encountered on flatter land such as at the Mahaka Katia Scientific Reserve on the Pisa Flats and on the Maniototo Plain.



Figure 5-4: Cushionfield adjacent to the proposed building platform and driveway in Lot 4, Bendigo Hills. Small patches of silver tussock border the access road.

5.5. Exotic herbfield

Exotic herbfield dominated by the exotic herb scarlet pimpernel forms extensive bright green mats across some of the basin floors and terraces, merging with areas of cushionfield, tussock grassland, exotic grassland and kanuka shrubland. Other plants common to the herbfield include Californian thistle,

moth mullein, stinging nettle and St John's Wort (*Hypericum perforatum*). The woolly rock fern *Cheilanthes distans* is locally common across stonier sites.



Figure 5-4: Cushionfield situated across proposed Lots 15-19 and Lots 21-23, Rocky Point bordered by extensive areas of kanuka scrub.

5.6. Silver tussock grassland

Localised patches of silver tussock (*Poa cita*) occur within cushionfields and exotic herbfields, such as those encountered in Lots 4 and 10 in Bendigo Hills. The tussock density is variable but typically around 50%. Inter-tussock plants include swards of browntop (*Agrostis capillaris*), sweet vernal (*Anthoxanthum odoratum*), scarlet pimpernel, Californian thistle and hemlock.

5.7. Grassland

Areas of grassland of varying stature and cover occur often around the bases of rocky outcrops and across stoney ground, often occurring in association with exotic herbfields. The grassland features a diverse array of grasses including browntop, sweet vernal, hard tussock (*Festuca novae-zelandiae*), ripgut brome (*Bromus diandrus*), vulpia hairgrass (*Vulpia myuros*), silvery hairgrass (*Aira caryophyllaea*) and Kentucky bluegrass (*Poa pratensis*) along with herbaceous plants such as sheep's bur (*Acaena agnipila*), Vipers bulgloss (*Echium vulgare*), moth mullein, woolly mullein (*Verbascum thapsus*) haresfoot trefoil (*Trifolium pratense*), cotton fireweed (*Senecio quadridentatus*), St John's wort, yarrow (*Achillea millefolium*), horehound (*Marrubium vulgare*) and sheep's sorrell (*Rumex acetosella*).

5.8. Rocky Substrates

Rocky substrates associated with the numerous rock slabs, rock outcrops and rocky bluffs and overhangs and pockets of stony ground bordering outcrops provide suitable refugia for a range of specialist plants. These include the native woolly rock fern (*Chilanthus distans*), porcupine scrub, korokio, the rosette herb *Brachyglottis bellidioides*, cottonwood (*Ozothalmus leptophyllus*), *Poa colensoi*, bristle tussock (*Rytidosperma setifolium*), the sedge *Carex breviculmis*, the wood rush *Luzula traversii* and the necklace fern *Asplenium flabellifolium*

Isolated specimens of kowhai (*Sophora microphylla*) were observed on some rock outcrops near Lots 15 and 16 in Rocky Point.



Figure 5-6: An extensive area of silver tussock situated within a basin in Lot 10, Bendigo Hills bounded by kōhika scrub.



Figure 5-7: Exotic grassland in the vicinity of the eastern perimeter to Lot 10.

5.9. Threatened and At Risk Plant Species

The surveys conducted on 18 November 2022 and 2 December 2022 revealed the following classified Threatened and At Risk plant species on the property: kanuka (*Kunzea serotina*) (Nationally vulnerable), the pygmy mistletoe (*Korthalsella salicornioides*) on host kanuka trees, the tree daisy *Olearia lineata* (At Risk-Declining), matagouri (At Risk-Declining) and golden scabweed *Raoulia australis* (At Risk-Declining).

The threat classification of kānuka is a precautionary measure owing to the threat of myrtle rust which is having a serious impact on Myrtaceae worldwide. Since myrtle rust was detected in New Zealand there have been very few occurrences of myrtle rust on *Kunzea* which remains widespread from Marlborough through to Central Otago. The threat of myrtle rust on kanuka and manuka however should not be discounted owing to the effects of climate change. Within the Dunstan and adjoining Lindis and Pisa Ecological Districts matagouri remains widespread but occurs only sporadically at Bendigo Hills and Rocky Point, generally as scattered mature plants. The tree daisy *Olearia lineata* is also sporadic in its distribution on the property occurring as scattered relic stands of mature plants, generally associated with fragmented areas of grey shrubland. Golden scabweed is more widespread in its distribution, being the cushion plant most likely to be encountered in the cushionfields that occur across large parts of the easier terrain on both properties.

A botanical survey conducted along the nearby Bendigo loop track on 4 January 2009 recorded a number of Threatened and At Risk plants additional to those observed during the site survey. Table 5-1 lists the threatened and At Risk recorded from both surveys.

Table 5-1: Threatened and At Risk plant species recorded in the Bendigo Hills area

Species	Threat Classification	Habitat	Presence or likely presence in project area
<i>Acaena buechananii</i>	At Risk-Declining	Grassland	✓
<i>Carex inopinata</i>	Threatened – Nationally vulnerable	Base of rocky overhangs	x
<i>Carex parvispica</i>	At Risk-Declining	Base of rocky overhangs	x
<i>Discaria toumatou</i>	At Risk-Declining	Shrublands	✓
<i>Epilobium angustum</i>	At Risk – Naturally Uncommon	Turfs & periodically wet stony ground	✓
<i>Juncus distegus</i>	At Risk – Naturally Uncommon	Grassland	✓
<i>Korthalsella salicornioides</i>	Threatened – Nationally critical	Kanuka scrub and shrubland	✓
<i>Kunzea serotina</i>	Threatened – Nationally vulnerable	Scrub and shrublands	✓
<i>Olearia lineata</i>	At Risk-Declining	Shrublands	✓
<i>Raoulia australis</i>	At Risk-Declining	Drylands	✓
<i>Raoulia beauverdii</i>	At Risk-Declining	Drylands	✓
<i>Rytidosperma thomsonii</i>	At Risk-Declining	Grassland	✓

The presence of *Acaena buechananii*, *Epilobium angustum*, *Juncus distegus* and *Rytidosperma thomsonii* in addition to those threatened and at risk plants recorded by Beale Consultants cannot be discounted owing to the presence of suitable habitat for these plants in the project area.

5.10. Invasive Plant Species

The occasional wilding *Pinus* spp. and *Buddleja davidii* were observed scattered across both properties usually as single specimens. These species have the propensity to spread rapidly and dominant indigenous plant communities at a landscape scale unless controlled on an ongoing basis.

6. Fauna

6.1. Avifauna

During the walk over survey Australasian harrier (*Circus approximans*), was observed on a regular basis soaring over the area, while grey warbler (*Gerygone igata*), New Zealand fantail (*Rhipidura fuliginosa*) were heard or observed on occasion in the vicinity of areas of kanuka shrubland. Other birds observed or heard were the introduced California quail, rock pigeon, welcome swallow, blackbird, starling, yellowhammer, chaffinch, goldfinch and dunnoek.

Although not observed or heard during the site inspection, the Atlas of Bird Distribution in New Zealand, 1999-2004 indicates that Eastern falcon (Karearea) (*Falco novaeseelandiae*) is likely to be present in the property. Karearea is of conservation concern as is classified as nationally vulnerable. Karearea is likely to utilise the kanuka shrubland and the numerous rocky outcrops and bluffs and grassland as hunting habitat. These habitats provide suitable food sources such as small birds, hares and large insects such as grasshoppers and beetles (Heather & Robertson, 2005).

6.2. Herpetofauna

A lizard survey was undertaken by Dr Tocher of Lizard Expert NZ (refer Appendix 1) across both properties in March 2023. This involved a 3-day visual encounter survey/walk during suitable weather conditions.

During the survey two lizard species McCann's skink *Oligosoma maccanni*) and Kowarau gecko (*Woodworthia* "Cromwell") were commonly observed in the various habitat types occurring on the properties such as rocky habitats, open areas and shrublands. Dr Tocher attributes this wide distribution to the variety of rock habitat in the form of loose rock slabs and outcropping encountered. Additionally, both species were observed making full use of the cushionfields for cover.

Kowarau gecko has a threat classification of At Risk - Declining⁴ and McCann's skink has a threat classification of Not Threatened.

6.3. Invertebrates

Peat and Patrick 1999 note that the ranges and basins of Central Otago support a diverse insect fauna including a multitude of beetles, cockroaches, cicadas, wetas, grasshoppers, moths, and butterflies with a high degree of host plant specificity.

While native invertebrates are generally found in relative undisturbed natural plant communities, research conducted in Otago has highlighted the importance also of semi-natural sites for the conservation of the characteristic invertebrate fauna of an area (Patrick, 1994).

7. Summary of Key Ecological Features

Key ecological features inherent to the Bendigo Hills Estate are:

- Extensive areas of dryland kānuka scrub and shrubland associated with rocky terrain, bluffs and gullies;
- Sensitive dryland cushionfields dominated by golden scabweed with has a threat classification of At Risk-Declining;
- Presence of the Nationally critical pygmy mistletoe on kanuka trees;
- Relic specimens of the At Risk-Declining *Olearia lineata*, the At Risk-Declining matagouri and regionally uncommon kowhai;
- Presence of populations of the At Risk-Declining Kowarau gecko;
- Presence of the nationally vulnerable eastern falcon.

⁴ Hitchmough RA, et al. 2021. Conservation status of New Zealand reptiles, 2021. New Zealand Threat Classification Series 35. Department of Conservation, Wellington. 15 pp.

8. Ecological Values and Significance

The ecological value and significance of the affected indigenous vegetation types and habitats of indigenous fauna within the project area has been assessed using the combination of the attributes/criteria set out in Table 4 of the Environment Institute of Australia and New Zealand (EIANZ 2018) Guidelines and in Schedule 4 of the partially operative Otago Regional Policy Statement (RPS).

The assessment matters and attributes used to assign values to the affected indigenous vegetation communities and habitats are sourced from Tables 4, 5 and 6 of the EIANZ Guidelines and transposed in Tables 8-1, 8-2 and 8-3 below.

Table 8-1: Attributes to be considered when assigning ecological value or importance to a site.

Assessment Matters	Attributes
Representativeness	Criteria for representative vegetation and aquatic habitats: • Typical structure and composition • Indigenous species dominate • Expected species and tiers are present • Thresholds may need to be lowered where all examples of a type are strongly modified Criteria for representative species and species assemblages: • Species assemblages that are typical of the habitat • Indigenous species that occur in most of the guilds expected for the habitat type.
Rarity/ distinctiveness	Criteria for rare/distinctive vegetation and habitats: • Naturally uncommon, or induced scarcity • Amount of habitat or vegetation remaining • Distinctive ecological features • National priority for protection Criteria for rare/distinctive species or species assemblages: • Habitat supporting Nationally Threatened or At Risk species, or locally uncommon species • Regional or national distribution limits of species or communities • Unusual species or assemblages • Endemism
Diversity and Pattern	• Level of natural diversity, abundance and distribution • Biodiversity reflecting underlying diversity • Biogeographical considerations – pattern, complexity • Temporal considerations, considerations of lifecycles, daily or seasonal cycles of habitat availability and utilisation
Ecological Context	• Site history, and local environmental conditions which have influenced the development of habitats and communities • The essential characteristics that determine an ecosystem's integrity, form, functioning, and resilience (from "intrinsic value" as defined in RMA) • Size, shape • Buffering function • Condition and sensitivity to change • Contribution of the site to ecological networks, linkages, pathways and the protection and exchange of genetic material

	- Species role in ecosystem functioning – high level, key species identification, habitat as proxy - Is important for indigenous fauna during some part of their life cycle.
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Table 8-2: Criteria used in assigning ecological value to terrestrial plant and animal species under the rarity/distinctiveness assessment matter.

Ecological Criteria	Value
Nationally Threatened species. Found in the site either permanently or seasonally	Very high
Species listed as At Risk-Declining found in the site either permanently or seasonally	High
Species listed as any other category of At Risk found in the site, either permanently or seasonally	Moderate
Locally (ED) uncommon or distinctive species	Moderate
Nationally and locally common indigenous species	Low
Exotic species including pests and species having recreational value	Negligible

Notes:

Determination of the threat status of species is derived from the New Zealand Threat Classification System.

Table 8-3: Criteria for assigning ecological value to a site.

Value	Description
Very high	Area rates High for 3 or all the four assessment matters. Likely to be nationally important and recognised as such
High	Area rates High for 2 of the assessment matters. Moderate and Low for the remainder, or Area rates High for 1 of the assessment matters. Moderate for the remainder. Likely to be regionally important and recognised as such.
Moderate	Area rates High for one assessment matter. Moderate and Low for the remainder, or Area rates Moderate for 2 or more assessment matters. Low to Very Low for the remainder. Likely to be important at the level of the Ecological District.
Low	Area rates Low or Very Low for majority of assessment matters and Moderate for one. Limited ecological value other than as local habitat for tolerant native species.
Negligible	Area rates Very Low for 3 matters and Moderate. Low or Very Low for remainder.

Table 8-4: Summary of ecological values assigned to the project area.

Assessment Matters	Ecological Value	Ecologically Significant
Representativeness: The kanuka scrub and shrubland and grey shrubland communities existing in the project area, despite being modified are representative of the plant communities occurring in the dryland and generally rocky montane zone in the Dunstan Ecological District. The dryland cushionfields represent modified examples of cushion plant communities that have been significantly reduced in extent in the ecological district due to land development.	High	Yes
Rarity/Distinctiveness: The project area possibly impinges on one Level IV land environments where there is less than 20 percent remaining in indigenous cover. The nationally vulnerable kanuka, At Risk-Declining <i>Raoulia australis</i>, <i>Raoulia beauverdii</i> and <i>Korthalsella salicornioides</i> occur in the project area. The At Risk-Declining <i>Olearia lineata</i>, matagouri, <i>Juncus distegus</i> and <i>Rytidosperma thomsonii</i> may occur in the project area. Rocky areas and cushionfield within the project area provides suitable habitat for the At Risk - Declining Kowarau gecko. The kanuka shrublands and rocky outcrops provide feeding habitat for the Nationally vulnerable Eastern Falcon.	High	Yes
Diversity and Pattern: The kanuka shrub and shrubland, cushionfield and grassland within the project area, support a low diversity of indigenous plants but are important in terms of habitat utilisation and availability for daily or seasonal cycles of indigenous invertebrate fauna. The Bendigo area is important from a biogeographic perspective in supporting one of the largest tracts of kanuka (<i>Kunzea serotina</i>) scrub and shrubland in the lower South Island.	Moderate - High	Yes
Ecological Context: The kanuka scrub and shrubland occurring the project area forms a contiguous tract with kanuka scrub and shrubland that occurs in the Bendigo Hills Estate which in turn is contiguous with kanuka and shrublands that occurs in the Bendigo Scenic Reserve. This allows for unimpeded dispersal and movement of indigenous fauna via ecological corridors and pathways provided by the kanuka scrub and shrubland.	High	Yes
Overall ecological value	Very High	
Ecologically significant		Yes

A very high score assigned to the ecological value of the project area. The affected vegetation communities and habitats present in the project area score high for all four assessment matters, set out in Tables 8-1, 8-2 and 8-3.

The site is ecologically significant in terms of the assessment criteria set out in Schedule 4 of the Regional Policy Statement as the representativeness, rarity/distinctiveness, diversity and pattern and ecological context criteria are all triggered.

9. Assessment of Ecological Effects

9.1. EIANZ Criteria

The magnitude of ecological effect and level of ecological effect of the proposed housing development on vegetation communities and habitats in the project area is determined in accordance with the EIANZ criteria set out in Tables 9-1 and 9-2 in association with assigned ecological values (Table 8-4).

The magnitude of effect is influenced by the extent of clearance or modification of naturally occurring indigenous plant communities and habitats of indigenous fauna that will occur in the project area relative to the overall extent of the Bendigo Hills Estate.

Table 9-1: Criteria for scoring magnitude of effect (EIANZ, 2018).

Magnitude	Description
Very High	Total loss of, or very major alteration to, key elements/features/ of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known population or range of the element/feature
High	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element/feature
Moderate	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element/feature
Low	Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; AND/OR Having a minor effect on the known population or range of the element/feature
Negligible	Very slight change from the existing baseline condition. Change barely distinguishable, approximating to the 'no change' situation; AND/OR Having negligible effect on the known population or range of the element/feature

Table 9-2: Criteria for scoring level of effect (EIANZ, 2018).

Ecological value → Magnitude ↓	Very high	High	Moderate	Low	Negligible
Very High	Very high	Very high	High	Moderate	Low
High	Very high	Very high	Moderate	Low	Very low
Moderate	High	High	Moderate	Low	Very low
Low	Moderate	Low	Low	Very low	Very low
Negligible	Low	Very low	Very low	Very low	Very low
Positive	Net gain	Net gain	Net gain	Net gain	Net gain

9.2. Magnitude and Level of Ecological Effect

9.2.1. Metrics

The magnitude of ecological effect of the development is assessed on the basis of the percentage change to the spatial extent of the affected plant communities and habitats (kānuka scrub and shrubland, cushionfield and grassland) within the property. The percentage of each community and habitat that would be permanently removed (Table 2-1) within the property was calculated using GIS. The results are provided in Table 9-3.

As part of this assessment grey shrubland was combined with kanuka scrub and shrubland owing to the fragmented nature of this plant community.

Table 9-3: Approximate extent of plant communities at Bendigo Hills and percentage that will be permanently removed during development.

Dominant Plant Communities & Habitats	Kanuka scrub & shrubland	Cushionfield	Herbfield - grassland
Property Wide (m ²)	810,500	92,000	434,000
Project Area (m ²)	565	3243	21490
Percentage loss in cover (%)	0.07	3.5	5.0

Notes:

Based on figures provided in Table 2-1.

Table 9-4: Approximate extent of plant communities at Rocky Point and percentage that will be permanently removed during development.

Dominant Plant Communities & Habitats	Kanuka scrub & shrubland	Cushionfield	Sweet briar shrubland	Herbfield - grassland
Property Wide (m ²)	350,000	88,000	42,000	162,000
Project Area (m ²)	5365	31,612	280	12,698
Percentage loss in cover (%)	1.53%	35.9%	0.06	7.8%

9.2.2. Kānuka scrub and shrubland and grey shrubland

TKO properties advise that any removal of kanuka and small leaved shrubs will be limited to a small number of plant that occur within the building platforms and curtilage areas and along the driveways and access roads.

In accordance with EIANZ criteria set out in Table 9-1, the removal of approximately 5,600 m² of kanuka and grey shrubland during construction represents a low magnitude of ecological effect, as this will result in a very slight change to the existing baseline condition.

The level of effect of construction on kanuka scrub and shrubland and grey shrubland as determined in accordance with the EIANZ criteria is low when considering the ecological value (Very high) and magnitude of effect (Negligible) together.

9.2.3. Cushionfield

In accordance with EIANZ criteria set out in Table 9-1, the permanent removal of approximately 31,600 m² of cushionfield during construction represents approximately 36% of the cushionfield that occurs on the Rocky Point property. Approximately 24,500 m² of the affected cushionfield is located within the Schedule 19.16 Concept Plan, Development Area (refer Section 1.1).

Approximately 3,300 m² of cushionfield would be removed from the Bendigo Hills property during construction representing approximately 3.5% of the cushionfields occurring on the property. The permanent removal of cushionfield especially on the Rocky Point property represents a high magnitude of ecological effect as this will lead to a major alteration to a key element of the existing baseline conditions through effects such as fragmentation leading to a post-development character being fundamentally changed at a local level.

The level of ecological effect of construction on the cushionfield as determined in accordance with the EIANZ criteria (Table 9-4) is very high. This is attributed to a high ecological value assigned to the cushionfield, due to the At Risk-Declining threat classification of the principal cushion plants *Raoulia australis* (At Risk-Declining) and *Raoulia beauverdii* (At Risk-Declining) and due to a high score assigned to the magnitude of effect. Compensation measures are proposed to address the residual adverse effects caused by a permanent loss of cushionfield vegetation. These are outlined in Section 11.

9.2.4. Lizard Habitat

Dr Tocher reports that all the habitat types that occur on the properties as listed in Section 5.1 support large populations of Kowarau gecko and McCann's skink. This is attributed to the presence of loose rock slabs and outcropping throughout all the habitat types. Dr Tocher notes that both lizard species make full use of the cushionfields for cover, at least over some parts of the year, including in and around the proposed building platform and curtilage areas.

Dr Tocher draws attention to the susceptibility of the lizards to death or injury from vehicle movements and foot traffic especially those occupying the undersides of loose rock slabs.

These potential effects underscore the need for a lizard management plan (LMP), which Dr Tocher states will serve the dual purpose of being a likely CODC consent requirement and supporting documentation to a Wildlife Act permit application to DOC. The LMP will detail how actual and potential adverse effects of the development will be appropriately avoided, minimised, mitigated and/or compensated for. The plan as noted by Dr Tocher will detail how the actual or potential adverse effects on indigenous lizards will be appropriately avoided, minimised, mitigated and compensated for. The avoidance/minimisation and mitigation actions recommended by Dr Tocher are outlined in Section 10. Further details are provided in Section 5 of the Lizard Survey Report (Appendix 1).

In the absence of avoidance, minimisation and mitigation measures the magnitude of effect of the development on lizard habitat in accordance with the EIANZ guidelines is assessed as moderate. This score reflects the residual adverse effects of the development that would be caused by the loss of lizard habitat and effects on the populations of Kowarau gecko and McCann's skink on the properties.

The level of ecological effect is assessed to be low and high based on a moderate magnitude of effect on two species of lizards with assigned low and high ecological values respectively (refer Table 8-2).

9.3. Avifauna

The magnitude and level of ecological effects on indigenous avifauna, most notably the nationally vulnerable Eastern falcon and At Risk-Declining New Zealand Pipit is assessed as low on the basis that the disturbances caused by the construction works such as noise and dust generation may have a minor effect on the local populations of these species leading to temporary avoidance of roosting and feeding habitat in the vicinity of the construction sites.

10. Proposed Avoidance, Mitigation and Remediation Measures

10.1. Site Control Measures

- All works associated with the project area shall take place within defined construction sites. The site boundaries shall be clearly defined on the ground.
- No vegetation shall be disturbed or removed beyond the defined construction sites.
- All machinery movements shall be limited to within the construction sites and defined accessways at all times.
- Water and diesel containers and other heavy construction related materials and machinery will be stored at designated sites to prevent damage to vegetation beyond the construction sites,

10.2. Vegetation Clearance

- Clearance of vegetation shall be undertaken in a manner that avoids damage to vegetation beyond the defined construction sites;
- Mature specimens of the At Risk-Declining *Olearia lineata* and matagouri as well as mingimingi and Corokia shall be avoided owing to their scarcity at a local level, their value for indigenous invertebrate fauna and their distinctiveness;
- Avoiding where possible kanuka trees and shrubs that host the Threatened - Nationally Critical pygmy mistletoe;
- Trimming of indigenous woody shrubs is recommended where possible as opposed to complete removal.
- The root beds of felled trees and shrubs shall be retained to avoid off-site effects caused by erosion.

10.3. Weed Management and Monitoring

- Ensuring that gravel imported to site for roading and other purposes is extracted from a weed free source;
- The project area shall be monitored over the duration of the works and over the duration of the subsequent maintenance period (2 years) to detect whether any problem weed species that currently do not occur on the property have been accidentally introduced to the area. All necessary steps will be undertaken to eradicate these weeds.

10.4. Lizard Management

- Limiting the extent of construction areas including laydowns and construction related parking;
- Prohibiting the moving or using rock slabs for construction purposes;
- Avoiding rock habitat that supports lizards and having set-backs or no disturbance zones around rock outcrops;
- Placing restrictions on the use of herbicides and pest control within and outside of curtilage areas;
- Placing a ban on cats as pets;

- Creating rocky habitat ahead of the development works through retrieving and hand placing of slab rocks across areas naturally impoverished of rock, on open and sunny sites, outside of high foot traffic areas and outside of building platforms and curtilage areas. The rocks should be stacked so that a variety of lizard cervices and basking platforms are created and protected from wet weather.

11. Proposed Biodiversity Compensation Measures

Biodiversity compensation is proposed by KTO Properties to address the residual adverse effects of the development on indigenous vegetation and lizards that cannot be avoided, remediated, or mitigated. The residual adverse effects relate to the permanent loss of areas of cushionfield vegetation from within the project area and in particular the reduction in habitat of the scabweeds *Raoulia australis* and *Raoulia beauverdii* which are classified as At Risk-Declining under the New Zealand Threat Classification System. Transplanting of scabweed is not possible owing to the high degree of sensitivity of these plants to disturbance.

The compensation measure proposed will increase the diversity of the homogenous kanuka shrubland adjoining the project area. This will be achieved through active enrichment planting on the property, specifically planting of light demanding or pioneer species that occur in this dryland area.

Species selected for this purpose are:

- Kanuka (*Kunzea serotina*);
- Kowhai (*Sophora microphylla*)
- Hall's totara (*Podocarpus laetus*);
- Lancewood (*Pseudopanax crassifolius*);
- Matagouri (*Discaria toumatou*);
- *Olearia lineata*;
- *Olearia odorata*;
- *Coprosma propinqua*;
- *Coprosma crassifolia*
- *Coprosma virescens*;
- Porcupine scrub (*Melicactus alpina*);
- Cottonwood (*Ozothamnus leptophyllus*)
- Corokia (*Corokia cotoneaster*);
- Broadleaf (*Griselinia littoralis*);
- Kohuhu (*Pittosporum tenuifolium*); and
- Cabbage tree (*Cordyline australis*).

In order to achieve a positive biodiversity outcome in accordance with Policy 5.4.6A of the Partially Operative RPS and Appendix APP4 of the Proposed RPS, the areas to be planted will total 41,495 m² which is proportionate to the extent of cushionfield and kanuka to be cleared during development. Alignment with the criteria set out under Policy 5.4.6A and Appendix APP4 are provided by way of commentaries set out in Tables 11-1 and Table 11-2.

The planting areas will be located primarily on the Bendigo Hills property as shown indicatively on Figure 11-1 and will be established prior to development commencing.

Details on the compensation planting measures, including planting areas, plant spacing, aftercare, irrigation, weed and pest control and monitoring will be set out in the vegetation management plan to be prepared for Council approval in advance of the works.

The compensation measures would additionally involve property wide monitoring and ongoing control of invasive conifers and invasive broadleaved weed species such as buddleia and broom and property wide hedgehog control.

Table 11-1: Assessment of Policy 5.4.6A of the Partially Operative Otago RPS – Provisions for biological diversity compensation.

Provision	Commentary
Policy 5.4.6A Biological Diversity Compensation Consider the use of biological diversity compensation: a) When:	
i. Adverse effects of activities cannot be avoided, remedied, mitigated or offset; and	The effects of development of the building platforms, curtilage areas, access roads, tracks and driveways and wastewater disposal field on indigenous cushionfield communities cannot be avoided, remedied or mitigation or offset.
ii. The residual adverse effects will not result in: The loss of an indigenous taxon (excluding freshwater fauna and flora) or of any ecosystem type from an ecological district or coastal marine biogeographic region;	The project will not result in the loss of any indigenous taxon or vegetation community or habitat in the Dunstan Ecological District.
Removal or loss of viability of habitat of a threatened or at risk indigenous species of fauna or flora under the New Zealand Threat Classification System ("NZTCS");	The areas of kanuka shrubland and cushionfield communities supporting threatened and at risk indigenous species such as matagouri, <i>Olearia lineata</i> and <i>Raoulia australis</i> will not result in the loss of viability of habitats utilised by these plant species outside of the project area.
Removal or loss of viability of an originally rare or uncommon ecosystem type that is associated with indigenous vegetation or habitat of indigenous fauna;	The project area does not contain any originally rare or uncommon ecosystem types.
Worsening of the NZTCS conservation status of any threatened or at risk indigenous freshwater fauna.	The project will not adversely affect any watercourses on the Bendigo Hills and Rocky Point properties
b) By applying the following criteria:	
i. The compensation is proportionate to the adverse effect;	The area of compensation planting collectively covers approximately 41,500 m ² compared to an area of approximately 41,000 m ² of kanuka shrubland and cushionfield that would be permanently cleared during construction.
ii. The compensation is undertaken where it will result in the best practicable ecological outcome, preferably; - Close to the location of development; - Within the same ecological district or coastal marine biogeographic region;	The proposed compensation plantings areas are located on the Bendigo Hills and Rocky Point properties in the vicinity of the development sites, including road and access tracks.
iii. The compensation will achieve positive biological diversity outcomes that would not have occurred without that compensation;	The compensation plantings will lead to positive ecological outcomes. They comprise a diverse assemblage of native plants that occur naturally in the Dunstan Ecological District but are generally lacking in abundance at a local level. The plantings will increase the biological diversity of the Bendigo Hills and Rocky Point properties.

iv. The positive ecological outcomes of the compensation last for at least as long as the adverse effects of the activity; and	The compensation plantings will be established and subject to aftercare management measures to ensure they become self-sustaining and contribute to natural regenerative processes in the medium to long term.
v. The delay between the loss of biological diversity through the proposal and the gain or maturation of the compensation's biological diversity outcomes is minimised.	The plantings will be established in advance of commencement of the works.

Table 11-2: Assessment of APP4 of the Proposed Otago RPS - Criteria for biodiversity compensation.

Criteria	Commentary
1. Biodiversity compensation is not available if the activity will result in:	
a) the loss of an indigenous taxon (excluding freshwater fauna and flora) or of any ecosystem type from an ecological district or coastal marine biogeographic region,	The project will not result in the loss of any indigenous taxon or vegetation community or habitat or ecosystem type from the Dunstan Ecological District.
b) removal or loss of viability of habitat of a Threatened or At Risk indigenous species of fauna or flora under the New Zealand Threat Classification System (Townsend et al, 2008),	The areas of kanuka shrubland and cushionfield communities supporting threatened and at risk indigenous species such as matagouri, <i>Olearia lineata</i> and <i>Raoulia australis</i> will not result in the loss of viability of habitats utilised by these plant species outside of the project area.
c) removal or loss of viability of a naturally rare or uncommon ecosystem type that is associated with indigenous vegetation or habitat of indigenous fauna, or	The project area does not contain any originally rare or uncommon ecosystem types.
d) worsening of the New Zealand Threat Classification System (Townsend et al, 2008) conservation status of any Threatened or At Risk indigenous fauna.	The permanent loss of areas of kanuka shrubland and cushionfield will not be to an extent that would not worsen the conservation status of the affected flora with a threatened or At Risk conservation status.
2. Biodiversity compensation is available if the following criteria are met:	
a) compensation addresses only residual adverse effects that remain after implementing the sequential steps required by ECO-P5(1) to (4),	The effects of development of the building platforms, curtilage areas, access roads, tracks and driveways and wastewater disposal field on indigenous cushionfield communities cannot be avoided, remedied or mitigation or offset.
b) compensation is undertaken where it will result in the best practicable outcome and preferably: a. close to the location of the activity, and b. ii. within the same ecological district or coastal marine biogeographic region,	The proposed compensation plantings area are located on the Bendigo Hills and Rocky Point properties in the vicinity of the development sites, including road and access tracks.
c) compensation achieves positive biodiversity outcomes that would not have occurred without that compensation,	The compensation plantings will lead to positive ecological outcomes. They comprise a diverse assemblage of native plants that occur naturally in the Dunstan Ecological District but are generally lacking in abundance at a local level. The plantings will increase the biological diversity of the Bendigo Hills and Rocky Point properties.

d) the positive biodiversity outcomes of the compensation are enduring,	The compensation plantings will be established and subject to aftercare management measures to ensure they become self-sustaining and will contribute to natural regenerative processes.
e) the time delay between the loss of biodiversity through the proposal and the gain or maturation of the compensation's biodiversity outcomes is the least necessary to achieve the best possible outcome,	The plantings will be established in advance of commencement of the works to ensure the biodiversity outcomes are achieved as quickly as possible.
f) the outcome of the compensation is achieved within the duration of the resource consent,	The plantings are expected to be self-sustaining at around age 10.
g) biodiversity compensation developed in advance of an application for resource consent must be shown to have been created or commenced in anticipation of the specific effect of the proposed activity and would not have occurred if that effect was not anticipated, and	The compensation plantings are described in the ecological assessment that forms part of the resource consent application. These are based on the effects of the project and are of a quantum that is proportionate to the loss of the affected indigenous plant communities.
h) the biodiversity compensation is demonstrably achievable.	This will be the case as the plantings will be established from local seed sources and propagated by an established nursery. Coupled with proper planting techniques and aftercare measures supported by a monitoring programme will ensure high survival rates and an enduring outcome.



Figure 11-1: Indicative compensation planting areas.

12. Conclusions

The proposed subdivision and associated housing developments will occur within defined project areas and will affect areas of kanuka scrub and shrubland, cushionfield and exotic herbfield and grassland that provide a range of habitats for indigenous flora and fauna.

The ecological value of the affected vegetation communities and habitats they support is very high in accordance with the criteria set out in the EIANZ Guidelines. Additionally, the affected vegetation and habitats are ecologically significant in terms of the assessment criteria set out in Schedule 4 in the partially operative Otago RPS. The very high ecological value and ecological significance assigned to the project area is attributed to the existence of extensive tracts of indigenous dryland plant communities and rocky habitat representative of the Dunstan Ecological District and presence of at least eight threatened or at-risk plant species and the At Risk-Declining Kowarau gecko. The project area is likely to provide habitat for the Nationally Vulnerable New Zealand falcon and the At Risk-Declining New Zealand pipit.

The magnitude of ecological effect of the development on the sensitive cushionfields is scored as high and kanuka scrub and shrubland low in accordance with the EIANZ Guidelines. The high score assigned to the cushionfields reflects the significant extent of cushion plant communities occurring in the project area that would be permanently removed during construction. The magnitude of ecological effect on lizard habitat is scored as moderate as the cushionfields form part of the suite of habitats utilised by lizards.

TKO Properties Limited propose to implement large scale planting programmes across parts of the properties beyond the project area to compensate for the loss of cushionfield plant communities. This will involve planting of a diverse assemblage of dryland plant species and ongoing management of the plantings to maximise survival rates. This compensation measures will achieve a positive ecological outcome and is the best practicable means of addressing the adverse residual effects of the development on the cushionfield plant communities. The measures align with the ecological and biodiversity outcomes set out in Policy 5.4.6A of the Partially Operative Otago RPS and in meeting the criteria set out in APP4 of the proposed Otago RPS.

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Appendix 1 – Lizard Survey Report

Lizard Survey Report: Proposed Bendigo Hills Estate Subdivision



June 2023



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Date: 1st June 2023

Status: **Issued.**



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1. Project Background

A subdivision consent application is being prepared for two adjoining but contiguous properties: Bendigo Hills and Rocky Point, central Otago ('the Bendigo Hills Estate site'; Figure 1). Ecological survey work is underway to inform the Resource Consent process, and the Resource Consent process will act as a springboard from which a Lizard Management Plan/Wildlife Act (1953) application to the Department of Conservation will be developed. The Bendigo Hills Estate site is c. 200 ha (Figure 1).



Figure 1: Bendigo Hills Estate site location, made up of two adjacent properties totalling c. 200 ha (Bendigo Hills = 130 ha and Rocky Point = 68) that were subjected to the March 2023 lizard survey (red & orange polygons; indicative only).



2. Scope

The following report provides the results of a lizard survey undertaken over the proposed Bendigo Hills Estate subdivision, March 2023. Results of the lizard survey can be contextualised by a desktop assessment of lizards undertaken in January 2023¹. The report, in the last section, provides actions that could be undertaken to satisfy both the requirements of the RMA (1991) and the DOC Wildlife Act permitting process. The proposed wording of the 'Lizard Management' condition to offer to Council for Resource Consent is also provided.

3. Lizard Survey Methods

The 3-day visual encounter survey/walk through survey was carried out over the Bendigo Hills Estate site, during weather conditions suitable for lizard survey in Central Otago (Table 1). Where-ever possible lizards detected were captured and identified prior to release. The locations of lizards seen or caught were recorded using a hand-held GPS. Lizards captured were handled following best practice methodology and were released as soon as practicable at the point of capture. Field notes and photographs were taken to inform the reporting. All lizard survey work was carried out under Wildlife Act Authority 62386-FAU issued to Dr M. Tocher.

Table 1. Weather conditions experienced during the March 2023 lizard survey.

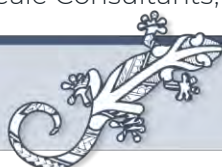
Date	Minimum Air Temperature (°C)	Maximum Air Temperature (°C)	Rain at some time during the day?
17/3/23	6	20	yes
18/3/23	8	23	No
19/3/23	10	26	No

4. Lizard Survey Results

Lizard Species & Populations

Two lizard species were found to be common and widespread over the Bendigo Hills Estate site: Kowarau gecko (*Woodworthia*

¹ Tocher, MD 2023. Desktop assessment of lizard values of Bendigo Hills/Rocky Point Development. Report prepared for Beale Consultants, January 2023.



“Cromwell”) (Figure 2), and McCann’s skink (*Oligosoma maccanni*) (Figure 3). Both species were easily encountered over rocky habitat, open areas, shrublands, and in the case of McCann’s skink, in under scab weeds/ cushion fields (*Raoulia* spp.) (see Figures 5 & 7). The occasional Kowarau gecko was also found beneath dead scab weeds, especially where they were near rocky outcropping of the Bendigo Hills Estate site.

Kowarau geckos were so common over the property that they (or their sloughed skins) were very predictably present under most loose slabs on the property, and loose slabs were abundant. Kowarau geckos were found in pairs often and where crevicing and slabs were large enough, large aggregations of geckos were found. It was not unusual for a Kowarau gecko to be sharing the same slab as a McCann’s skink, and sometimes, two Kowarau geckos were present with a McCann’s skink.



Figure 2: Kowarau gecko (Woodworthia “Cromwell”) captured over the Bendigo Hills Estate site, March 2023.

McCann’s skinks were not as common as Kowarau gecko but were nonetheless common and widespread over the Bendigo Hills Estate site (Figure 6). Over open areas, McCann’s skinks were commonly



observed foraging and taking refuge under living and dead scab weeds and using them as basking platforms (e.g., Figure 7).

I acknowledge here, that the lizards of the Bendigo Hills Estate site are not necessarily at “natural” levels, meaning those present at the site in prehuman New Zealand. The clearance of the pre-human vegetation, for example, may very well have created open and unshaded habitat favoured by both Kowarau gecko and McCann’s skink. Moreover, the diversity of species present, namely two species, is likely to be relatively impoverished compared to the pre-human lizard species diversity. I expect that in pre-human New Zealand to Bendigo Hills Estate site may have supported at least two more lizard species, species now locally extinct. An example is the tussock skink, *Oligosoma chionocholescens* that I am certain would have been present in silver tussock grasslands of the site that are now fragmented and degraded, but still present.

Kowarau geckos are currently classified by the Department of Conservation as “At Risk – Declining”², and McCann’s skink are ‘Not Threatened’.

² Hitchmough *et al.* 2021. Conservation status of New Zealand reptiles, 2021. New Zealand Threat Classification Series 35. Department of Conservation, Wellington. 15 p.





Figure 3: McCann's skink (Oligosoma maccanni) captured over the Bendigo Hills Estate site, March 2023.



Figure 4: McCann's skink (Oligosoma maccanni) indicated by the white arrow, basking on a dead scab weed over the Bendigo Hills Estate site March 2023.





Figure 5: Kowarau gecko records (yellow dots) and unidentified skink or gecko sign (purple dots) detected over the Bendigo Hills Estate site, March 2023. Red & orange lines shows the boundary of the two adjacent properties.

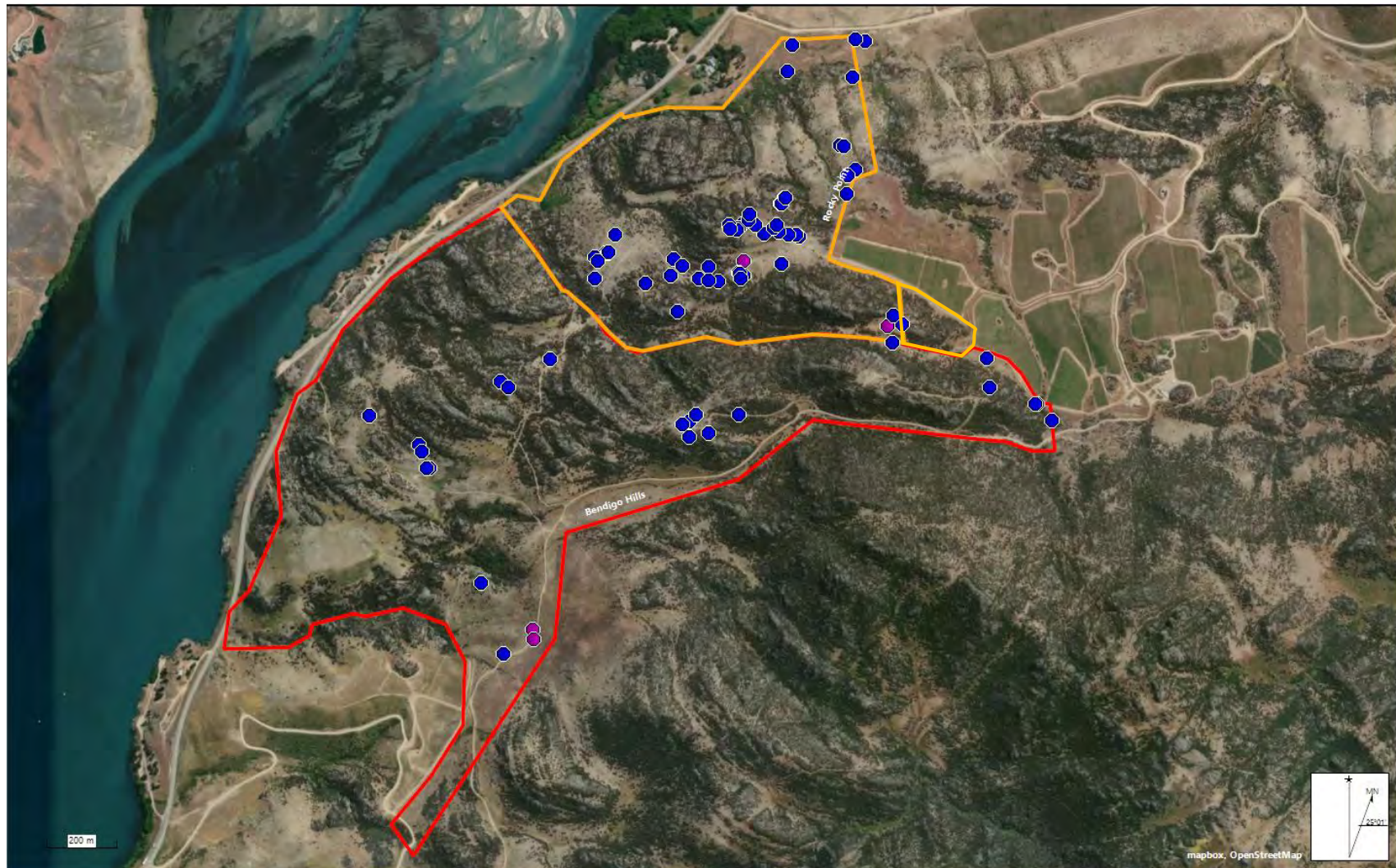


Figure 6: McCann's skink records (blue dots) and unidentified skink or gecko sign (purple dots) detected over the Bendigo Hills Estate site, March 2023. Red & orange lines shows the boundary of the two adjacent properties.

Lizard Habitats

According to Beale Consultants, 2023³, seven habitat types occur over the site, including kanuka scrub and shrubland; cushion field; grey shrubland; silver tussock grassland; exotic herffield; exotic grassland; and rocky substrates. For survey reports such as this, it is common practice to match habitat types with use by each lizard species, but the Bendigo Hills Estate site is unusual in that all the seven habitats described by Beale Consultants (2023) support large populations of both Kowarau gecko and McCann's skink. This is because loose rock slabs and/or outcropping are present throughout all vegetation types, and the rocky substrates includes a wide variety of rock habitat for both species.

In areas with little rock except the occasional slab, lizards of both species are making full use of the scrub weeds for cover, at least over sometimes of the year (e.g., Figures 4 and 7). For the coldest months of the year, it is unknown how much the scrub weed allows lizard survival at this site that is subjected to extremely cold winters where minimum air temperatures can reach -6 °C in June (<https://www.accuweather.com>).

Lizard habitat is widespread and lizard populations so numerous over the Bendigo Hills Estate site to the extent that areas around consented building platforms of Bendigo Hills that have been disturbed by earthworks have lizards present under disturbed rocks. Presumably these lizards have recolonised from the abundant surrounding populations since the disturbance occurred. This observation highlights the presence of sizable lizard populations directly adjacent to both the consented (and non-consented) building platforms, and Curtilage areas on the Bendigo Hills Estate site. Loose slabs with lizards beneath, for example, are susceptible to movement if stood on or driven over that can cause death and injury to lizards beneath⁴. Trampling of lizards through increased foot traffic both before and after any construction works, will require management through the Lizard Management Plan (LMP).

³ Beale Consultants, June 2023. Bendigo Hills Estate & Rocky Hills Subdivisions Terrestrial Ecology Impact Assessment.

⁴ A full effects assessment will be provided in the Lizard Management Plan that will include effects of the development and ongoing effects of the increasing people load of the site.





Figure 7: Kawarau gecko slough found under a dead scab weed, March 2023.

Fauna Habitat Significance

The presence of an “At Risk – Declining” species triggers Section 6(c) fauna habitat significance under the Otago Regional Policy Statement, and all indigenous lizards are absolutely protected under the Wildlife Act (1953).

5. Lizard Management Plan (LMP)

A LMP for the project area will serve the dual purpose of being a likely CODC requirement under a ‘lizard management’ consent condition (see below) and will ultimately be appended to a Wildlife Act permit application submitted to DOC. When issued, the DOC Wildlife Act permit will allow works over lizard habitat. To ensure the LMP meets the expectations and requirements of the Wildlife Act process, and those of CODC; the LMP will detail how actual and potential adverse effects of the proposed development on



indigenous lizards will be appropriately avoided, minimised, mitigated and/or offset or compensated for. The following sections provide high-level suggestions for actions that could be developed into a LMP for the Bendigo Hills Estate site.

Proposed Avoidance/Minimisation Actions

The nature of the development coupled with the extensive lizard populations of the Bendigo Hills Estate site means substantive avoidance actions over all lizard populations and habitat are not likely to be possible. That said, some principles and actions that could be considered include:

- Minimising the development footprints at each lot by imposing stringent and prescriptive protocols for some or all the following:
 - o The size of the building platform.
 - o The shape and location of curtilage areas.
 - o The permitted construction area including laydowns and construction-related parking.
 - o The location of structures and hard surfaces within curtilage areas (if possible).
 - o The location and size (width) of access tracks and walking tracks.
 - o The location and size of grey and black water dispersal fields.
 - o Restrictions, where practical, on moving/using rock slabs for gardens, walls, or any of purpose (e.g., anchoring rabbit fencing skirts to the ground).
 - o The use of herbicides within curtilage areas.
 - o Vehicle movements to be minimised and all vehicles to remain within existing disturbed areas.
 - o Restrictions on pets, e.g., no cats/mustelids as pets.
 - o Restrictions on pest control within and outside curtilage areas (including over the common ground); see site briefings in mitigation section below.
 - o Vegetation clearance and vegetation planting.
 - o Location of water tanks.
 - o Preference for overhead services rather than trenching.
- Ecologist to review designs and set outs to:



- o Ensure rock habitat that supports lizards (other than loose slabs; see mitigation section below) will be avoided as far as possible.
- o Setbacks on rock outcrops/tors are applied, where appropriate.
- o Access tracks, walking tracks, and any below and above ground infrastructure (e.g., electricity) are sited to avoid/minimise effects.
- Ensure no on-site quarrying of hard fill for roads; import clean and weed free gravels from elsewhere.

Proposed Remediation Actions

There is much scope over the Bendigo Hills Estate site to carry out remedial work to help balance anticipated effects. Rehabilitation works can include indigenous planting or rock habitat creation, or both. Enrichment plantings to help balance adverse effects of the development on indigenous vegetation is planned as compensation (Beale Consultants, 2023; see 'Proposed Compensation Actions' below).

Rocky Habitat Creation

Retrieving slab rock ahead of works over building platforms, roads and access trails can be hand-stacked under the direction of a herpetologist to create quality lizard habitat. Any such rock habitat needs to be positioned over areas:

- naturally impoverished of rock.
- likely to remain open and sunny for many years, and
- outside high foot-traffic areas and outside building platforms and curtilage areas.

Rock can also be retrieved from areas, post disturbance where earthworks may have caused slab rock to become exposed at the surface, above the soil. Disturbed rock, if cleaned up (silt and soil removed) and stacked/arranged so that a variety of lizard crevices/basking platforms are created that are protected from getting washed through with the rain, can provide better habitat than disturbed rock that is simply pushed to the side by an



excavator/bulldozer. Moreover, if arranged over the Bendigo Hills Estate site in areas where rock is now scarce, can improve habitat at a local scale. As an example, uphill and downhill batters of upgraded roads over the site can be improved by careful and targeted rock slab placement.

Proposed Mitigation Actions

Beale Consultants (2023) have proposed a variety of avoidance/mitigation measures that will benefit lizards including:

- Site control measures including the designation of defined construction zones (including access routes) that are marked on the ground ahead of works. All construction activity, vegetation removal, vehicle movements and storage/laydown activities must remain within these zones.
- Avoidance, where possible, of mature specimens of *Olearia lineata*, matagouri, mingimingi and *Corokia cotaneaster*.
- Erosion control measures to manage potential off-site effects.
- Weed management protocols.
- Develop onsite biosecurity protocols – vehicle/gravel washing.

In addition to these mitigation measures targeted at anticipated indigenous vegetation loss, I also suggest the following mitigation measures are also considered:

- Carry out site briefings as follows:
 - a. to contractors to explain the importance of remaining within designated construction zones to protect lizard habitat and lizard populations within, and
 - b. to residents to explain why ill-considered pest control (cats, mustelids, rodents, and rabbits) may lead to unexpected negative outcomes for lizards.



Proposed Compensation Actions

Enrichment Planting

Planting, as detailed in the ecological assessment (Beale Consultants, 2023) will improve the naturalness of the existing lizard habitat over the site through so called “enrichment plantings”. The compensation proposed aims to increase the diversity of the homogenous kanuka shrubland through enrichment planting, specifically inter-planting with other light demanding species that would have originally occurred in this dryland area but also utilising woody small-leaved species that naturally occur on site.

Note: Improving the naturalness of the habitat may not necessarily enhance or maintain lizard populations at current levels but instead, may promote a more natural state (see my comments above on the likely pre-human state of the lizard populations at the Bendigo Hills Estate site). A more natural state may, for example, result in a lower population of one or both Kowarau gecko and McCann’s skink, and a more restricted distribution of one or both lizard species. I anticipate with an increase in vegetation succession towards a dryland forest, lizards will naturally become more restricted to open and sunny areas, or forested areas with a sparse/patchy canopy. For this reason, I support the enrichment planting throughout existing shrubland habitat as proposed, but strongly recommend that scab weed/open areas are retained and not planted over during enrichment planting. Moreover, through a site Vegetation Management Plan suggested below, I recommend areas of golden scab weed are actively managed to retain scab weed dominance & dryland spring annuals.

When drafting the LMP for the Bendigo Hills Estate site, I recommend that a compensation action is also crafted to address residual effects on lizard values. Examples, that could be considered when formulating the Lizard Management Plan for the site, include:

1. Applying a conservation covenant to suitable areas of the Bendigo Hills Estate site that are not already subjected to a covenant.
2. Carrying out hedgehog control over the entire Bendigo Hills Estate site, in perpetuity.



6. Proposed 'lizard management' Consent Condition

I suggest that the following lizard management condition could be offered to CODC as part of the Resource Consent process to manage the lizard values of the site:

Lizard Management

1. Prior to any physical construction works occurring over areas found to provide habitat for indigenous lizards, the Consent Holder will provide the CODC with:
 - a. Confirmation that a Wildlife Act permit has been obtained from the Department of Conservation.
 - b. A Lizard Management Plan detailing how adverse effects to lizards will be appropriately avoided, minimised, mitigated and/or offset or compensated for.
 - c. A copy of the issued Wildlife Act permit.
2. All works on site must comply with conditions of the Wildlife Act permit.

7. Conclusions

The March 2023 detected large and extensive populations of the At Risk – Declining Kawarau gecko, and the Not Threatened McCann's skink. The presence of Kawarau gecko triggers Section 6c, RMA (1991) fauna habitat significance under the Otago Regional Policy Statement which imposes a duty on Central Otago District Council when deciding on the consent, to recognise and provide for their protection through the mitigation hierarchy; namely to avoid, remedy and mitigate adverse effects, and either offset or compensate for any residual effects not provided for following to rigorous application of the mitigation hierarchy. I recommend, therefore, that a "Lizard Management Condition" is offered to CODC in the resource consent application, and I provide a draft lizard management condition in Section 6.

As well as a resource consent, a Wildlife Act authority (WLAA) will also be required from DOC to develop the Bendigo Hills Estate site. A WLAA would be required because all indigenous lizards are absolutely protected under the Wildlife Act (1953). A WLAA application must be supported by a site-specific Lizard Management



Plan (LMP) that demonstrates an “overall protective benefit” to local McCann’s skink and Kowarau gecko populations following the implementation of the LMP. Generally speaking, the threshold for DOC to accept that an overall protective benefit will result in the implementation of the LMP is higher than the threshold that will allow CODC to grant consent.

Section 5 of this report provides suggestions on how the mitigation hierarchy could be applied to manage lizard values of the Bendigo Hills Estate site, and it is my assessment that residual effects are likely to result that require compensation. I anticipate, therefore that a bespoke compensation action will be crafted to address residual effects. Examples, that could be considered, are also provided in Section 5, but consultation with DOC is likely to be required to find an action DOC will consider acceptable.

