Tararua Wind Power Ltd.
Puke Kapo Hau (Mahinerangi Wind Farm) Stage 2.
Landscape + Visual Assessment.

16 October 2025.

Isthmus.

Client:	Tararua Wind Power Ltd
Project:	Puke Kapo Hau (Mahinerangi Wind Farm) Stage 2
No:	5066
Report:	Landscape + Visual Assessment
Status:	Final
Date:	19 October 2025
Author:	Simon Button / Gavin Lister
	Isthmus
	PO Box 90 366
	Auckland 1142
	[redacted]
	[redacted]
	[redacted]

CONTENTS

1 EXECUTIVE SUMMARY

1.1 Tararua Wind Power Limited ('TWP'), a fully owned subsidiary of Mercury NZ Limited, is progressing Stage 2 of the Mahinerangi Wind Farm which is to be known as Puke Kapo Hau ('the Project', 'Puke Kapo Hau' or 'MWF Stage 2').

1.2 Consent for Puke Kapo Hau (Mahinerangi Wind Farm) was granted in 2009. The consents were given effect to with the construction of Stage 1 which has been operation since 2011 and comprises 12 x 3MW wind turbines 125m high. Tararua Wind Power (TWP) now wishes to complete the wind farm (Stage 2) and seeks changes to the conditions of consent to enable it to use larger and more efficient wind turbines now available. It also seeks regional consents (including for such construction activities as modifications of wetlands, and diversion of a stream to construct a culvert crossing), in part to replace those that have expired, and new land use consents for the transmission infrastructure to connect with the National Grid, and an associated Battery Energy Storage System (BESS).

1.3 This report assesses the landscape and visual effects (including natural character) of the proposed changes to the existing consent, and of the proposed new consents.

Effects on natural landscape values (changes to civil engineering components)

1.4 The existing consent identifies 100 approved wind turbine locations, each with a 100m radius 'Contingency Zone' within which the wind turbine and hardstand is to be located. Many of the Contingency Zone circles are further constrained in response to areas of ecological value and buffers, and engineering constraints. The conditions provide for hardstands of 1400m^2 (condition 25(d)) and roads with a 12m carriageway during construction to be reduced to a 5m carriageway following construction (condition 25(b)).

1.5 TWP seeks to shift the centre of the Contingency Zones (nominal turbine locations) in thirteen instances, refine the exclusions of the Contingency Zones, increase the area of individual hardstands to 1855m^2, and construct roads (for both construction and operational use) with 5.5m carriageway and localised widening to 9.5m on some bends. The changes are to enable installation of the proposed larger wind turbines, and in response to specific analysis of ecological values (including wetlands) and the extent of buffers required.

1.6 The proposed changes will have at most 'low' adverse effects – and some positive effects – on natural landscape values having regard to such factors as landform, vegetation, and water bodies.

- Shifts to the centres of the Contingency Zones (nominal turbine locations) are localised in each case. They vary between 10m and 160m and have been made to match the civil works with site conditions and ecological values. The layout retains the same overall pattern as the existing consent.
- The Contingency Zones will retain the same 100m radius. The proposed revisions to the Contingency Zone exclusions will ensure that works (as under the existing consent) will be located on the peneplain surface in areas of pasture and will avoid gullies. The proposed 10m minimum buffers from wetlands is consistent with the National Environment Standards for Freshwater 2023 (NES-F).
- While some Contingency Zones contain drifts of tussock amongst the pasture, this situation is common to the existing consent. At the same time, the removal of four wind turbine

locations on the south-western spur (the 'Thomas Block') and one in the QEII covenant area will have positive effects by avoiding the main area of high-quality snow tussock.

- The larger area of each hardstand (1855m^2 vs 1400m^2) will be offset by fewer wind turbine numbers. The changes would limit the wind farm to a total of 56 wind turbines compared with up to 100 wind turbines authorised under the consent.
- Earthworks will also be reduced by the proposed change to a 5.5m road width (with localised only widening to 9.5m) for both construction and operations, compared with a 12m construction road width under the existing consent. The reduction in wind turbine numbers will also reduce the length of access road required.

Effects on amenity values (changes in wind turbine size, numbers and locations)

1.7 The existing consent provides for up to 100 wind turbines with a maximum installed capacity of 200MW and a maximum height of 145m. TWP seeks to change the consent conditions to allow the balance of the approved wind farm (i.e. 'Stage 2') to be constructed with 44 wind turbines up to 165m high, and to increase the total generation capacity to 226MW. The purpose is to enable more efficient wind turbines that are now available. To establish a benchmark for comparison, it was agreed that a 'realistic consented Stage 2' that could be considered under the existing consent is 47 x 3.4MW wind turbines with a 145m height and a 136m rotor diameter.

1.8 Given that the proposed wind turbines and the 'realistic consented Stage 2' wind turbines have the same rotor diameter, the proposed 20m increase in height would not be pronounced. Wind turbines reach to varying heights in any event because of the undulating terrain. There would be no or 'very low' effect on such factors as dominance, scale relationship of the wind farm to the landscape, rural character, and aesthetic coherence. There would be some 'low' effects on aesthetic coherence between the existing Stage 1 wind turbines and the proposed wind turbines. However, such effects would occur in any event compared with the 'realistic consented Stage 2' wind turbines. The proposed changes would also have positive effects on such factors as fewer wind turbines and the removal of specific wind turbine locations.

1.9 In summary, the layout retains the same pattern as the consented wind farm, which in turn was designed to fit the natural landscape. The wind farm will continue to be appropriate in the landscape setting. It will continue to have acceptable effects. Any adverse effects will be low and there will be various positive effects compared to the existing consent. The proposal will maintain the quality of the landscape and amenity values.

Effects on the ONL values of the Lammermoor Range

1.10 The Lammermoor Range west of the wind farm site is an outstanding natural landscape. The parts of the range in Dunedin City are already scheduled as ONL in the district plan and, while the parts of the range in Clutha District are not scheduled as ONL in the district plan, we concur with a recommendation in a 2015 report prepared for the District Plan review process that the range be scheduled as such. We have proceeded on the presumption that the range is an ONL. (For the avoidance of doubt, the wind farm site itself does not meet the classification criteria for ONL status.)

1.11 The proposed changes will have positive effects on the ONL values of the Lammermoor Range and no adverse effects.

- The northern two thirds of the wind farm are approximately 3.8 km from the edge of ONL, separated by the clear demarcation of the scarp, and differentiated in elevation and

landscape character. In context, the proposed 20m increase in height will be barely perceptible compared to the 'realistic consented Stage 2'.

- The south-west corner of the consented wind farm is close to the Lammermoor Range with the nearest approved wind turbine location approximately 150m from the toe of the scarp. There will be positive effects on the values of the ONL from the removal of the wind turbine locations in this area. It will increase the separation to approximately 1 km, differentiate the wind farm more clearly by locating the nearest wind turbines in farmland rather than the tussock on the Thomas block, and provide clearer demarcation by locating the nearest wind turbines on the opposite side of Lammerlaw Creek which is a natural boundary. In context, the 20m increase in wind turbine height will not be obvious and will be outweighed by the positive effects.

1.12 In summary, the changes will have positive effects and no adverse effects on the values of the full extent of the Lammermoor Range as an ONL. The values will be protected.

Effects on natural character – wetlands and streams

1.13 New regional consents are required for (amongst other things) activities associated with reconstructing existing farm tracks and culverts through a perched wetland on the peneplain and across a tributary of Lee Stream. Previous regional consents for these activities have expired and the works therefore require new consents. From a landscape perspective the new consents require consideration of natural character.

1.14 For context, the project mostly avoids wetlands and streams because the wind farm layout follows the crests of the peneplain and its spurs.

1.15 There is one stream (a tributary of Lee Stream) that it is not practicable to avoid in gaining access to the northern part of the wind farm. The crossing is at the location provided for in the approved wind farm layout under the existing consent. The crossing will replace an existing farm track and culvert which will be removed. The stream at this location has moderate natural character, with the extent of modification balanced by natural characteristics and qualities. The natural character will be protected by the proposed culvert design, including a large diameter culvert embedded to provide for a natural stream bed and channel, and through restoration measures recommended in the Aquatic Ecology[1] and Wetland Ecology[2] reports. The measures include fencing and restoration of stream margin vegetation upstream of the culvert, and rehabilitation of the existing culvert site immediately downstream to merge with an existing wetland.

1.16 The spine access road also impinges on a perched wetland area at a saddle on the crest of the peneplain. The wetland has the appearance of wet pasture characterised by sedges and rushes. It is modified by a central drain, grazing, pugging, and the existing farm track on a low embankment and culvert. The area has low-moderate natural character because the modifications outweigh the natural characteristics and qualities. An access road is provided for in this location in the approved layout under the existing consent. The works proposed under the more detailed design will realign the access road to the true saddle approximately 50m to the east and remove the existing farm track and culvert. The natural character will be protected by the realignment which will have a closer fit to topography and will re-establish natural hydrological patterns.

[1] SLR – Aquatic (2025)
[2] SLR (2025)

1.17 In summary, the project avoids and minimises potential effects on natural character. In the instances where one stream and area of perched wetland cannot be avoided, the effects will be minimised and remedied through the road alignment and culvert design. The residual effects will be remedied and compensated through restoration of stream and wetland areas described in the Ecology reports. Natural character will be preserved and, in some respects, enhanced. The works will remain appropriate in what is a modified farmland and energy landscape.

Proposed transmission infrastructure – effects on landscape and amenity values

1.18 TWP also seeks consents for a substation and 110kV transmission line to connect the wind farm to the National Grid, and for an associated Battery Energy Storage System (BESS). The transmission connection was not sought as part of the original consent because at the time such 110kV transmission was a permitted activity (Stage 1 was connected to the National Grid via a 33kV connection to the Deep Stream hydro-electric project).

1.19 The transmission infrastructure will be in a landscape whose character includes existing electricity generation and transmission. The substation and associated BESS will be in an unobtrusive location in the middle of the wind farm, on flat areas of pasture, and distant from public roads and dwellings. The transmission line will comprise poles rather than pylons. It will cross properties associated with the wind farm. The alignment is across farmland, accessed by existing farm tracks, so that effects on natural landscape will be minimised. Residual adverse effects on the natural landscape will be 'low' in degree.

1.20 The transmission line and infrastructure are distant from public roads except where the line will connect to a pylon on the existing National Grid transmission line adjacent to Eldorado Track. The proposed line is distant from dwellings. Any adverse effects on amenity values will be of a 'low' degree.

1.21 In summary, the proposed transmission infrastructure will be appropriate in the landscape, has been designed to minimise potential adverse effects, and any remaining adverse effects will be acceptable and of a 'low' degree. Natural landscape features and amenity values will be maintained.

Proposed Operations and Maintenance Facility – effects on landscape and amenity values

1.22 While an Operations and Maintenance (O&M) facility is provided for under the existing consent, TWP seek consent to construct such a facility in the centre of the wind farm rather than the location adjacent to Eldorado Track indicated in the approved layout. The proposed location is appropriate. It is flat land, surrounded by wind turbines and transmission infrastructure, distant from roads and houses. Any adverse effects on natural landscape features or amenity values will be 'very low'.

2 INTRODUCTION

2.1 TWP holds resource consents for a wind farm at Mahinerangi confirmed by the Environment Court in 2009.[3] The conditions provide for up to 100 wind turbines with a maximum tip height of 145m and an overall maximum installed generation capacity of 200 MW.[4] The consent conditions identify 100 wind turbine locations, each with a 'Contingency Zone'. The consent was given effect to by the construction of Stage 1 comprising twelve 3MW wind turbines which became operational in 2011.

2.2 TWP now seeks to change the conditions to enable Stage 2 of the wind farm to be completed with 44 wind turbines of 165m height (i.e. to increase the wind turbine height to blade tip by 20m) and to increase the overall capacity of the wind farm (Stages 1 and 2) to 226MW.[5] The purpose for the condition changes is to enable use of more efficient wind turbines currently available. To retain some flexibility for the detailed design, TWP proposes to distribute the 44 wind turbines amongst 54 potential locations. The remaining 34 of the approved 100 wind turbine locations would be removed from the consent. The application also seeks localised changes to some of the identified wind turbine location Contingency Zones to accommodate micro-siting and the civil works associated with the larger wind turbines.

2.3 New regional consents are sought for construction works generally and that will affect wetlands and a stream crossing, which raises natural character matters relevant to the landscape assessment.

2.4 New consents are also sought for a new transmission line and associated infrastructure to enable a connection to the existing National Grid HWB-ROX-A 110kV line roughly 3km south-east of the wind farm. The associated infrastructure includes a BESS and substation.

2.5 New consents are also sought for an O&M facility in a different part of the wind farm than indicated on the approved layout under the existing consent.

2.6 This report assesses the landscape and visual effects of the proposed changes to the existing consent, and of the proposed new consents. It includes consideration of the natural character of wetlands and the stream.

[3] *Upland Landscape Protection Society Incorporated v Clutha District Council, Otago Regional Council and Trustpower*, Decisions No C 85/2008 [Interim Decision] and No. C140/2008.
[4] It is understood that the 200MW limit was proffered by Trustpower (the original consent holder) because of National Grid constraints at the time rather than to manage environmental effects. The installed generation limit (set out in condition 11), has the practical effect of limiting the number of wind turbines depending on the generation capacity of the model used.
[5] The proposed changes would therefore enable 44 x 4.3MW wind turbines given the 12 x 3MW Stage 1 wind turbines.

3 METHODOLOGY

3.1 The authors' qualifications and experience, and agreement to comply with the Code of Conduct for Expert Witnesses, are set out in **Appendix One.**

3.2 The methodology is set out in **Appendix Two.** It is consistent with '*Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines'* published by Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.

4 LANDSCAPE CHARACTER AND VALUES

4.1 The landscape characteristics and values of the site and its context were described in the Boffa Miskell 2006 Visual and Landscape Assessment[6] and relevant aspects were summarised in the 2008 Environment Court decision. The Court considered it to be an appropriate site for a wind farm with respect to landscape matters. The following is a summary of key characteristics and values relevant to the proposed changes to the existing consent conditions and the new consents.

Physical aspects

4.2 The area is an open landscape comprising an expansive peneplain with rounded contours and incised streams. The underlying rock is schist, which outcrops in places across the site.

4.3 There is a northeast-southwest pattern to the landforms, including the alignment of the crest of the plateau (or peneplain) on which the wind farm is located. The wind farm site was described in the 2008 Environment Court decision as an 'intermediate' plateau between the lower farmland to the east, which is more intensively farmed, and the higher and more natural Lammermoor Range that backdrops the site to the northwest. The Lammermoor Range is characterised by its tussock cover. Much of the range falls in Te Papanui Conservation Park. There is a prominent scarp between the wind farm site and the Lammermoor Range, the toe of which is followed by Deep Stream.

4.4 The wind farm site is farmed and is mostly in improved pasture, although areas immediately west of the wind farm retain the tussock that would formerly have covered the plateau. Pine shelter belts are also characteristic elements of the surrounding farmland and there is the extensive plantation forest, 'Waipori Forest', south of Lake Mahinerangi and around the eastern end of the lake.

4.5 In addition to the wind farm,[7] the surrounding area is also modified by infrastructure associated with hydro-electricity generation. The Deep Stream hydro-electric scheme crosses the wind farm site and comprises a diversion pipeline from Deep Stream, a reservoir, water races and canals, and two small generation stations. The outfall of the Deep Stream scheme feeds into Lake Mahinerangi, in turn the reservoir for the Waipori hydro-electric scheme, which was created by damming the Waipori River.

[6] Mahinerangi Windfarm Visual and Landscape Assessment prepared for Minter Ellison Rudd Watts on behalf of TrustPower Ltd by Frank Boffa, Boffa Miskell May 2006.
[7] Including the Stage 1 wind turbines and the balance of the approved wind farm.

Perceptual aspects

4.6 The wind farm is, therefore, part of a farming and energy landscape with a rural character underpinned by extensive sheep and beef farms. Aesthetically, the most distinctive features are the backdrop scarp and long plateau skyline of the Lammermoor Range.

Figure 1. Aerial view across rolling farmland towards midground plateau and Lammermoor Range skyline backdrop

Figure 2. Aerial views across Stage 1 wind turbines on southern spur towards Lammermoor Range scarp and skyline.

4.7 Most public views of the wind farm are distant. The most common views are from SH87 some 9km east of the site. Other public views include those from Lake Mahinerangi 5km south of the site, and the elevated sections of the Old Dunstan Road 7 km to the north (i.e. from the unsealed section beyond Deep Stream). Otherwise, there is public road access to the wind farm at the end of the no-exit Eldorado Track and walking access along a track from the road end to the Papanui Conservation Area on the Lammermoor Range.[8]

4.8 There are relatively few dwellings near the wind farm site because of the extensive farming character. Those in the area are mostly to the northeast, east, and southeast of the site, on no-exit gravel roads and typically have shelter planting to the west in the direction of the wind farm. Some of the nearest properties are also participating in the wind farm project. The only settlement in the area is the Mahinerangi Fishing Village (also referred to as 'Fish Camp'), a cluster of approximately 35 cribs 5 km south of the wind farm site on the edge of Lake Mahinerangi.

Figure 3. Mahinerangi Fishing Village – the causeway is across an arm of Lake Mahinerangi

[8] It is approximately 4.5 km from the locked gate on the track to Te Papanui Conservation Park following an unformed legal road. Te Papanui Conservation Park is set back approximately 1.3 km from the top of the scarp in this area of the Lammermoor Range. That track also provides access to infrastructure associated with the Deep Stream hydro-electric power project.

Figure 4. Outlook from top of scarp on Lammermoor Range over tussock grasslands, Deep Stream hydro reservoir, and Stage 1 wind turbines

Associative attributes

4.9 During discussions with then Kāi Tahu ki Otago and Te Rūnanga o Ōtākou at the time that the existing consent was sought, it is understood that no known areas or sites of significance to Māori were identified within the wind farm site, but that Old Dunstan Road, located north of the site, was formed along the route of a Māori trail and therefore it was possible that Māori travelled through the wind farm area[9]. The name Puke Kapo Hau was gifted for the wind farm at that time.

4.10 It is understood that TWP have engaged with Te Rūnanga o Ōtākou with respect to the proposed changes and new consents, and that the iwi has requested technical reports ahead of the application being lodged and a Cultural Impact Assessment being prepared by Aukaha on behalf of Te Rūnanga. In the meantime, we have relied on published information on values associated with the area, while recognising that such information is incomplete.

4.11 The Kai Tahu Statutory Acknowledgements describe a network of permanent and seasonal habitations and connecting routes, the nearest of which are Mata-au (Clutha River) and Waihola- both of which are remote from the wind farm. However, section 5.6 of the 'Kāi Tahu ki Otago Natural Resource Management Plan (2005)' addresses cultural landscapes and states that such landscapes are not limited to Statutory Acknowledgements.

> *"…the entire landscape of Otago is dotted with sites of significance. These places did not function in isolation from one another, but were part of a wider cultural setting that included not only sites as defined by the presence of archaeological remains, but*

[9] Mahinerangi Wind Farm Resource Consent Application, Volume 1 Assessment of Effects Section 5.7.2

all manner of highly valued places that were named by the earliest inhabitants of the area."

4.12 Locations in the surrounding area that are indicated on '*Ka Huru Manu',* the online Ngāi Tahu Atlas, are Te Papanui (Lammermoor Range), Makarara (Deep Stream), Makarara[10] (Lee Stream), and a track between the Taieri plains and Strath-Taieri that roughly follows SH87.

4.13 The area is also associated with gold mining history. It was part of the Otago gold rush of the 1860s and was subsequently worked through hydraulic sluicing, quartz mining, and gold dredges. There are historical relics in the area adjacent to the wind farm at the head of Lammerlaw Creek and the name of Eldorado Track recalls the gold mining history. The Waipori Junction township associated with the gold mining was flooded by Lake Mahinerangi in the mid-1920s. Some water races originally constructed for gold mining were repurposed as part of the Deep Stream hydroelectric scheme.

5 RELEVANT PROVISIONS

5.1 Relevant provisions and other non-statutory matters are summarised in **Appendix Three** to help provide the policy context for the landscape assessment. While the landscape report does not comprise an assessment of the project against the relevant provisions, the landscape assessors are cognisant of the policy directions in carrying out the assessment.

6 PROPOSED CHANGES TO THE CONSENT

6.1 The proposed changes are detailed in the **Project Description** within the A.E.E. The following summarises aspects relevant to the assessment of landscape and visual effects.

Wind turbine height and numbers

6.2 As discussed, the existing consent provides for up to 100 wind turbines within a maximum installed capacity of 200MW. The proposed changes include the following:

- Increasing the maximum installed capacity from 200MW to 226MW [condition 11].
- Reducing the maximum number of wind turbines from 100 to 56 [condition 12], comprising 44 Stage 2 wind turbines in addition to the 12 existing Stage 1 wind turbines.
- Increasing the maximum wind turbine height to blade tip from 145m to 165m [condition 17].

6.3 These changes would enable the use of wind turbines currently available that have a greater generation capacity.

Wind turbine locations and circles ('Contingency Zones')

6.4 The existing consent identifies 100 approved nominal turbine locations, each with a 100m radius Contingency Zone within which the wind turbine and hardstand are to be located. The 100m radius Contingency Zones are further reduced by exclusions such as 50m Windfarm Buffers from

[10] Both streams have the same name in the Atlas

areas identified as having ecological value (i.e. there are 'bites' out of the circles). TWP seeks changes that include:

- Shifting the centre of the Contingency Zones (nominal turbine locations) by short distances (between 10m and 160m) in thirteen instances to better respond to environmental constraints.
- Revising the Contingency Zone exclusions such that they would be constrained by 10m setbacks to wetlands (consistent with the NES-F which was not in place at the time of the original consent) or to comply with natural features such as the rim of gullies, while continuing to comply with the Stage 2 Windfarm Development Area (`'Stage 2 WFDA').[11]
- Increasing the 'hardstand' at each location from 1400m^2 to 1855m^2.
- Providing for a 5.5m road width (with localised exceptions to 9.5m) for both construction and operations. The existing Condition 15 b provides for the formation of a 12m road width for construction narrowing to 5m carriageway post construction.
- Removing 34 of the approved locations from the wind farm. That leaves a balance of 54 potential locations amongst which to distribute the proposed 44 Stage 2 wind turbines.

Layout pattern and numbering

6.5 To help with describing the wind farm layout, wind turbine locations are grouped into six geographic areas (a 'spine' and five 'spurs') with respect to the landform – as depicted in **Figure 6**.

6.6 However, different numbering has been used for the proposed wind turbine locations (2025 numbering) compared to that used for the approved wind turbine locations (2008). The numbers are correlated in **Appendix Four.**

Geographic area	Potential WTG locations under existing consent (2008 numbering)	Proposed potential Stage 2 WTG locations (2025 numbering)	Description
Spine	18, 20, 22, 23, 24, 31, 52, 53, 54, 55, 56, 57, 38 (13)	18, 19, 20, 21, 23, 24, 41, 42, 43 (9)	The line of wind turbine locations and main access road follows the crest of the peneplain which includes spot heights of 729m and 725m. Areas to the west outside of the wind farm site are generally tussock (although there are some areas of pasture conversion), and those to the east are already improved pasture.
Northeastern spur	1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (10)	1, 2, 3, 4, 5, 6. 7, 8, 9 (9)	The north-eastern spur comes off the northern end of the main spine near the Black Rock Station airstrip. The access road crosses a tributary of Lee Stream to reach the spur and otherwise follows four plateau fingers between the headwater tributaries. The northern-most WTG is just north of spot height 675m

[11] There are minor changes proposed to the Stage 2 Wind Farm Development Area to accommodate access roads to WTG 37, 50 and 52. These are described and assessed in Appendix 5.

Eastern spur	11, 12, 13, 14, 15, 16, 17, 19, 21 (9)	10, 11, 12, 13, 14, 15, 16, 17 (8)	The eastern spur also comes off the spine road near the Black Rock Station airstrip and follows three plateau fingers between headwater tributaries of Canton Stream.
Southeastern spur	25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51 (25)	22, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 (17)	The southeastern spur connects at an angle in the middle of the main spine. The spur contains the 729m spot height and is watershed between Broad Stream and Black Rock Stream catchments. The access roads and wind turbine locations follow the crest of plateau fingers between headwater tributaries of both streams.
Southern spur	**58,** 59, 60, 61, 62, **63,** 64, **65,** 66, 67, **68, 69,** 70, 71, 72, **73,** 74, 75, 76, 77, 78, 79, **80,** 81, 82, **83,** 84, 85, **86,** 87, 88, **89, 90,** 91, 92, 93, **94,** 95, 96 (39) (existing 12 Stage 1 WTGS highlighted)	44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, (11)	The southern spur is off the southern end of the main spine near the entrance to the Black Rock Scientific Reserve. It comprises the watershed between Broad Stream/North West Creek to the east, and Lammerlaw Creek to the west. Eldorado Track runs up onto the spur which includes spot heights of 737m, 665m, and 666m. Stage 1 and Stage 2 wind turbines will be mixed in this group.
Southwestern spur	97, 98, 99, 100 (4)	(0)	The southwestern spur is on the far side of Lammerlaw Creek and is accessed from the road through the Black Rock Scientific Reserve. It is referred to as 'the Thomas block'. The spur is in what was identified as quality tussock grassland. The wind farm consent currently provides for 4 wind turbine locations on this spur. The proposed changes would remove these potential locations.
Totals	100	54	

7 EFFECTS OF PROPOSED CHANGES TO CONSENT

Introduction

It is the effects of changes to conditions that are to be considered

7.1 For the change to conditions application, the effects to be considered are those arising from the proposed changes to conditions – that is, the effects of the proposed changes compared to the effects of the approved activity.[12] The changes relevant to landscape and visual effects include

[12] Clause 23 of Schedule 5 to the Fast-track Approvals Act 2024 provides that for the purposes of section 81 (which relates to decisions on approvals sought in substantive applications), when considering an application for the change or cancellation of a condition, the panel must apply sections s127(1) and (3) of the Resource Management Act 1991. Section 127(3) provides that applications to change or cancel consent conditions are to be treated as a discretionary activity. Further, that references to a resource consent and to the activity in the Resource Management Act are references only to the change or cancellation of a condition and the effects of the change

the increase in wind turbine size (the proposed 20m increase in height), the limit in wind turbine numbers, changes to some of the approved civil engineering components (hardstand size, road width, spoil disposal sites), shifts to the centre of the Contingency Zones (nominal turbine locations) in some instances, and changes in the extent of exclusions[13] to the wind turbine Contingency Zones.

Potential effects

7.2 The following potential effects of the proposed changes were identified:

- Adverse and positive **effects on natural landscape** arising from changes to civil engineering components – considering such factors as natural landform, vegetation, water bodies.
- Adverse and positive effects on **amenity values** arising from changes in wind turbine size, numbers, and locations – considering such factors as dominance, scale relationship between the wind farm and landscape, rural character, aesthetic coherence, and public and private views, wind turbine numbers, and removal of some wind turbine locations.
- Potential adverse and positive effects on the **outstanding natural landscape** values of the Lammermoor Range.

7.3 The following section analyses each of these potential effects.

Effects on natural landscape values

7.4 **Appendix Five** tabulates an analysis of the civil engineering components site-by-site. It describes and assesses the effects of changes to wind turbine locations, Contingency Zones, road alignment, and surplus fill disposal sites.

7.5 The following section summarises that analysis and outlines the extent to which the proposed layout avoids or minimises effects on the natural landscape having regard to such factors as landform, vegetation and watercourses.

Landform

7.6 The wind farm pattern conforms to the landform. The roads and wind turbine locations follow the crests of the peneplain and its fingers. The proposed roads are similar to the routes depicted in the consented wind farm layout, acknowledging that they have now been designed to a greater level of detail.

7.7 The centre of the Contingency Zones will not change from the approved layout in most instances.[14] In the thirteen instances where changes are proposed, the shifts are localised (between 10m and 160m) and are made to better fit the natural features and topography, or to increase separation from boundaries.

7.8 The proposed increase in hardstand size for each wind turbine from 1400m^2 to 1855m^2 will be 'offset' by the reduction in overall wind turbine numbers. For example, compared to the potential total 140,000m^2 hardstand area provided for by the existing consent, the total

respectively. That is, it is the effects of the change or cancellation of a condition that is required to be considered, and this involves a comparison of the proposed changes compared to the effects of the approved activity.

[13] The 'cut-outs' of the 100m radius Contingency Zone circles in response to various constraints

[14] WTG locations 5, 18, 20, 23. 39, 40, 42, 43, 45, 47, 50, 51. 52.

hardstand of the existing Stage 1 and proposed Stage 2 wind turbines would amount to approximately 100,000m^2. [15]

7.9 The indicative civil design depicts most of the hardstands in shallow cuts in the relatively easy terrain of the peneplain surfaces – cut batters therefore face into the platforms.

7.10 While the existing consent requires road carriageways to be reduced to 5m following construction, the landform modification (i.e. formation width) to accommodate the 12m construction carriageway provided for under the existing consent would be permanent. The proposed changes would reduce the formation width by providing for 5.5m carriageway for both construction and operations with localised widening to a 9.5m wide carriageway on bends. The earthworks and effects on landform will therefore be reduced.

7.11 The overall road length will also be reduced compared to the potential 100 wind turbine locations because of the removal of wind turbine locations.

7.12 Surplus fill disposal (SFD) sites depicted on plan BMP W07190/2 are provided for in the approved layout under the existing consent. Proposed changes to the SFD sites are shown on the indicative Stage 2 civil plans. In most instances, proposed SFD sites in are the location of, or nearby, SFD sites in the approved layout. Minor changes are proposed to their configuration to suit the indicative Stage 2 earthworks layout design. That is, they are changed so that they fit the now more detailed design for wind turbine hardstands, roads, and laydown areas. Changes are also proposed in response to a more detailed identification of wetlands.

7.13 SFD sites are distributed so that they are adjacent to, or near, each wind turbine location, with additional sites adjacent to roads and other components (e.g. the substation, BESS, O&M depot). The distribution minimises potential haulage, and the size of individual SFD sites. The SFD sites are all on flat land on the peneplain surfaces – they are designed to be 'blanket fills' on the peneplain surface rather than, for example, filling gullies. They are on areas of pasture – either improved pasture or grazed rough pasture.

7.14 The approved Windfarm Development Area was informed by environmental constraints during the original consenting process, including siting wind turbines in response to the land contours, avoiding ecological or buffer areas where practicable, minimising earthworks, and managing visual effects. The Stage 2 earthworks layout depicted on the civil plans are within the approved Windfarm Development Area with minor exceptions in which case changes are proposed to the boundary of the Stage 2 Wind Farm Development Area.[16]

Vegetation

7.15 The wind turbine locations remain in areas of improved or rough pasture as with the approved layout under the existing consent. The rough pasture includes scattered tussocks, and some drifts of identified 'denser snow tussock pasture' – but this is common to the existing consent. The earthworks design was modified where practicable to reduce encroaching on such areas.

[15] 12 x 1400m^2 = 16,800m^2 and 44 x 1855m^2 = 82,620m^2.

[16] The Stage 2 Wind Farm Development Area incorporates minor changes to accommodate access roads to WTG 37, 50 and 52, temporary laydown areas at WTG 7, and hardstands at WTG 39 and 52. These changes are assessed in Appendix 5. Any adverse effects of these changes are at most 'very low'. In most instances, they will lead to positive effects compared to the approved layout.

7.16 The removal of the four wind turbine locations from the Thomas property will avoid an area of high-quality tussock[17]. Similarly, the removal of one consented wind turbine location from the QEII Trust area[18] will avoid the high-quality tussock in that area. Removal of these will have positive effects compared to the existing consent.

Watercourses

7.17 As noted above, the wind farm layout avoids the gullies and watercourses by following what is essentially an inverse pattern along the crests of the peneplain and its fingers.

7.18 There is only one location where the roading crosses a stream, a headwater tributary of Lee Stream, to access the northern spur. In that instance, the crossing point is next to an existing farm track and culvert. This is at the same location as provided for in the original consent. In that instance, adverse effects on the stream and associated wetland are minimised through the culvert design and mitigated through restoration (fencing and revegetation) of adjacent stream margins. This is discussed further below under the heading 'natural character' with respect to the regional consents.

7.19 There is also one location where the roading will intersect perched wetlands at a saddle on the peneplain. The existing farm track and access route in the approved layout traverse one of the wetlands. The proposed Stage 2 indicative design relocates the existing farm track 50m to the true saddle which would have a slightly better fit with topography and minimise effects on natural hydrology. The existing farm track embankment and culvert is to be removed. As above, this is discussed further below under natural character.

7.20 The Contingency Zones will retain the same (up to) 100m radius as in the conditions and approved layout, but it is proposed to change the configuration of the circles to natural features. The existing consent has generic 50m Wind Farm Buffers from gully rims. It is proposed that the Contingency Zones instead be trimmed to 10m from identified wetlands[19] consistent with the National Environment Standards for Freshwater 2020[20] or to keep the Contingency Zone to areas of pasture and follow the edge of the gully rims. The proposed approach conforms to natural landscape features. The ecological evidence is that the approach provides appropriate buffers.

Summary of effects on natural landscape values

7.21 In the context of the civil engineering necessary to build a wind farm, the proposed layout will minimise adverse effects on the natural landscape. Such an outcome is a function of an amenable site, and of the design being shaped to the site. At most there will be 'low' adverse effects at specific locations compared to the existing consent and, in some respects, positive effects.

[17] Identified in the consented windfarm layout as 'development within high-quality tussock (T) area.
[18] Identified in the consented windfarm layout as 'development within covenanted (C) area.
[19] There are four instances where the indicative earthworks layout for the wind farm encroaches into the 10m buffer from wetlands, and five instances where indicative earthworks for the transmission line access encroaches into the 10m buffer. The effects of these encroachments are assessed in Appendix Five and in terms of natural character at paragraphs 9.4 – 9.19 (with respect the wind farm), and at paragraph 9.28 (with respect the transmission line access). The effects are assessed from an ecological perspective in the Aquatic Ecology and Wetland Ecology Reports (SLR – Aquatic (2025) and SLR (2025)).
[20] The standards were not in place at the time of the original consent.

Effects on amenity values

The existing environment for the purpose of comparison

7.22 As noted already, the consent provides for up to 100 wind turbines with a maximum installed capacity of 200MW, and a maximum height of 145m. Stage 1 has 36MW installed capacity so that Stage 2 has a maximum capacity of 164MW. The consent does not prescribe the MW capacity or the rotor diameter of the wind turbine model. At the time of consenting, a 2MW model was one option which TrustPower (the then consent applicant) advanced. However, given the advances in wind turbine technology, a 2MW model is no longer readily available. To assess the effects of the proposed changes, comparison has therefore been made with a wind turbine model currently available on the market, being a 3.45MW model with 136m rotor diameter and 145m overall height.[21] The current maximum installed capacity would limit Stage 2 to 47 wind turbines of this model. This is considered a conservative but '**realistic consented Stage 2'**.

7.23 The following section analyses effects on amenity values considering such factors as dominance of wind turbines to people, scale relationship of the wind farm to the landscape, rural character, aesthetic coherence, wind turbine numbers and locations, and public and private views.

Dominance in relation to people

7.24 Dominance (in this context) is a function of relative size and proximity of the wind turbines to people. The proposed changes in height of the wind turbines will have few adverse effects with respect to dominance for the following reasons:

- Public proximity to the wind turbines is limited to the end of Eldorado Track which is a no-exit, unsealed, local road. It provides access the Black Rock Scientific Reserve, the Deep Stream hydroelectric scheme, and the walking track to Te Papanui Conservation Park. Otherwise, the likely reason for driving to the end of the road would be to visit the wind farm, part of the attraction of which is to experience the size and movement of the wind turbines. All wind turbines are dominant at close quarters. The increase in height will only add to such qualities.[22]
- Otherwise, the wind farm is sufficiently distant from formed public roads and non-participating houses that the increase in height would have very low effects on dominance. The nearest dwelling – the crib on the Thomas property – is 1.5 km from the nearest proposed Stage 2 wind turbine at which distance the increase in size would have very low effects on dominance, especially considering that the nearest Stage 2 wind turbine will be approximately 200m further than the nearest existing Stage 1 wind turbine. (It is noted that four wind turbines are provided for on the Thomas property under the existing consent. TWP proposes to remove these locations from the consent.)
- The next nearest dwelling on a non-participating property is 2.7 km away at which distance the increase in wind turbine height would be perceptible but would have no effect on dominance.

Scale in relation to landscape

7.25 Wind turbines are typically seen in a scale relationship with the broad landscape because of the absence of other scale references. In this instance, the consented wind farm is visually anchored

[21] An overall installed capacity of 198MW including the 12 x 3MW existing Stage 1 wind turbines.
[22] The same comments would apply to anyone who chose to walk the unformed legal road along the 'spine' of the wind farm

by the expansiveness and apparent mass of the slightly domed peneplain landform. The 20m increase in wind turbine height will have 'very low' effect in this context, especially given that the 'realistic consented Stage 2' that was applied for assessment purposes and 'proposed Stage 2' have the same rotor diameter. The wind farm will continue to be anchored by, and in scale with, the broad landscape.

7.26 In addition to remaining in scale with the landscape, the wind farm's layout will also continue to conform to the pattern of the peneplain crest and fingers.

Rural character

7.27 The Environment Court decision considered that the consented wind farm is appropriate in its rural setting. That decision also recognised that the landscape character includes existing energy generation infrastructure (i.e. the hydroelectric projects and electricity transmission).[23] The proposed changes in conditions, including the increases in wind turbine height and refinements to the civil engineering, will have no further effect on rural character. The farming activities that underpin rural character will continue beneath the wind turbines. The wind farm will remain appropriate in this setting.

Aesthetic coherence

7.28 Aesthetic coherence (in this context) includes consideration of the consistency of appearance between wind turbines across the wind farm. The main factor in this respect is rotor diameter. Differences in height are less perceptible because wind turbines are installed at different elevations in response to undulating topography. The 20m increase in height will be perceptible from some locations but will have a 'very low' degree of effect on aesthetic coherence given the 'realistic consented Stage 2' and the proposed Stage 2 have the same rotor diameter.

7.29 There will be some adverse effects on aesthetic coherence comparing the existing Stage 1 and proposed Stage 2 wind turbines. The differences would be a combination of a 40m difference in height (the Stage 1 wind turbines are 20m lower than enabled by the consent), and rotor diameters (Stage 1 wind turbines have a 90m rotor diameter compared to the proposed 136m diameter). Such effects will be confined to the southern end of the wind farm where the Stage 1 and Stage 2 wind turbines will be interspersed (i.e. the area around the 'south spur' with the main viewing audiences in that area being the Mahinerangi Fishing Village and along Eldorado Track) and will be of a 'low' degree. However, such aesthetic coherence effects would also occur between the existing Stage 1 and the 'realistic consented Stage 2'. Condition 20 requires that *"all turbines used within the wind farm site shall be similar in size and appearance."* The Environment Court decision (15 December 2008) made the following comment with respect to this condition: "*ULPS seeks that the turbines be the same rather than similar in size and appearance. We agree entirely with TrustPower that a requirement for turbines to be the same may be an impossible requirement. Given that the consent is to be implemented over ten years, we consider it unlikely that any manufacturer would be manufacturing exactly the same turbine over that period. Furthermore, the Court had no particular concern if there was a change in the megawattage of a turbine. The intent of a clause was to try and maintain a visual similarity rather than an identical size or function."*[24]

[23] For example, see *Upland Landscape Protection Society Incorporated v Clutha District Council, Otago Regional Council and Trustpower*, Decision No C 85/2008 [Interim Decision] paragraphs 99 and 252-254.
[24] Upland Landscape Protection Society Inc., v Clutha District Council and ors, Decision No. C140/2008, 15 December 2008, paragraph 29.

7.30 Such effects will not occur at all in the northern two-thirds of the wind farm where all wind turbines will be the same size and appearance (that is, from WTG location 43 north and comprising the groups of wind turbines on the main spine, and the southeastern, eastern, and northeastern spurs).

Wind turbine numbers and locations

7.31 As discussed above, 47 wind turbines could be installed as part of a 'realistic consented Stage 2' using wind turbines available on the market within the 200MW generation cap (i.e. a real-world scenario). The slight reduction in the total Stage 2 wind turbine numbers proposed[25] from 47 to 44 (6%)[26] would have a positive effect but only to a 'very low' degree.

7.32 The application seeks to change Condition 11 to increase the limit on installed generation capacity from 200MW to 226MW. Condition 11 was proffered by TrustPower to address constraints on the National Grid connection at that time and not to manage environmental effects. Although the condition does practically limit the number of wind turbines depending on the generation capacity of the selected model, the Environment Court decision noted that 100 wind turbines would be acceptable with respect to environmental effects irrespective of the generation capacity of the wind turbine model selected.[27] There are no landscape effects per se from increasing the capacity of the wind farm although increasing the renewable electricity generation from the same area would be a more efficient use of the landscape resource.

7.33 While 2MW wind turbines are no longer considered a realistic scenario, it is still relevant to note that the completed wind farm will comprise fewer and larger wind turbines that the potential 100 wind turbines contemplated under the consent. One effect of larger wind turbines is slower rotation which has a more graceful appearance. It is understood that a 4.3MW 136m diameter wind turbine that would be enabled by the proposed changes has a rated maximum of 10.8 rotations per minute compared, for example, to 18.4 rotations per minute for the 3MW Stage 1 wind turbines – and that larger wind turbines similarly rotate slower in any given wind below the rated maximum.

7.34 The proposal to remove 34 of the approved 100 wind turbine locations would have positive effects on amenity values and the natural landscape.

- The most significant benefit would be the removal of the four wind turbine locations on the southwestern spur (i.e. the Thomas block). This area is an outlier to the rest of the wind farm. It is closer to the Lammermoor Range and on the opposite side of the Lammerlaw Stream that is a natural boundary from the rest of the wind farm. The area on the Thomas block is also characterised by higher quality snow tussock[28] in contrast with the rest of the wind farm which is largely in modified pasture. Positive effects include avoiding an area with higher natural landscape values and increasing the separation between the Lammermoor Range and the wind farm by approximately 1km. [29]

[25] Including the 12 existing Stage 1 wind turbines.
[26] Or from 59 wind turbines overall to 56 including Stage 1 (5% reduction).
[27] Decision N. C 140/2008, paragraphs 15 – 23.
[28] *Upland Landscape Protection Society Inc., v Clutha District Council and ors*, Decision No. C140/2008, 15 December 2008, paragraph 121.
[29] See the separate heading below: 'Effects on the outstanding natural landscape values of the Lammermoor Range'

- Removing approved wind turbine locations WTG 29 and 30 will increase the setback of the wind farm from Black Rock Runs Road by approximately 500m.

Public views

7.35 Potential effects on views will continue to be confined to roads and properties in the surrounding rural setting, and from the natural areas on the Lammermoor Range discussed above – including from Te Papanui Conservation Area. Photo simulations to illustrate the proposed changes from 8 representative public viewpoints are attached (**Attachment. Plans and Photo simulations (separate A3 document)**). The following is a commentary on each viewpoint.

Viewpoint 1. SH87

7.36 The viewpoint represents views from the north-east and from SH87. It is at a high point on the road, providing a clear view from the highway. It is approximately 11 km away.

7.37 The changes between the consented and proposed wind farm would be difficult to perceive at this distance, even comparing before and after photo simulations. More pertinently, any perceived differences will not affect landscape character and values. There will be no change in effects on such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, aesthetic coherence amongst the wind turbines, consistency between the wind farm and underlying landform, and the values of the Lammermoor Range. Any adverse effects would be 'very low' – they would be considered negligible or 'de minimis'.

Viewpoint 2. Black Rock Runs Road

7.38 The viewpoint represents views from the east. The viewpoint is between the two nearest non-participating properties on Black Rock Runs Road. It is approximately 3.7 km from the nearest proposed wind turbines.

7.39 The wind farm is elevated and the focus of the view. The most visible wind turbines are those in the northern and eastern parts of the wind farm – the southern wind turbines are partly screened by topography. The wind farm appears coherent with the underlying landform. The midground shelter belts provide some perspective depth.

7.40 The changes between the consented and proposed wind farm are perceptible when comparing the before and after photo simulations, although passersby would not have the benefit of such comparison. The perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low'.

Viewpoint 3. Maunsells Dip Road

7.41 The viewpoint represents views from the east. It is from a high point on the road which provides a clear view. It is approximately 4.2 km from the nearest proposed wind turbines.

7.42 From this angle, the wind turbines in the southern part of the wind farm are more visible, so the wind farm occupies a wider angle of view compared to viewpoint 2. The foreground and midground topography and shelter belts provide a greater degree of perspective depth.

7.43 The changes between the consented and proposed wind farm are perceptible when comparing between before and after photo simulations, although passersby would not have the benefit of such comparison. The perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low'.

Viewpoint 4. Eldorado Track

7.44 This viewpoint represents views from the south. It is from an elevated and open location on Eldorado Track just north of the intersection with Mahinerangi Road. It is 4.7 km from both the nearest Stage 2 wind turbine (WTG 37) and the nearest existing Stage 1 wind turbine.

7.45 The most visible wind turbines are those on the south-eastern and southern spurs. The northern parts of the wind farm are visible but distant and partly screened by topography. The foreground and midground topography, buildings, and shelter belts contribute to perspective depth of the view so that the wind farm appears in the far midground. The Lammermoor Range is distinct as part of a different and separate background landscape character area.

7.46 The changes between the consented and proposed wind farm are perceptible when comparing between before and after photo simulations, although passersby would not have the benefit of such comparison. The perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, consistency between the wind farm and underlying landform, or the values of the Lammermoor Range. While the difference in size between the consented/proposed wind turbines and the existing Stage 1 wind turbines is perceptible, it does not stand out as obvious, minimising any effects on aesthetic coherence. Any adverse effects would be 'very low'.

7.47 The proposed transmission line will cross the midground landscape in the right side of the view and will connect to the existing National Grid line at the pylon beyond the foreground house with the green roof. At its nearest (at the connection point), the proposed line is 800m away. It will use poles rather than the pylons of the existing transmission line. There will be 'low' adverse effects of the proposed line on visual amenity values from this viewpoint.

Viewpoint 5. Eldorado Track opposite 'Tarndale' farm

7.48 This viewpoint is from the southeast and represents one of the closer public viewpoints from Eldorado Track as one nears the wind farm. It is opposite the nearest part of 'Tarndale'. The nearest proposed Stage 2 wind turbine is 2.1 km away, and the nearest existing Stage 1 wind turbine is 2 km away.

7.49 From this angle, the most visible wind turbines are those on the southern and southeastern spurs. The northern parts of the wind farm are distant and largely screened by topography. The wind farm occupies a wide angle of view because of proximity. The foreground topography provides only a little perspective depth, so the wind turbines appear in the near midground. The

Lammermoor Range is distinct as part of a different and separate background landscape character area.

7.50 The changes between the consented and proposed wind farm are perceptible when comparing between before and after photo simulations, although passersby would not have the benefit of such comparison. The perceived differences will have little effect on landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, consistency between the wind farm and underlying landform, or the values of the Lammermoor Range. The effects on aesthetic coherence between the 'realistic consented Stage 2' and the 'proposed Stage 2' will be 'very low'.

7.51 While the difference in size between the consented/proposed wind turbines and the existing Stage 1 wind turbines is apparent, it is not particularly obvious. The existing and consented/proposed wind turbines appear generally similar. There would a 'low' degree of effect on aesthetic coherence amongst the wind turbines. However, this would occur in any event between the existing Stage 1 wind and the 'realistic consented Stage 2'.

Viewpoint 6. Mahinerangi Fishing Village

7.52 This viewpoint also represents views from the southeast, from the cluster of fishing cribs adjacent to Lake Mahinerangi. It is 5.6 km from the nearest proposed Stage 2 wind turbines, and 5.2 km from the nearest existing Stage 1 wind turbines.

7.53 From this viewpoint, the most visible wind turbines are those on the southern spur, although wind turbines on the southeastern spur are behind the skyline pine trees and would be visible from viewpoints further west. The wind farm occupies a relatively narrow angle of the view because the view is along the axis of the wind farm. The foreground and midground buildings and trees contribute to perspective depth so the wind farm appears in the background.

7.54 The changes between the consented and proposed wind farm are perceptible when comparing between before and after photo simulations, although passersby would not have the benefit of such comparison. The perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. The changes will have a 'very low' degree of adverse effects.

7.55 Likewise, while the differences between the consented/proposed wind turbines and the existing Stage 1 wind turbines might be apparent to someone paying special attention, they are not obvious. The existing and consented/proposed wind turbines appear generally similar – partly because the existing Stage 1 wind turbines are nearer to the viewpoint. The wind farm will retain aesthetic coherence.

Viewpoint 7. Waipori Road

7.56 The viewpoint represents views from the south, from an elevated viewpoint on the opposite side of Lake Mahinerangi. It is 7.3 km to the nearest proposed Stage 2 wind turbine and 6.8 km to the nearest existing Stage 1 wind turbine.

7.57 From this viewpoint, the most visible wind turbines are the clusters on the southern and southeastern spurs. The viewpoint is along the axis of the wind farm so that it occupies a reasonably narrow angle of view, and the far end of the wind farm is distant. The lake and topography contribute a little perspective depth, but the landscape is open. The wind farm appears in the far midground. The wind farm landscape is separate and different from that of the Lammermoor Range.

7.58 The changes between the consented and proposed wind farm are just perceptible when comparing between before and after photo simulations, although passersby would not have the benefit of such comparison. The perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, aesthetic coherence amongst the wind turbines, consistency between the wind farm and underlying landform, or the character and values of the Lammermoor Range. The changes will have a 'very low' degree of adverse effects.

Viewpoint 8. Lammermoor Range

7.59 The viewpoint represents views from the northwest. It is from the 'paper road' section beyond the locked gate on Eldorado Track – from the track used for access to the diversion pipeline on the Deep Stream hydro project. The viewpoint is within the ONL identified in the Dunedin City District Plan (the boundary of Te Papanui Conservation Park is approximately 1.6 km further west). The viewpoint is 1.9 km from the nearest depicted wind turbine on the Thomas property, 3.1 km from the nearest existing Stage 1 wind turbine, and 3.5 km from the nearest proposed Stage 2 wind turbine.

7.60 From this viewpoint, the wind farm occupies a wide angle of view. The nearest parts of the wind farm to the Lammermoor Scarp are the wind turbines on the southern and southwestern spurs – the northern parts of the wind farm trend away from the range. The base of most wind turbines is beyond the ridgeline which contributes to perspective depth. The land this side of the ridgeline is characterised by snow tussock cover and the pipeline and reservoir of the Deep Stream hydro project. The Thomas property is in the saddle on the right side of the photo, with the crib adjacent to short shelter trees.

7.61 The most obvious differences between the 'realistic consented Stage 2' and proposed Stage 2 are the two wind turbines depicted on the Thomas property in the former (four turbine locations are authorised in the consent). Removing these wind turbines increases the separation between the Lammermoor Range and the wind farm – from this angle the balance of the wind farm is beyond the ridgeline which contributes to perspective depth and means the wind farm would be in the far midground. There would be a positive effect.

7.62 Otherwise, the changes between the consented and proposed wind farm are just perceptible when comparing between before and after photo simulations, although passersby would not have the benefit of such comparison. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, aesthetic coherence amongst the wind turbines, consistency between the wind farm and underlying landform, or the character and values of the Lammermoor Range. The range will continue to be seen as distinct and separate. The changes will have a 'very low' degree of adverse effects.

Views from private properties

7.63 As noted, settlement density surrounding the wind farm site is low, with relatively distant separation from most dwellings on non-participating properties.

Distance[30]	No. of dwellings
0 – 1 km	0
1 – 2 km	1[31]
2 – 3 km	2[32]
3 – 4 km	1
4 – 5 km	3
5 – 6 km	39 (incl. 35 cribs at Mahinerangi Fishing Village)

7.64 Effects of the proposed changes on the amenity values of views from dwellings within 6 km are tabulated in **Appendix Six.** The houses referred to in the table are identified in Figure 1 in the **Attachment. Plans and Photosimulations (separate A3 document)**. The assessments are estimates made from roadside observations and desk-top analysis (photo simulations, topographic plans, aerial photos, digital terrain model).

7.65 The analysis indicated that the proposed changes would have 'low' adverse effects on the views from dwellings on two properties (the crib on the Thomas property, and 'Tarndale' Eldorado Track) and 'very low' adverse effects with respect to all other properties.

7.66 In summary, the changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' may be perceptible from some of the closer properties but is unlikely to be pronounced given that wind turbine height varies anyway in response to the undulating terrain, and that the rotor diameter would be the same between a 'realistic consented Stage 2' and the 'proposed Stage 2'. More importantly, any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, consistency between the wind farm and the landform, the appropriateness in terms of landscape character, and aesthetic coherence amongst the wind turbines.

7.67 Consideration was given to differences between the existing Stage 1 wind turbines and proposed Stage 2 wind turbines, even though such effects would occur in comparison with the 'realistic consented Stage 2'. Such differences will be apparent from properties nearest the southern end of the wind farm where the Stage 1 and Stage 2 wind turbines will be mixed. However, while apparent, the differences will not be pronounced. The wind turbines will be generally similar in appearance as indicated by the photo simulations. The differences in aesthetic coherence will contribute to the 'low' degree of effect on views from the two properties mentioned above.

7.68 It is acknowledged that people enjoy views from parts of their properties other than the dwellings, but dwellings are typically a focal point of a property and a practical location from which to consider effects.

[30] Distance to nearest potential Stage 2 wind turbine
[31] 1.5 km
[32] 2.7 km and 2.9 km.

Shadow flicker

7.69 Shadow flicker is related to visual effects but is analysed in a separate Shadow Flicker Report prepared by DNV. That assessment concludes that three participating dwellings are predicted to experience shadow flicker above a moderate level of intensity within 50 m of the dwelling. No non-participating dwellings are predicted to be exposed to theoretical shadow flicker above a moderate level of intensity.

7.70 When comparing between the consented real-world configuration and the proposed turbine layout, the revised design results in one fewer dwelling that is expected to experience shadow flicker. The shadow flicker conclusions for all other dwellings remain unchanged, and all impacted dwellings are participating dwellings.

Summary of effects on amenity values

7.71 Given the same rotor diameter as the 'realistic consented Stage 2', the 20m increase in height of the proposed Stage 2 might be perceptible from some locations but would have (at most) 'very low' effect on such factors as dominance, scale relationship of the wind farm to the landscape, rural character, aesthetic coherence, and consistency of the wind farm to the landform.

7.72 There would be a 'low' degree of effects on aesthetic coherence between the existing Stage 1 wind turbines and the 'proposed Stage 2'. Such effects would occur in any event with the 'realistic Stage 2'. They would be confined to the area around the south end of the wind farm.

7.73 The proposed changes would also have positive effects on such factors as slightly fewer wind turbines and the removal of specific wind turbine locations.

7.74 Overall, the effects of the wind farm will continue to be acceptable. The proposed changes will maintain landscape amenity values and the wind farm will continue to be appropriate in the landscape setting.

Effects on outstanding natural landscape values of the Lammermoor Range

Status and landscape values of the Lammermoor Range

7.75 Most of the Lammermoor Range west of the wind farm site is within Dunedin City and is scheduled as part of the 'High Country Outstanding Natural Landscape' in the second generation (2GP) Dunedin City District Plan and was scheduled as part of the 'High Country Outstanding Landscape' in the Operative District Plan 2006. The ONL was in place at the time the existing consent was approved. The mapped boundary follows Deep Stream and Barbours Stream so that the ONL includes both the scarp and plateau. Appendix A3.2.1 of the 2GP Plan describes the values to be protected (See **Appendix Seven** of this report).

7.76 The section of the Lammermoor Range west of the southernmost part of the wind farm is within Clutha District. The Clutha District Plan does not identify the Lammermoor Range as an ONL, but a 2015 report prepared for the District Plan review process[33] recommends that it be identified

[33] Clutha District Landscape Management Recommendations – Outstanding Natural Features and Landscapes (2015), Mike Moore Associates Landscape Architects

as such. We concur with that report's recommendation that the range be identified as an ONL, with the mapped boundary for the area west of the wind farm site, and with the values identified. (See **Appendix Six** of this report.) We have proceeded in our assessment as if the Lammermoor Range is an ONL.

Effects on ONL values

7.77 The proposed changes to the consent conditions (including changes to wind turbine size, numbers, and location) will have no adverse effects and some positive effects on the landscape values of the Lammermoor Range ONL for the following reasons:

- The proposed Stage 2 wind farm is in a separate landscape character area. It is demarcated by the scarp and differentiated by the difference in elevation and the contrast between the natural tussock on the range and modified farmland below.
- The northern two thirds of the wind farm is approximately 3.8 km – 4.0 km from the boundary of the ONL at Deep Stream. In this context, the proposed 20m increase in height will be barely perceptible and will not affect the values of the range.
- The south-west corner of the wind is closer to the Lammermoor Range, with the nearest approved wind turbine location approximately 150m from the toe of the scarp. In this area, the proposed removal of four wind turbine locations will have positive effects. The proposed changes will increase the separation to approximately 1 km, locate the nearest wind turbines in farmland rather than tussock, and place the wind farm on the opposite side of incised Lammerlaw Creek which is a natural boundary. The proposed changes will have 'moderate' positive effects on the nearest part of the Lammermoor Range. The 20m increase in wind turbine height will have no adverse effect on the values of the ONL in that context.

Summary of effects on ONL values

7.78 The proposed changes to the consent conditions will have positive effects, and no adverse effects, on the landscape values of the Lammermoor Range ONL.

8 PROPOSED NEW CONSENTS

8.1 New consents are required to modify wetlands and streams during wind farm construction because previous regional consents for the wind farm have expired. From a landscape perspective, the works at the wetlands and the stream crossing require consideration of natural character in addition to effects on natural landscape features already discussed above.

8.2 New consents are also required for a 110kV transmission line connection between the wind farm and the National Grid, including the substation and BESS. These are described in more detail in the AEE Project Description. In summary, components relevant to assessing landscape and visual effects include the following:

- A 33kV/110kV substation and a nearby BESS in the middle of the wind farm.
- A 6 km overhead 110kV transmission line between the substation and the existing National Grid 110kV transmission line adjacent to Eldorado Track.
- 25 pole structures.
- 6km of all-weather access tracks 4.5m in width.

8.3 A new consent is required for the operations and maintenance depot. It is proposed to locate the depot in the centre of the wind farm near the proposed substation, rather than adjacent to Eldorado Track as indicated in the approved layout under the existing consent.

9 EFFECTS OF PROPOSED NEW CONSENTS

Effects of construction works on natural character

9.1 As discussed, a new suite of regional consents is being sought for wind farm construction works. Such consents require, amongst other things, consideration of the preservation of the natural character of wetlands, and rivers and their margins.

Context

9.2 The peneplain surface is dissected by a lattice-like pattern of incised watercourses. Apart from occasional farm track crossings, and stock access, the watercourses generally retain their natural courses and beds. The surrounding land is a farming landscape that has been modified through pasture improvement and other farming activities, as well as through works associated with hydro-electricity generation and the existing/consented wind farm.

9.3 As discussed above, the access roads and wind turbine locations generally follow the watersheds along the crest and spurs of the peneplain – therefore following an inverse pattern that avoids wetlands and streams in most instances.

Lee Stream tributary

9.4 The wind farm access road crosses a stream and wetland in one location, a headwater tributary of the Lee Stream, which is crossed between WTGs 9 and 10. The crossing is necessary to access

the group of wind turbines on the north-eastern spur and is provided for under the original consents.[34]

Existing natural character

9.5 The wider natural character context is the catchment of Lee Stream, which is a tributary of the Taieri River. The Lee Stream catchment has an area of approximately 314 km^2. The catchment is mainly grazing farmland and exotic plantation forest. The tributaries in the upper catchment are mostly within open pasture. In places downstream, the riverbanks are lined with naturalised exotic trees (e.g. poplar and willow) and there are areas of remnant and regenerating bush in the gorges on lower sections of the catchment.

9.6 The proposed crossing point is in the upper catchment just downstream of two first order streams. The two upstream tributaries collectively have a catchment of less than 1 km^2. The stream[35] is less than 1m wide but had a steady flow at the time of the December site visit. It retains its natural meanders and bed. However, the stream is not fenced, and the margins are mainly pasture grasses with rushes and herbs (i.e. buttercup) characteristic of wet farmland. The banks are affected by stock trampling (pugging). The crossing point is immediately upstream of an existing farm track and culvert. There is evidence of previous excavation of the stream bed upstream of the farm culvert. The area immediately downstream of the existing culvert is a wetland (Wetland 22) the banks of which have been disturbed by recent plantation harvesting and replanting. In summary, the stream and its margins in the area surrounding the crossing point have a moderately modified appearance.

9.7 Ecological feedback is that water quality within the stream is high, with high dissolved oxygen concentrations (suitable to support fish communities) and low turbidity. Macroinvertebrate communities are diverse and community health metric scores are indicative of 'fair' quality conditions (using a scale of 'poor', 'fair', 'good', 'excellent'). The native non-migratory Eldon's galaxias (classified as 'Threatened – Nationally Endangered'), has been recorded upstream of the existing culvert and is expected to be present throughout the stream where there are suitable habitats (e.g., riffles and pools).[36]

9.8 Taking the biophysical and perceptual factors together, the stream is considered to have ‘moderate’ natural character. While the stream retains natural characteristics and qualities, there are equally widespread human induced modifications. However, it has characteristics that provide suitable habitat for Eldon’s galaxias.

[34] The consent for a culvert and embankment is still current, and it is in the location provided for in the approved layout. However, consents are required for such construction activities as temporary stream diversion and discharge to water.
[35] Also referred to as Wetland 20
[36] SLR – Aquatic (2025)

Figure 5. Headwater tributary of Lee Stream looking upstream from existing farm track and culvert toward proposed crossing location in immediate foreground.

Figure 6. Headwater tributary of Lee Stream looking upstream from proposed crossing location (immediately upstream of proposed replacement culvert).

Proposed works

9.9 The works will entail realigning the existing farm track approaches, constructing a larger fill embankment, and replacing the existing pipe culvert. The existing pipe is to be replaced by a box culvert embedded into the stream bed at the same gradient. The design will allow natural bed substrate and morphology to be maintained within the culvert to provide habitat for fish and macroinvertebrates.

9.10 Recommendations in the Aquatic Ecology report[37] include the following measures relevant to natural character:

- Fencing the lower section of the true right tributary upstream of the culvert and replanting including direct transfer of snow tussock along stream edge. The section of stream has characteristics favourable for spawning habitat for Eldon's galaxias such as riffles and streamside vegetation and/or small caves. The fencing and tussock planting are to enhance the spawning habitat.
- Recommendations for recovery of Eldon's galaxias and relocation to suitable habitat upstream of the works, along with recommendations on methods and timing of construction to minimise impact on the fish.

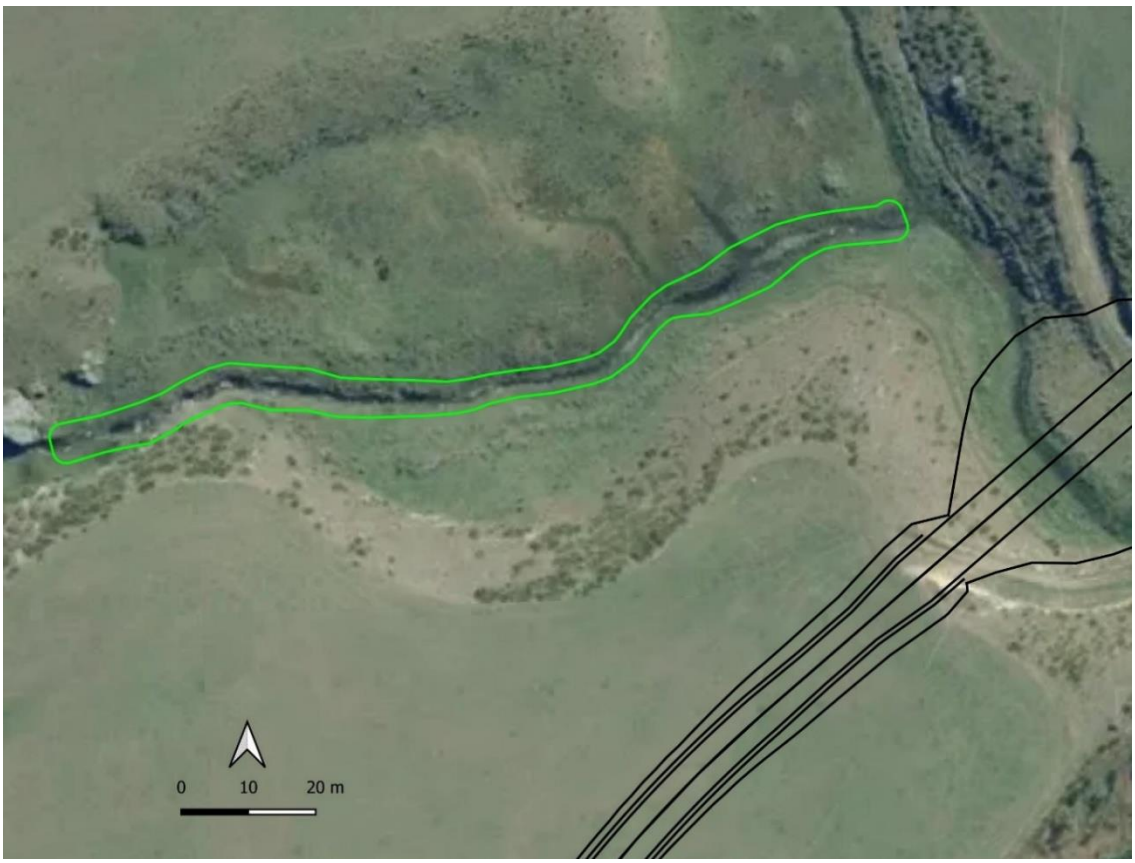

Figure 7. Diagram from SLR Aquatic Ecology Report[38] indicating proposed section of stream to be rehabilitated upstream of the proposed culvert.

9.11 The existing farm track and culvert are to be removed, and the area rehabilitated with wetland species which will merge with the wetland downstream. In addition, the Wetland Ecology

[37] SLR – Aquatic (2025)
[38] SLR – Aquatic (2025)

Report[39] recommends compensation mitigation for the estimated 154m^2 of wetland within the stream that will be lost to the new road and culvert. The compensation is described in the Wetland and Aquatic Compensation Plan.[40] In short, the mitigation entails fencing to facilitate natural regeneration of an area of 1.4 ha of degraded wetland, direct transfer of snow tussock as a buffer around the wetlands, monitoring and ongoing woody weed control.

Effects on natural character

9.12 While the road and culvert will be larger than the existing farm track, there will be little effect on perceptual aspects of natural character of the stream and its margins. The stream will continue to appear a natural feature within a modified farmland setting, acknowledging that such perceptions will be limited to those working the land given that there is no public access or visibility.

9.13 Effects on biophysical aspects of natural character will be addressed through the culvert design and the mitigation recommended in the ecology reports. The Aquatic Ecology report considers the replacement culvert will have positive effects on natural processes. The fencing and replanting of the upstream tributary will have positive effects on biophysical and perceptual aspects of natural character.

9.14 Overall, the stream's natural character will be preserved and enhanced.

Wetland 43

9.15 As discussed, the works will avoid wetlands located in gullies and valleys. In most cases there will be a 10m minimum buffer from wetlands. However, there are a perched wetlands in places on the peneplain surface, one of which cannot be avoided (Wetland 43).

Figure 8. Perched wetland on plateau adjacent to farm track. Photo also illustrates context of farmland plateau on which wind farm is located and backdrop scarp and Lammermoor Range.

[39] SLR (2025)
[40] SLR (2025b)

9.16 Wetland 43 is in a saddle on the peneplain. The wetland drains east and west of the saddle toward the Lee Stream and Deep Stream catchments respectively. The existing farm track crosses the wetland on a low culverted embankment just below the saddle.

Figure 9. Photo from Wetland Ecology Report, SLR (2025) illustrating farm track and low culverted embankment across perched wetland at saddle on peneplain.

Existing natural character

9.17 The wetland area is centred on an overgrown drainage channel, and the natural drainage is affected by the existing farm track. To the untrained eye, the area appears as wet pasture. It is affected by grazing and pugging. The ecological advice is that the vegetation has a high cover of exotic pasture species. However, the presence of an indigenous sedge (*Carex echinata*) that is an obligate[41] wetland (OBL) species, several facultative[42] wetland (FACW) species, and peaty wetland soils indicates the presence of wetland. The presence of sphagnum moss (OBL) to the east, along with the cover of tall rushes (FACW) and associated FAC and FACW species indicates the wetland also extends further to the east across the saddle.[43] The extent to which the wetland retains natural character mainly relates to biophysical aspects. It is considered to have a 'low-moderate' natural character because the modifications outweigh the natural characteristics and qualities.

Effects on natural character

9.18 The indicative Stage 2 earthworks layout will realign the road approximately 50m east of the existing farm track to the highest point of the saddle. The realigned road will occupy a footprint approximately 8m – 10m wide. The existing farm track, with its culvert and low embankment across the wetland, will be removed and the area rehabilitated following construction of the new alignment.

9.19 While there will be some disturbance during construction, the proposed works will have a positive effect on natural character. The alignment with the true saddle, and removal of the existing farm track, will return the hydrology to more natural patterns. Rather than following the fence line, the realigned road will also appear slightly better aligned with the topography. (It is noted that the approved layout indicated a spoil disposal site encroaching into the saddle

[41] Plants that always occur in wetlands under natural conditions
[42] Plants that normally occur in wetlands
[43] Refer SLR – Aquatic (2025)

wetland in this location.) The Wetland Ecology Report[44] recommends compensation mitigation for the estimated 322m^2 of wetland directly affected. Such compensation is outlined in Wetland and Aquatic Compensation Plan discussed above.[45]

9.20 Overall, the natural character of the wetland will be preserved and enhanced.

Development in constrained area 'D'

9.21 The area in the vicinity of WTG 23 and 25 was identified in the approved layout as 'Development within a constrained area D'. It is a neck between two gully heads containing wetlands. The proposed road alignment indicated in the Stage 2 earthworks layout crosses the middle of the neck on the alignment of the existing farm track and through an area modified by drainage. The formation for the 5.5m carriageway will be narrower than that for a potential 12m carriageway provided for under the existing land use consent. For these reasons, there will be no effects on natural character.

Summary of effects on natural character

9.22 The project layout minimises potential effects on natural character of wetlands and streams by following the peneplain surfaces, the inverse pattern to drainage. In the instances where one stream and two wetlands cannot be avoided, the effects will be minimised and remedied through the road alignment and culvert design. The residual effects will be remedied and mitigated through fencing and offset mitigation measures recommended in the ecology reports. Natural character will be preserved and, in some respects, enhanced. The works will remain appropriate in what is a modified farmland and energy landscape.

Effects of transmission and BESS infrastructure

Substation location and design

9.23 The substation site is identified as an area approximately 100m x 75m (0.75 ha). The indicative design indicates a security-fenced hard stand platform approximately 57m x 38m (0.21 ha) – with a 7m offset to a stock fence. The substation will contain a switch-room and control-room building, gantries and electrical 'bus-work', ground mounted 33kV/110kV transformers, and ancillary equipment. The identified location is centrally located between WTGs 27 and 31. The site is flat, in pasture, and adjoins a wind farm access road – minimising the earthworks required to form a platform. The site is in an unobtrusive location within a saddle in the middle of the wind farm. It is 2.5 km from the nearest road (Black Rock Runs Road) and set back approximately 700m – 800m beyond WTGs 28 and 29). Any effects on the natural landscape or amenity values will therefore be 'low'.

Battery energy storage system

9.24 The BESS site is identified as an area 70m x 60m (0.42 ha). The indicative design indicates a security-fenced hardstand platform approximately 60m x 51m with a similar 7m offset to stock fencing. The hardstand will contain arrays of battery containers mounted on concrete foundation pads, with transformers and an adjacent 288m^3 water storage tank for firefighting. The indicative design depicts battery containers 8.8m x 1.65m and up to approximately 3m high

[44] SLR (2025)
[45] SLR (2025b)

(roughly similar in size to shipping containers[46]). They are typically coloured white to reflect heat from the sun. The firefighting water tank would be a similar height. The BESS location is on the peneplain, in the centre of the wind farm, and adjacent to the substation and operations & maintenance facility. The location is unobtrusive, on flat terrain, in an area of pasture, and is well separated from public roads (2.6 km) or non-participating dwellings (2.6 km). As with the substation, any adverse effects on landscape or amenity values will be 'very low'.

Transmission line

9.25 The transmission line corridor is across land of participating properties. It is approximately 50m either side of an indicative design alignment. The corridor is aligned across fingers of the peneplain south-east of the substation to span a headwater gully of the Black Rock Stream, and across the plateau that forms the watershed between Black Rock Stream and Broad Stream – roughly midway between Black Rock Settlement Road and Eldorado Track. The corridor then turns south to span Broad Stream and follows a spur to the grid access point adjacent to Eldorado Track.

9.26 The transmission line will use steel poles rather than pylons (lattice towers). The poles are up to 45m high to the earth-wire peak. While they will be larger than those typically used for local distribution along rural roads, poles are generally considered to have a more ordinary and less obtrusive appearance than pylons. Using taller poles means that the additional height is offset by fewer poles and longer spans. The 15 spans are typically between 370m-450m, with one short span of 300m and one long span (across Broad Stream) of 680m.

9.27 The indicative transmission line design is approximately 6 km long and includes 15 spans and poles (P1-P15) for the transmission line itself, two poles at the substation, and up to eight poles at the tie-in to the National Grid line. The consent therefore provides for up to a total of 25 poles.

9.28 The corridor provides for poles to be installed in pasture on the gently rolling peneplain. Gullies and wetlands that fall within the corridor would be spanned by the conductors. The indicative design indicates that the corridor will be accessed from existing farm tracks (some of which may be upgraded) as follows without the need for additional stream crossings:

- Indicative poles P1-P2 can be accessed from an existing farm track that runs parallel to the indicative transmission alignment from Eldorado Track and WTG 37. The tower locations are immediately adjacent to the track. While the farm track continues across Broad Stream at an existing culvert, the towers on the north side of Broad Stream will be accessed from within the farm. Tower locations are adjacent to the track or would be accessible by tracks formed across flat pasture from the track.
- Indicative poles P3-P11 can be accessed by an existing farm track south of WTG 36. The track follows spurs near the watershed northeast of Broad Stream. The pole locations are adjacent to the track or can be reached by short tracks across open pasture. Likewise, indicative pole P12 will be reached by a separate short track from the wind farm access road north of WTG 36.
- Indicative poles P13-P14 will be reached by a track that follows a spur from the wind farm access road near WTG 32.

[46] Short 20-foot containers are 6.1m x 2.5m x 2.6m high. Long 40-foot containers are 12.2m x 2.5m x 2.6m high

- Indicative pole P15 will be accessed by a short track formed across flat pasture from the wind farm access road adjacent to the substation.

9.29 There are three instances where the access tracks will be within the 10m buffers of wetlands where natural character considerations arise.

- The track will require upgrading of an existing farm track on a stock dam across a headwater tributary of Broad Stream between indicative poles P6 and P7. The works will be within the 10m buffer of Wetland T30 which is immediately below the stock dam. Approximately 250m further east, the track will also require upgrading of an existing farm track on an embankment across the tributary. The works will be within the 10m buffer of Wetlands T26, T27 and T28 either side of the embankment. In both these cases, the wetlands have 'low-moderate' natural character. The tributary valley has been drained and the wetlands grazed. The wetlands have the appearance of wet rough pasture. The valley has been modified through stock dams and farm tracks. The surroundings are improved pasture. The works will not physically impact on the wetlands. They will entail unobtrusive trimming of the subgrade and reconstruction of the pavement surface only. Any adverse effects on the natural character of the wetlands will be 'very low' in degree.
- The spur access track to indicative pole P9 has a small encroachment (approximately 15m^2) into the 10m buffer of Wetland T16. The wetland has 'low-moderate' natural character considering the modified nature and the farmland setting of improved pasture. There will be no direct impact. The buffer infringement is very small and is due to avoiding adjacent rock outcrops. Any adverse effects on the natural character of the wetlands will be 'very low' in degree.

Public views

9.30 The transmission line will be remote from public roads except where it approaches the switching station at Eldorado Track. The grid access point will be at Tower 196 on the HWB-ROX-A 110kV line, which is approximately 110m from Eldorado Track, beyond the stockyards of 'Thornicroft' farm which are located adjacent to the road.

Figure 10. Tower 196 on HWB-ROX-A National Grid line viewed from Eldorado Track. The wind farm line will be connected directly to conductions on the pylon, requiring four adjacent poles, but avoiding a switch yard. The connection will be anchored by the farm stockyards on the left of the photo. The

alignment of the wind farm pole line is away from viewpoint along the peneplain finger towards the midground shelter belt in centre right of photo. Beyond the shelter belt, the alignment then turns to the left and follows the plateau in front of skyline shelter belt and passes behind the skyline hill in centre left of photo.

9.31 The tie-in will comprise a 'double hard tee'. That is, the conductors will connect directly to the existing line rather than being transferred through a switching station. It with entail splitting the two circuits on the wind farm transmission lines onto separate pole structures. One circuit will be connected via poles on the near side of the line. The other circuit will pass beneath the existing line (including low double-pole structures – or 'pi poles') to connect to the circuit on the opposite side of the line. To put it another way, the connection will have a complex appearance with different tower and pole designs. However, it will avoid the need for a switching station. The tie-in will not look out of place in the context of the existing transmission line. It is in an appropriate location anchored by the farm's working yard. It is approximately 1.2 km from the house on the nearest non-participating property ('Tarndale'). In summary, the transmission line, and the grid connection arrangement, will have 'low' landscape effects.

Views from private properties

9.32 The transmission line will skirt the rear boundaries of the farms at 555 Black Rock Settlement Road, 1876 Mahinerangi Road, and 256 Eldorado Track and will be relatively distant from the houses on those properties. The effects of the transmission line on views from houses on those properties is analysed in **Appendix Six**[47]. There will be 'very low' adverse effects on views from the houses at 555 Black Rock Settlement Road and 1876 Mahinerangi Road, and 'low' adverse effect on views from 256 Eldorado Track.

Summary of effects of the transmission infrastructure

9.33 In summary, the transmission infrastructure will be appropriate in the landscape and any adverse effects will be acceptable. The substation and associated BESS are in an unobtrusive location in the middle of the wind farm, on flat areas of pasture, and distant from roads and dwellings. The transmission line design and alignment minimise adverse effects on the natural landscape and visual amenity values. Any remaining adverse effects will be of a 'low' degree, restricted to public views from the immediate locality of Eldorado Track adjacent to the connection to the existing National Grid line and distant views from one property.

Effects of the proposed Operations and Maintenance Facility

9.34 The existing consent provides for an Operations and Maintenance Compound which is indicated on the approved layout adjacent to Eldorado Track. Consent is sought to construct such a facility instead in a more central location within the wind farm near WTG 32. The facility will comprise a security fenced hard stand area approximately 55m x 40m (2200m^2) that will be used for storage. The compound will contain a workshop shed and O&M building (a combined building footprint of 700m^2) and a sealed parking area of 830m^2.

9.35 The location is appropriate with respect to natural landscape features. It is on the peneplain surface, in an area of improved and rough pasture. The indicative civil design depicts a platform in shallow cut on its rear SW side and low fill batters on its front NE side. The access will be directly from the adjacent wind farm road. It is an unobtrusive location, distant from formed

[47] The last three rows in the table

public roads (2.7 km) and houses (4.2 km from the nearest house on a non-participating property). It is tucked behind a small hillock (RL 729) to the south of the site. It is in the middle of the wind farm, adjacent to the proposed substation and BESS, and surrounded by wind turbines.

Summary of effects of the Operations and Maintenance Facility

9.36 For these reasons, it is considered the O&M facility will have 'very low' adverse landscape and visual effects.

10 CONCLUSIONS

10.1 The proposed **changes to the existing consent conditions** will:

- Maintain **natural landscape values**. The layout has been designed to fit the natural landscape, retaining the same pattern as the consented wind farm. Any adverse effects of the proposed changes on the natural landscape will be 'low'. The changes will also lead to positive effects.
- Maintain **amenity values** and continue to be appropriate with respect to landscape character. Any adverse effects of the changes on amenity values will be of a 'low degree'.
- Protect the **ONL values** of the Lammermoor Range. The proposed changes will have positive effects and no adverse effects with respect to the ONL.

10.2 The **civil engineering** required to construct Stage 2 will largely avoid adverse effects on the **natural character** of wetlands and streams because the layout follows the crests of the peneplain and its spurs in an inverse pattern to hydrology. It follows a pattern very similar to the existing consent. The works will remain appropriate in what is a modified farmland and energy landscape. In those instances where one stream and perched wetland at a saddle on the peneplain cannot be avoided, natural character will be preserved through the design of the works, proposed restoration, and compensation mitigation measures Aquatic Ecology report and Wetland Ecology report.

10.3 The proposed **transmission infrastructure** (substation, BESS, 110kV transmission line) will be appropriate in the existing landscape given the existing energy generation and transmission. The design and location of the infrastructure, and the alignment of the line, minimises potential adverse effects. Any remaining adverse effects will be acceptable and of a 'low' degree. Likewise, the proposed O&M facility will be in an appropriate location and unremarkable within the wind farm. Any adverse effects will be 'very low' in degree. Landscape **amenity values** and **natural landscape values** will be maintained.

Simon Button/Gavin Lister
Isthmus
19 October 2025

APPENDIX ONE. AUTHORS' QUALIFICATIONS AND EXPERIENCE

Gavin Lister

1. My name is Gavin Craig Lister.

2. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023. This assessment has been prepared in compliance with that Code.

3. My qualifications include Master of Urban Design (University of Sydney, 2007); post-graduate Diploma in Landscape Architecture (Lincoln College, 1988); and Bachelor of Arts (University of Auckland, 1985). I am a Fellow and registered member of Tuia Pito Ora New Zealand Institute of Landscape Architects (NZILA).

4. I am a principal and founder of Isthmus Group. I have 37 years' experience on different project types including infrastructure, master planning, housing and land development, public places, and landscape input to policy planning. The following selection focuses on **infrastructure projects** relevant to the proposal:

    - **Wind farm experience** includes the approved variation to increase the height of wind turbines at Stage 2 of the Kaiwera Downs Wind Farm, the recently constructed Waipipi Wind Farm in South Taranaki, the recently consented Kaiwaikawe Wind Farm in Northland, the earlier consented Hauāuru mā raki (Waikato), and Waitahora (Southern Hawke's Bay) Wind Farms, and input on behalf of Council to the wind farms on the Maungaharuru-Te Waka Range in Hawkes Bay. Currently I am involved in scoping and assessments of potential wind farm sites for different generators, including the Huriwaka Wind Farm in the central North Island.
    - **Transmission experience** includes transmission components of wind farms outlined above, and projects for Transpower. I led the landscape component (assessment, evidence, design) for the 400kV capable North Island Grid Upgrade Project (now BHL-WKM A), undergrounding of the OTA-WKM A & B lines at Flat Bush, Series Capacitor Site for the BHL-WKM A line, and North Taranaki Interconnection Project (reconfiguration and realignment of the NPL-SFD A and CST-NPL A lines) and provided input to the Transpower Auckland Strategy. I am currently involved in the Waikato Upper North Island (WUNI) upgrade project.
    - Experience on **other infrastructure** includes the Ōhau to North of Levin expressway (Roads of National Significance (RoNS), East-West Link Project Auckland, Transmission Gully RoNS, Pūhoi to Warkworth RONS (technical advisor to NZTA during construction), Tauhara II Geothermal Power Project, Ruataniwha Water Storage Project Hawke's Bay, the Additional Waitematā Harbour Crossing alternatives assessment, Auckland International Airport northern runway, Auckland Light Rail project, and Auckland Downtown Ferry Terminal. I was also involved with Boards of Inquiry for the Ruakura Plan Change (on behalf of Hamilton City Council) which included a rail and freight base, and the Waterview Connection RoNS for the Environmental Protection Authority.

5. I am familiar with **resource management matters** with respect to the assessment of landscape, visual and natural character matters including the following relevant experience:

    - Evidence to the Environment Court and Boards of Inquiry over 30 years.

- Co-author, with Rachel de Lambert and Alan Titchener, of '*Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.
- Author of 'NZTA Landscape and Visual Assessment Guidelines' (in NZTA Landscape Guidelines, Final Draft September 2014) and 'NZTA Urban Design Assessment Guideline' (in Bridging the Gap, NZTA Urban Design Guidelines, October 2013). I am currently engaged by NZTA to update these guidelines.
- Decision-making as a hearing's commissioner on approximately 55 hearing panels, mostly for Auckland Council.
- Member of Auckland Council's Urban Design Panel for 10 years and subsequently the Eke Panuku Technical Advisory Group (landscape and urban design panel) for the last 7 years.
- Advice to the Minister of Conservation on the proposed Milford-Dart Tunnel and Fiordland Link Monorail in relation to the World Heritage 'Statement of Universal Value', 2013.

Simon Button

6. My name is Simon Leigh Button.

7. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023. This assessment has been prepared in compliance with that Code.

8. My qualifications include Master of Landscape Architecture (University of Sheffield, 2014); and Bachelor of Arts in Landscape Architecture with Town and Regional Planning (University of Sheffield, 2012). I am a registered member of Tuia Pito Ora New Zealand Institute of Landscape Architects (NZILA) and a current elected member of the board.

9. I am an Associate at Isthmus Group and have 11 years' professional experience across the United Kingdom and New Zealand Aotearoa across a range of sectors including renewable electricity generation, transmission, infrastructure, recreation, aquaculture, master planning, housing, land development, and landscape input to policy planning. The following selection focuses on **wind farm and transmission projects** relevant to the proposal:

    - **Wind farm experience** includes the approved variation to increase the height of wind turbines at Stage 2 of the Kaiwera Downs Wind Farm. I am also currently involved in wind farm projects for different clients in both the North and South Islands (however subject to non-disclosure agreements).
    - **Transmission experience** includes a range of projects for Transpower and Vector. I have been the lead landscape architect on transmission realignments and substation upgrades (and relocations), notably the upgrade of the existing 110kV substation to 220kV at Bombay. I am currently involved in the Waikato Upper North Island (WUNI) upgrade project.
    - Experience on **other renewable electricity generation and infrastructure** include authoring landscape assessments for large scale solar farm developments at Ongaonga, Karioi and Greytown; for the upgrade to the Te Mihi B Geothermal Power Station in Taupō; and involvement in transport infrastructure projects in the North Island including upgrades to the SH1 Loop Road alignment in Whangarei and upgrades to the Pukekohe Transport Network through the Strategic Growth Alliance.

10. I am familiar with **resource management matters** with respect to the assessment of landscape, visual and natural character matters including the following relevant experience:

    - Preparation and presentation of evidence on behalf of both applicants and Councils at Council hearings
    - Preparation and presentation of evidence at Plan Change.
    - Providing expert advice to both Councils and the Environment Protection Authority on landscape matters.

APPENDIX TWO. METHODOLOGY

Methodology

1. The assessment is consistent with 'Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines', published by Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. It adopts the methodology (the high-level concepts, principles, and approaches) of that document, and tailors the specific method to the landscape context and purpose of the assessment.

Method

2. Isthmus were engaged by the applicant to provide landscape advice and prepare a landscape and visual assessment to support the applications to change the conditions of the existing consent, to apply for lapsed regional consents, and to enable the construction of transmission infrastructure. The work was undertaken in discussion with other disciplines involved in the project, especially ecology and civil engineering.

3. The following summarises the specific method tailored to the situation.

- Review **previous documents**, including landscape assessment and graphic attachment, and the Environment Court decision.
- Review **relevant statutory planning documents** and other documents that contribute to understanding the landscape values and effects (listed in **Appendix Three**).
- Visit site and surrounding area – carried out on the 10th and 11th December 2024.
- Describe and interpret **landscape character and values**.
- Describe and interpret the **proposal** - i.e. the changes to the existing consent (increase in wind turbine size and generation capacity, limit in numbers and locations, changes to some locations) and the proposed new consents (substation, 110kV transmission connection to National Grid, BESS, regional consents relating to wetlands and stream).
- Identify **potential effects** of the **proposed changes** compared to the existing wind farm (including the already constructed Stage 1), in the context of the landscape values and statutory planning documents. That is, the effects of changes to the conditions of consent.
- Identify potential effects of the activities that would be enabled by the **proposed new consents** compared to the existing environment.
- Analyse **nature and degree of effects** of the proposed changes based on site visit and desk top analysis. The **nature of effect** is described and the **degree of effect** gauged against the following 7-point scale.

very low	low	low mod	moderate	mod high	high	very high

- In general, 'very low' can be characterised as negligible or 'less than minor'. 'Low' and 'low mod' can be characterised as 'minor'. 'Moderate' can be characterised as 'more than minor'. However, it is noted that that table is merely a tool to help describe the degree of effects (and other things). Terms such as 'no less than minor' relate to specific RMA tests and should be considered in an overall manner as a subsequent step.
- Prepare **photo simulations** from eight representative viewpoints selected to represent the range of public viewpoints - including views from each direction. Describe and assess the effects on landscape values from each viewpoint.
- Prepare an inventory of houses within 6km of the wind farm, estimate the **visual effects on the private views from each house** based on road-side observation and desk-top analysis

(aerial photos, topographic maps, photo simulation). Assess the visual effects of the proposed changes in the wind farm, and the proposed transmission infrastructure.

- Describe the **natural characteristics and qualities** of wetlands, streams and their margins that are potentially affected by the works. Assess the existing natural character including the degree of modification/naturalness and drawing on the Freshwater Ecology Report with respect to biophysical aspects. Describe the effects on natural character and assess the net natural character having regard to recommended mitigation – once again drawing on Freshwater Ecology Report.
- Reach an overall conclusion on landscape and visual matters, and natural character.

Photo simulations

4. Photo simulations are prepared consistent with the 'NZILA Best Practice Guide 10.2, Visual Simulations' (2010)'. They are printed in a separate A3 Graphic Supplement. The method is explained on the last page of that supplement.

5. The eight viewpoint locations were selected to best illustrate the effects of the proposed changes (rather than the wind farm per se which was the purpose of the photosimulation prepared for the Environment Court). Six locations are similar to those presented to the Environment Court hearings. In the case of locations presented to the Environment Court from private property, a nearby clear public road viewpoint was chosen. While it is normally good practice to confirm viewpoint locations with a reviewer, in this case the panel and technical reviewer have yet to be appointed.

Photo simulation viewpoint	*Equivalent EC hearing viewpoint*
Viewpoint 1. SH87 south of intersection with Old Dunstan Road (Clarks Junction) Viewpoint 1 illustrates one of the nearest and clearest views of the wind farm site from SH87, from the northeast. It represents a more distant view.	VP-11
Viewpoint 2: Black Rock Runs Road Viewpoint 2 illustrates a close and clear view from the east.	VP-F VP-F was from Black Rock Runs Road in front of Kinrock Station. Viewpoint 2 is a little closer to the wind farm and provides a clearer view.
Viewpoint 3. Maunsells Dip Road Viewpoint 3 illustrates a close and clear view from the southeast.	No public viewpoints were provided in this area. We consider this provides one of the clearest views from the east.[48]
Viewpoint 4: Eldorado Track Viewpoint 4 illustrates a close and clear view from the south.	VP-1

[48] Viewpoints VP-L, VP-O and VP-P from private property are indicated on the Boffa Miskell map of viewpoints but photosimulations from such viewpoints are not included in the Environment Court set.

Photo simulation viewpoint	*Equivalent EC hearing viewpoint*
Viewpoint 5: Eldorado Track Viewpoint 5 is from nearby public road, a little closer to wind farm. It illustrates a close view.	VP-D Keen Property (Tarndale Station) No photosims from public viewpoints were provided in this area. Viewpoint 5 is adjacent to the Keen property, a little closer to the wind farm.
Viewpoint 6. Mahinerangi Fishing Village Viewpoint 6 illustrates the view from a group of potentially affected crib.	VP-2 Viewpoint 6 is from the causeway at little further east than VP2, which was considered to provide a clear foreground and illustrate the context of the fishing village.
Viewpoint 7. Waipori Road Viewpoint 7 illustrates an elevated and clear view from the south side of Lake Mahinerangi	VP-14
Viewpoint 8. Lammermoor Range Viewpoint 8 illustrates an elevated view from the top edge of the Lammermoor Range scarp.	VP-18 Viewpoint 8 is more elevated than VP18 which is from near the base of the scarp. VP 8 is considered to represent views from the range itself and to provide a clearer overview of the wind farm.

6. The photo simulations for each viewpoint depict the following:

- An illustration of the 'existing environment' which shows the 12 existing Stage 1 wind turbines and 45 wind turbines at the approved 145m height, and with a 112m rotor diameter. As discussed above, this is considered a 'real world' wind farm enabled by the approved consent.[49]
- A photo simulation to illustrate the proposed changes, showing the 12 existing Stage 1 wind turbines and the proposed 44 Stage 2 wind turbines at 165m and 136m rotor diameter.

7. The layout depicted for both 'existing' and 'proposed' images uses approved locations on the highest parts and extremities of the site to represent a 'worst case'.

8. The photo simulations are printed across two A3 pages to provide a field of view of approximately 110^{o} (which approximates to a human primary field of view) at correct scale for a 400mm reading distance. All photo simulations are printed to the same scale for consistency.

9. A before and after format was used. The before image illustrates the existing 12 Stage 1 wind turbines (125m height/90m rotor diameter) and the balance 45 wind turbines at the consented

[49] As discussed above, while the consent allowed for up to 100 wind turbines, it also capped the capacity at 200MW. While a 2MW was a realistic turbine considered at the time of the consent, a real-world scenario would be 47 3.6MW wind turbines at 145m height and 136m rotor diameter.

145m height, and with 136m rotor diameter based on a 3.45MW model that is currently available. The after image illustrates the existing 12 Stage 1 wind turbines and the proposed 44 Stage 2 wind turbines at 165m height and 136m rotor diameter – similarly based on a model that is currently available. This format was used to compare the effects of changes in conditions.

10. While photo simulations are useful tools, they do have inherent limitations that should be stated and taken into consideration: People's experience is typically of being surrounded by landscapes and moving through them in a range of different light and weather conditions. Photos on the other hand are static, taken in one set of conditions, have a limited field of view, and tend to flatten perspective. Photo simulations also tend to focus attention on their subject, and the viewpoints tend to be places from where the subject is most visible. This can be different to how structures are normally experienced moving through a three-dimensional landscape. The before-and-after format can also focus attention on change rather than the effects on landscape values. While photos have inherent limitations, the method and format described above has been chosen to reduce these limitations as far as practical.

Assessment format

Introduction

11. The assessment format was tailored to the application. The introduction explains the context of the existing consent and that the application entails i) changes to the conditions of the existing consent, ii) re-applications for regional consents that have expired, and iii) new applications for transmission infrastructure.

12. For clarity, the report was divided into sections addressing the **changes to the conditions of the existing consent**, and the **new consents** separately. This is because with the former, it is the effects of that changes that are to be considered, whereas for the latter it is the effects of the activities on the existing environment.

Relevant provisions

13. Relevant statutory planning provisions are reviewed in **Appendix Three**. References are also made where relevant to specific matters in the body of the report. It states that the purpose is to help frame the landscape assessment to best serve its purpose of assisting decision makers (i.e. it is not a planning assessment per se).

14. Themes relevant to landscape include the promotion of renewable electricity generation, preservation of natural character, protection of outstanding natural landscapes, maintenance and enhancement of the quality of the environment, and of and amenity values. The planning provisions and other matters are also relevant to help identify landscape values (e.g. with respect to ONF/Ls), areas of significance to tangata whenua, and historical values. Documents reviewed as 'other matters' include the *'Kāi Tahu ki Otago Natural Resource Management Plan (2005)'*, *'Kā Huru Manu, Ngāi Tahu Atlas'*, and the '*Clutha District Landscape Management Recommendations – Outstanding Natural Features and Landscapes (2015).*'

Landscape character and values

15. The assessment adopts the following definition of landscape from Te Tangi a te Manu.

Landscape embodies the relationship between people and place. It is the character of an area, how the area is experienced and perceived, and the meanings associated with it.

16. The assessment therefore considers the distinctive combination of physical, associative, and perceptual attributes of the site and its surrounding landscape context.

17. The description is a succinct summary intended to highlight landscape characteristics and values relevant to changes to the consented wind farm. It is deliberately more focused than the assessments for the original application and the now consented wind farm.

Proposed changes to the consent

18. As noted above, the report is divided into separate sections addressing i) the proposed changes to conditions of the existing consent, and ii) the applications for new consents. The report defers to the Project Description that forms part of the AEE and summarises the proposed changes most relevant to the landscape assessment.

Effects of the proposed changes

19. Potential landscape and visual effects (or issues) were listed having regard to the relevant provisions, nature of the proposal, and existing landscape:

- Adverse and positive **effects on natural landscape** arising from changes to civil engineering components – considering such aspects as natural landform, vegetation, water bodies.
- Adverse and positive **effects on amenity values** arising from changes in wind turbine size, numbers, and locations.
- Potential adverse and positive **effects on the outstanding natural landscape** values of the Lammermoor Range.

20. The nature and degree of effects were analysed in terms of reductive factors and then considered together in terms of the matters identified above.

- Factors considered with respect to **natural landscape** included the natural landforms, vegetation, and waterbodies. Assessment of the civil engineering works is analysed in **Appendix Five** – the appendix lists reductive detail that is drawn into an overall assessment in the report.
- Factors considered with respect to **amenity values** included dominance, scale relationship between the wind farm and landscape, rural character, aesthetic coherence, effects on public and private views, wind turbine numbers, and removal of some wind turbine locations. Photo simulations were used to assist in assessing the visual effects of the proposed changes (see above for methodology). An analysis of visual effects for houses on private property is appended as **Appendix Six**. It is noted that the latter entailed estimates from road-side observations and desk-top analysis. It did not entail visits to private land.
- Factors considered with respect to **ONL values of the Lammermoor Range** included physical, perceptual and associative aspects, with reference to the aspects listed in Appendix A3.2.1.2 of the Dunedin City District Plan and described in the *Clutha District Landscape Management Recommendations – Outstanding Natural Features and Landscapes (2015).'*

Proposed new consents

21. The report summarises the new applications being sought. These include reapplication for regional consents that have expired, and applications for transmission infrastructure that was not sought as part of the original consent.

Effects of proposed new consents

22. Potential landscape and visual effects (or issues) were listed having regard to the relevant provisions, nature of the proposal, and existing landscape:

- Effects of civil works on the **natural character** of wetlands and rivers and their margins.
- Effects of the **transmission infrastructure** on **natural landscape values** (natural landforms, vegetation, water bodies) and **amenity values.**

23. The landscape assessment with respect to the new regional consents focuses on natural character. There are two locations where natural character matters arise: a stream crossing of a tributary of Lee Stream and a realignment of an existing farm track across (perched wetlands at a saddle on the peneplain. Other assessments (including the Freshwater Ecology and Civil Engineering reports) address such matters as appropriate buffers and effects on wetlands, discharges to water and air, and erosion and sediment management.

24. The assessment defines natural character as *'an area's distinct combination of natural characteristics and qualities, including degree of naturalness.'* It comprises both biophysical and perceptual factors.

25. The nature and degree of effects on **natural character** were analysed in terms of the following factors:

- An appraisal of the existing natural character, having regard to biophysical and perceptual factors, and considering the stream and wetland in both the immediate context and that of the wider catchment.
- An analysis of effects on natural character, considering such factors as hydrological processes, habitat, and the appearance of naturalness. Input was sought from the ecologists working on the project with respect to biophysical factors. Regard was had to the culvert design and the offset mitigation recommended in the Freshwater Ecology Report.

26. The nature and degree of effects of the **transmission infrastructure** were analyses in terms of the following factors:

- Effects on natural landscape values (natural landform, vegetation, waterbodies), having regard to the earthwork platforms (substation and BESS), transmission poles, and access tracks.
- Effects on amenity values having regard to the landscape character, and the appearance, location, and visibility of the infrastructure. Appendix Six includes an estimate of visual effects from the dwellings on the three properties that were considered potentially affected.

Mitigation

27. The existing conditions would continue to apply. No additional landscape mitigation is proposed.

28. The compensation recommended in the Ecology Report is relied upon to help address biophysical aspects of natural character. Otherwise, landscape and visual effects that would warrant mitigation do not arise from the proposed changes to conditions or the proposed new consents for regional consents and transmission infrastructure.

29. Similarly, landscape input to project shaping has been informed by the fact that the wind farm is consented, and it has a high degree of coherence to the landscape. Minor changes were made to wind turbine locations and earthworks design (including locations of SFDs) through the iterative design and assessment process. Refinements compared to the layout approved by the existing consent conditions are noted where relevant in Appendix Five.

Conclusion

30. The assessment includes a conclusion on the overall landscape and visual effects in the context of the existing landscape and statutory provisions.

Executive Summary

31. The executive summary summarises the main points of the key points of the assessment.

APPENDIX THREE. RELEVANT PROVISIONS

1. The following is a summary of statutory planning and other documents to provide context and help frame the landscape assessment. For the avoidance of doubt, the landscape report is not a planning assessment of the project against the relevant provisions, but the assessment is cognisant of the policy directions.

National Policy Statement Renewable Energy Generation 2011

2. The Objective of the NPSREG is to recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target.

3. Policy A requires decision makers to have regard to benefits of renewable electricity generation including d) the **reversibility** of adverse effects on the environment of some renewable electricity generation technologies.

4. Policy B is that decision-makers have particularly regard to matters including (amongst other things) c) that meeting the New Zealand Government's national target **will require significant development of renewable electricity generatio**n.

5. Policy C1 is that decision-makers shall have particular regard to the need to locate renewable electricity generation **where the resource is**, the logistical or technical practicalities associated with developing, **upgrading**, operating or maintaining renewable energy generation, and the **location of existing structures and infrastructure**…

6. Policy E3 requires Regional Policy Statements and **Regional** and District Plans to include objectives, policies and methods to provide for (amongst other things) **upgrading** of existing wind energy generation activities.

Otago Regional Council – Regional Policy Statement 2017

7. The Otago Regional Policy Statement (RPS) provides a framework direction for future management of Otago's natural and physical resources. It provides the foundation for the development of regional plans and district plans. The RPS contains issues, objectives, policies, and methods to address the region's resource management issues with a goal to achieve integrated management of the region's natural and physical resources.

8. The Otago RPS is in the process of being reviewed and the following two versions are both applicable:

   - Partially Operative Otago Regional Policy Statement 2019 (POORPS2019) - declared partially operative on 15 March 2021
   - Proposed Otago Regional Policy Statement 2021 (Non-freshwater parts) (Proposed RPS 21) – notified 26 June 2021, hearings complete but decisions not yet notified.

Renewable electricity generation

9. The Partially Operative Regional Policy Statement (2019) notes under Objective 4.4:

Policy 4.4.1 Renewable electricity generation *– Provide for renewable electricity generation activities by* ***all of the following****:*

a) Recognising the ***benefits*** *associated with those activities;*
b) Recognising the ***functional needs*** *of those activities;*
c) Recognising the ***importance of the resource needs*** *of those activities;*
d) Promoting the ***efficient use of the existing structures or facilities****; and*
e) Providing for activities associated with the investigation, identification, and development of potential renewable electricity generation sites and sources.

10. The RPS21 provides objectives and policies relating to Energy, infrastructure and transport (EIT). Relevant objectives under the energy section (EIT-EN-Energy) are:

EIT-EN-O2A – Greenhouse gas emissions and renewable energy targets
Otago's renewable energy generation supports the overall reduction in New Zealand greenhouse gas emissions and achieving the national target for emissions reduction.

EIT-EN-O2 Renewable electricity generation *– The generation capacity of renewable electricity generation activities in Otago:*

a) Is maintained and, if practicable, maximised, within environmental limits, and;
b) ***contributes to meeting New Zealand's national target for renewable electricity generation****.*

11. A relevant policy which is cross referenced in policies relating to ONF/ONLs is:

EIT–INF–P13 – ***Locating and managing effects of*** *infrastructure,* ***nationally significant infrastructure*** *and regionally significant infrastructure outside the coastal environment*

When providing for new infrastructure, nationally significant infrastructure and regionally significant infrastructure outside the coastal environment:
(1) avoid, as the first priority, locating infrastructure in all of the following:
(a) significant natural areas,
(b) outstanding natural features and landscapes,
(c) wetlands,
(d) outstanding water bodies,
(f) areas or places of significant or outstanding historic heritage, and
(g) wāhi tupuna, and

(2) ***if it is not reasonably practicable to avoid*** *locating in the areas listed in (1) above because of the functional needs or operational needs of the infrastructure, nationally significant infrastructure and regionally significant infrastructure* ***manage adverse effects*** *as follows:*

(a) for nationally or regionally significant infrastructure:
(i) in significant natural areas, in accordance with ECO–P4,and ECO-P6,
(ii) in wetlands, in accordance with the relevant provisions in the NESF,
(iii) in outstanding water bodies, in accordance with LF–FW-P12,
(iiia) in relation to wāhi tūpuna, in accordance with HCV-WT-P2,
(iv) in other areas listed in EIT–INF–P13 (1) above, the adverse effects of the infrastructure on the values that contribute to the area's importance shall be:

(I) remedied or mitigated to the extent practicable,
(II) where they cannot be practicably remedied or mitigated, regard shall be had to offsetting and/or compensation of more than minor residual adverse effects.

(b) for all infrastructure that is not nationally significant infrastructure or regionally significant infrastructure, avoid adverse effects on the values that contribute to the area's outstanding nature or significance except in relation to historic heritage which is not significant or outstanding, then HCV-HH-P5(3) will apply.

Landscape values (including ONF/ONLs)

12. The RPS does not identify any specific ONF/ONLs in the region. Rather the RPS notes the role of Local Authorities in identifying and mapping outstanding natural features, landscapes, and seascapes. RPS (2021) provides information and policies relating to the identification, classification, and management of outstanding natural features, landscape, and seascapes; and of "highly valued" natural features, landscapes, and seascapes; and the values of the ecosystems and natural resources. Relevant provisions include:

NFL–O1 – Outstanding natural features and landscapes
The areas and values of Otago's outstanding natural features and landscapes are identified, and the use and development of Otago's natural and physical resources results in the protection of them from inappropriate subdivision, use and development.

NFL–P1 – Identification
Identify the areas and values of outstanding natural features and landscapes in accordance with Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.

NFL–P2 – Protection of outstanding natural features and landscapes
Protect outstanding natural features and landscapes from inappropriate subdivision, use and development by:
*(1A) avoiding exceeding the **landscape capacity** of the natural feature or landscape,*
*(1) maintaining the **values** that contribute to the natural feature or landscape being considered outstanding, even if those values are not themselves outstanding,*
(2) avoiding, remedying or mitigating other adverse effects; and

(3) managing the adverse effects of infrastructure on the values of outstanding natural features and landscapes in accordance with EIT-INF-P13.

13. Methods include a requirement that territorial authorities must map and identify the values of ONF/ONLs in their district. Councils are to collaborate with Kāi Tahu to identify such areas and values.

Clutha District Plan (1998)

14. The site is within Clutha District although northern parts of the wind farm are near the boundary with Dunedin City.

Renewable electricity generation

15. The Clutha District Plan acknowledges that the District is "…relatively rich in energy resources" and that has "other resources within the District that have potential for the development of electricity generation", specifically noting "wind powered generation" as one of the development opportunities.

16. The introduction to the 3.4 Energy acknowledges that electricity generation is likely to occur within the Rural Resource Area:

> ***3.4.1. Introduction*** *– "…. Given the established electricity generation facilities within the Rural Resource Area and the significant potential for further sustainable development of energy resources within the Rural Resource Area identified above, electricity generation resources are recognised as an important part of the rural environment within the Clutha District. The reverse sensitivity effects of other activities that occur in the rural environment on existing and consented renewable electricity generation are required to be managed to the extent reasonably possible under Policy D of the National Policy Statement for Renewable Electricity Generation. The rules that address this matter are set out within the various zone provisions of the District Plan."*
>
> ***Objective ELG.1 – Recognition of Energy Resources***
> *A. To ensure that the benefits of the District's renewable and non-renewable energy resources and the electricity generation facilities that utilise such resources are recognised as locally, regionally and nationally important in the sustainable management of the District's resources.*
>
> *B.* ***To recognise that the use and development of renewable energy resources have the following particular benefits:***
> *a. Maintains or enhances electricity generation capacity while avoiding, reducing or displacing greenhouse gas emissions;*
> *b. Maintains or enhances the security of electricity supply at local, regional and national levels by diversifying the type and/or location of electricity generation;*
> *c. Assists in meeting international climate change obligations; and*
> *d. Avoids or reduces reliance on imported fuels for the purpose of generating electricity.*
>
> ***Objective ELG.2 – Development of New Electricity Generation Facilities***
> *To ensure the investigation, establishment, development and upgrading of energy generation facilities* ***avoids, remedies, or mitigates any adverse effects*** *on the environment.*
>
> ***Objective ELG.4 – Local Effects of New Electricity Generation Facilities***
> *To ensure that the development of new electricity generation facilities has local benefits and that* ***local adverse environmental effects*** *(environmental, social, cultural and economic)* ***are avoided, remedied or mitigated****.*
>
> ***Policy ELG.1***
>
> *In determining the* ***appropriateness of the development of a new generation facility within the District, consideration*** *shall be given to the following matters:*

a) *The **significance of the** social, economic, cultural, **landscape (including natural character and natural features**) and ecological **values**, and hazard constraints of the land and local communities potentially affected by the facility;*

b) *The **effects**, both positive and adverse, the proposed electricity generation facility will have on those values identified in a) above;*

c) *Any local, regional, and national effects (both positive and adverse) over and above those local values/effects identified in a) above.*

Policy ELG.2

*In assessing the appropriateness of the location of any new electricity generation facility development proposed within the District, **particular regard** shall be given to:*

a) *The **constraints imposed on the proposed generation technology** by the location of the **necessary resources**, **infrastructure** and logistical or technical requirements which may prevent some adverse effects from being avoided, remedied or mitigated;*

b) *Any **functional or locational constraints** affecting the associated **transmission infrastructure**.*

Policy ELG.3

*When assessing the effects of the proposed facility on the local environment under Policy ELG.1 the impact of the proposal in terms of the following matters, in addition to the requirements of other policies, will be given **specific consideration**:*

*… **V. Landscape***

a) *Potential for the loss of, or irreversible change to, any **identified values** of landscapes or natural features identified as **outstanding** in the District Plan or any relevant Regional Policy Statement or Plan;*
b) *The impact (both positive and negative) on any **identified values** of landscapes identified as **amenity landscapes** in the District Plan;*
c) *The impact (both positive and negative) on **natural features**, **natural character**, **landscape and visual amenity values** in general;*

Rural resource area

17. The Project Site is within the Rural Resource Area. Relevant provisions to the landscape assessment include:

Objective RRA.4
*To recognise the values of and where considered necessary provide protection for the District's **outstanding natural features and landscapes**, areas of **significant indigenous vegetation and fauna**, and **valued non-indigenous wildlife habitats**, within the management framework.*

Objective RRA.5.
*To maintain the **amenity values** of the rural environment.*

Policy RRA.6
*To manage the effects of activities, buildings and structures to ensure that adverse effects on the **natural character** and values of the Districts coast, wetlands, lakes, rivers and their margins, are avoided, remedied or mitigated.*

Policy RRA.7
*To manage the effects of activities and buildings to ensure that any adverse effects on the **open space and natural character amenity values of the rural environment** are avoided, remedied or mitigated.*

Policy RRA.8
*To ensure the **adverse effects** that buildings, **structures** and vegetation can have on*
i. amenity values of adjoining properties, and
ii. the safety and efficiency of the roading network
*are **avoided, remedied or mitigated**.*

Heritage (including landscape)

18. Landscapes are primarily addressed under section 3.5 Heritage (which collectively addresses natural, built, and cultural heritage). Relevant provisions include:

Objective HER.1
"To recognise the importance of, and provide for the appropriate protection, conservation, use and where possible, enhancement of the District's natural, built, and cultural heritage resources".

Objective HER.3
"To identify the District's outstanding natural features and landscapes and, where appropriate, protect them from inappropriate subdivision, use and development."

19. Table 13.3A lists 'Potentially Outstanding Landscapes'. It does not include the Project Site. The nearest of the listed potentially outstanding landscapes is Waipori Gorge which is below Lake Mahinerangi.

20. Table 13.3B lists 'Outstanding Natural Features'. There are no features potentially affected.

Mana Whenua

21. The District Plan contains background information on mana whenua that is relevant to understanding landscape values of the District, and objectives and policies relevant to managing the landscape resource. Those of most relevance include:

Objective MAO.1 Kaitiakitanga
To have particular regard to the concept of Kaitiakitanga in relation to managing the use, development, and protection of natural and physical resources.

Policy MAO.2

To recognise the Kai Tahu Ki Otago Iwi Natural Resource Management Plan as a Kai Tahu resource management reference planning document for the District.

Objective MAO.4 Waahi Taoka (Treasured Resources)
To recognise and provide for the special significance that all Taoka have in the culture of Kai Tahu.

Policy MAO.8
In consultation with Kai Tahu runanga, to ensure that the adverse effects of activities on Waahi Taoka are avoided, remedied or mitigated.

Objective MAO.5 Wai (Water)
To recognise the significance of water to Kai Tahu's spiritual beliefs, cultural traditions and practices, and to provide for these where practicable and appropriate.

Policy MAO.9
To take into consideration the importance of water to Kai Tahu culture by ensuring land management practices avoid, remedy or mitigate adverse effects on water bodies important to Kai Tahu.

Policy MAO.10
To consult with Kai Tahu and work with the Otago Regional Council on water quality issues that affect Kai Tahu.

22. Schedule 6.10 sets out Statutory Acknowledgement of Areas of Special Significance to Te Runanga o Ngai Tahu. The Schedule is prefaced that *"this Schedule does not identify all sites that are of significance to Ngai Tahu in terms of the Resource Management Act. Consultation in respect of other areas and resources of importance to Ngai Tahu will continue to be required."* The areas identified includes areas associated with permanent settlements and seasonal movement between resource areas. Areas acknowledged in the wider surrounding area include Mata-Au (Clutha River) and Waihola/Waipori Wetland which are remote from the wind farm site.

Dunedin City District Plan (2GP Plan partially operative 2024)

23. Cross boundary considerations arise because, while the wind farm site is within Clutha District, the section of the Lammermoor Range west of the site in Dunedin City is classified as part of an Outstanding Natural Landscape (ONL) within the Dunedin City Council District Plan.

24. The relevant objective is Objective 10.2.5.

Outstanding Natural Features (ONFs), Outstanding Natural Landscapes (ONLs) and Significant Natural Landscapes (SNLs) are protected from inappropriate development; and their values, as identified in Appendix A3, are maintained or enhanced.

25. The policies giving effect to this objective concern activities occurring within the ONL overlays, rather the effects on the ONL values from activities outside the ONL.

26. The Lammermoor Range falls within a large ONL referred to has the High Country ONL. Appendix A3.2.1.2 in the Plan lists the values – refer to **Appendix Six** of this report.

Non-statutory matters

Clutha District Landscape Management Recommendations – Outstanding Natural Features and Landscapes (2015)

27. The Clutha District Landscape Management Recommendations report (CDLMR) was commissioned by the Clutha District Council as one of several background documents to assist in the review of the Clutha District Plan and was prepared by registered NZILA landscape architect Mike Moore. Its purpose is to recommend areas that should be recognised and managed as 'outstanding natural features and landscapes' under Section 6(b) of the Resource Management Act 1991.

28. The report recommends that the Clutha District Council recognise and manage three areas as Outstanding Natural Landscapes, one of which is 'Lammerlaw High Country' to the west of the wind farm site. The values are described in the report and the boundary mapped – refer to **Appendix Seven** of this report.

'Kāi Tahu ki Otago Natural Resource Management Plan (2005)

29. The 'Kāi Tahu ki Otago Natural Resource Management Plan (2005)' provides background to hapū associated with 'Kāi Tahu ki Otago – and values, issues, objectives, and policies relating to resource management issues.

30. Section 5.6 addresses cultural landscapes. It makes the point that cultural landscapes are not limited to Statutory Acknowledgements.

> *"…the entire landscape of Otago is dotted with sites of significance. These places did not function in isolation from one another, but were part of a wider cultural setting that included not only sites as defined by the presence of archaeological remains, but all manner of highly valued places that were named by the earliest inhabitants of the area."*

31. The Management Plan lists types of significant places including networks of settlements, seasonal migration patterns and camps, ancient trails, sources of natural resource, place names, and landmarks such as mountains associated with tupuna. It sets out Objectives and General Policies relating to cultural landscapes.

Kā Huru Manu, Ngāi Tahu Atlas.

32. Kā Huru Manu is a mapping project and online resource that includes an atlas depicting particular landscape features and associated information. Features in the landscape surrounding the wind farm site are Te Papanui (Lammermoor Range), Makarara (Deep Stream), Makarara[50] (Lee Stream), and a track roughly followed by SH87 between the Taieri plains and Strath-Taieri.

New Zealand Geopreservation Inventory

There are no features identified in the vicinity of the wind farm site.

[50] Both streams have the same name in the Atlas

APPENDIX FOUR. WIND TURBINE NUMBERING

1. The proposed Stage 2 wind turbine locations use a revised numbering (2025 numbering) from that assigned to the consented wind turbine locations (2008 numbering). The following table correlates the two numbering systems, including the 'realistic consented Stage 2' layout, and the 44 locations used for the photo simulations.

Realistic consented Stage 2 layout (2025 numbering)	**Proposed Stage 2** WTG locations (2025 numbering)	Proposed Stage 2 WTG for **sims** (2025 numbering)	2008 numbering
NE spur			
1	1	1	1
2	2	2	2
3	3	3	7
4	4	4	5
5	5	5	8
	6	6	4
7	7	7	6
	8		9
9	9	9	10
E spur			
10	10	10	19
11	11	11	11
12	12		12
	13	13	13
	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
Spine			
18	18	18	18
19	19	19	20
20	20	20	22
21	21	21	23
23	23	23	31
24	24	24	52
41	41		54
42	42	42	56
43	43	43	38
SE spur			
22	22	22	25
	25		32
	26	26	33
27	27	27	36
28	28	28	26
29	29	29	28
30	30		34
31	31	31	37
32	32	32	40
33	33	33	43
34	34		48
35	35	35	45
36	36	36	46
	37	37	47

Realistic consented Stage 2 layout (2025 numbering)	**Proposed Stage 2** WTG locations (2025 numbering)	Proposed Stage 2 WTG for **sims** (2025 numbering)	2008 numbering
38	38	38	49
	39		50
	40	40	51
S spur			
44	44	44	92
45	45	45	87
46	46		59
	47	47	67
48	48	48	82
	49		95
50	50	50	96
	51		79
78			78
	52	52	75
53	53	53	77
54	54	54	76
60			60
61			61
62			62
SW spur			
97			97
100			**100**
[47]	[54]	[44]	

APPENDIX FIVE. CIVIL ENGINEERING ELEMENTS

1. The main civil engineering components at each wind turbine location are indicated in the diagram below:

- Access road.
- Hardstand area (a permanently earth-worked and surfaced platform used for construction and crane pad and including the wind turbine and its foundation).
- Laydown areas (flat areas in which components (tower sections, nacelle, and blades) can be stored while the wind turbine is installed. These may be earth-worked to ensure they are relatively level – or to create flat pads to support either end of wind turbine blades – and may include temporary hardstands. They will be returned to pasture following construction
- Surplus fill disposal area (SFD).

2. There is flexibility to locate the wind turbine hardstand within the wind turbine Contingency Zone, and all works are to be within the Stage 2 Wind Farm Development Area. The wind turbine Contingency Zone is up to 100m radius, subject to modification in response to environmental constraints, around the wind turbine location.

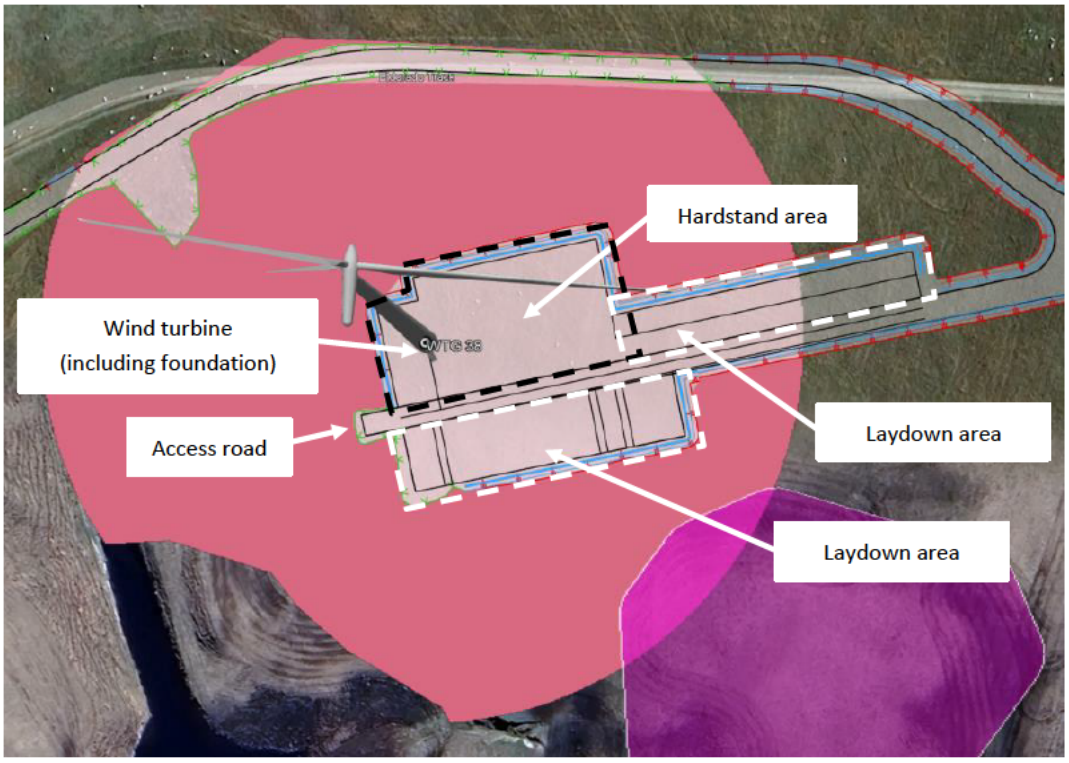

Figure 8. Elements at wind turbine locations, with pink illustrating the turbine's contingency zone and purple illustrating a spoil disposal area.

3. The table below assesses the landscape effects of changes in these components on natural landform, vegetation, and waterbodies. While all 54 potential wind turbine locations are analysed, it is proposed to limit Stage 2 to 44 of these locations.)

WTG location	*Description of effect*	*Degree*[51]
North-eastern spur		
1	The centre of the Contingency Zone[52] (nominal turbine location) has not changed from the approved layout (WTG 1). Changes are proposed to the Contingency Zone exclusions (the 'cut-outs' from the 100m radius circles) so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. As with the approved layout, the Contingency Zone will continue to be on top of the peneplain finger in an area of improved pasture. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The indicative alignment skirts a localised mound and has a slightly better fit to topography. The alignment follows the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD[53] 1 (0.86 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 1 will be a blanket fill on the peneplain finger in an area of improved pasture. It will have a smaller footprint than the approved layout (0.86 ha vs 2.05 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
2	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 2). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. The changes are minor and restricted to the north edge of the Contingency Zone. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological evidence is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture and current shelter belt. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 2 (1.50 ha) is at the location and same shape as a SFD in the approved layout. As with the approved layout, SFD 2 will be a blanket fill on the peneplain finger in an area of improved pasture. SFD 4 (2.07 ha) is at the location of an SFD in the approved layout but reconfigured to fit the design in the now more detailed indicative earthworks	very low

[51] Based on indicative civils design. Will need to be reviewed to assessed revised Contingency Zones when mapped.
[52] The 'wind turbine location' is the centre of the 100m radius Contingency Zone. The conditions provide flexibility for the actual wind turbine and its hard stand to be located within the Contingency Zone.
[53] Surplus Fill Disposal site.

WTG location	*Description of effect*	*Degree*[51]
	layout. SFD 4 will have a larger footprint than the approved layout (2.07 ha vs 0.89 ha). As with the approved layout, the SFD will be a blanket fill on the peneplain finger in an area of improved pasture – the additional area includes a current exotic shelter belt. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
3	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 7). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. SFD 2 (1.50 ha) will serve both WTG 2 and 3 (see above). It is at the location and shape of a SFD in the approved layout. As with the approved layout, the SFD will be a blanket fill on the peneplain finger in an area of improved pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
4	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 5). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological evidence is that the changed buffers are appropriate. The road will follow a similar route as for the approved layout. The indicative earthworks layout is now designed to a greater level of detail than the approved layout and takes into account a 10m buffer from wetlands. The alignment crosses the dry head of a gully avoiding the wetland. Apart from this location, the road alignment is on the peneplain surface in improved pasture. SFD 3 (0.46 ha) is adjacent to the wind turbine. The approved layout does not depict a SFD at this wind turbine. It will be a blanket fill on the peneplain finger in an area of improved pasture, minimising any adverse effect. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the gully, but this would occur under the approved layout. The proposed changes will have 'very low' adverse effects.	very low

WTG location	*Description of effect*	*Degree*[51]
5	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 30m southwest of the approved location under the existing consent (WTG 8). The change will have no adverse landscape effects. Changes are also proposed to Contingency Zone exclusions in response to the shift in location, and so that the zone follows the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture and exotic shelter belt – except that the approved layout encroaches into the wetland. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow a similar route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger, is in improved pasture and exotic shelter belt, and follows an existing farm track. It crosses a small saddle threading between and avoiding wetlands on either side. Fill batters will be required to cross the saddle. While the works avoid the wetlands, it is not possible to avoid a small encroachment (approximately 100m^2) into the 10m buffer. Stormwater culverts will be installed to maintain the wetland hydrology. SFD 5 (0.35 ha) is adjacent to two SFDs in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 5 will be a blanket fill on the peneplain finger in an area of improved pasture. It will have a smaller footprint (0.35 ha vs 1.18 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The changes will avoid a wetland that is encroached under the approved layout. The proposed changes will have positive adverse effects.	positive
6	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 4). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological evidence is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 6 (1.16 ha) is at the location of an SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. SFD 6 will have a larger footprint (1.16 ha vs 0.64 ha) than that in the approved layout, although the larger footprint will not have any adverse landscape effects. As with the approved layout, SFD 6 is a blanket fill on the peneplain surface in improved pasture.	very low

WTG location	*Description of effect*	*Degree*[51]
	In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
7	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 6). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer). The Stage 2 WFDA proposes a small change to the boundary of the approved Windfarm Development Area to accommodate temporary laydown areas. This area is improved pasture and on the peneplain surface. The change would have no adverse effects on natural landscape values. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The road follows a curving alignment across the peneplain finger in improved pasture and exotic shelter belt. The indicative earthworks design depicts the wind turbine hardstand in shallow cut with fill batters where the laydown areas extend to a slightly lower terrace. SFD 8 (0.27 ha) is near a SFD in the approved layout but is shifted closer to the wind turbine and reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 8 will be a blanket fill on the peneplain finger in an area of improved pasture. It will have a larger footprint (0.27 ha vs 0.19 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
8	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 9). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. SFD 7 (0.36 ha) is adjacent to two SFDs the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the existing consent, SFD 7 will be a blanket fill on the peneplain surface, in improved pasture. It will have a slightly smaller footprint than the collective area of the two approved SFDs at this wind turbine (0.36 ha vs 0.46 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape	very low

WTG location	*Description of effect*	*Degree*[51]
	features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
9	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 10). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The access road entails a culverted fill embankment across a tributary of Lee Stream, replacing the existing farm track and culvert. The crossing is in the same location as approved under the existing consent – it is within a part of the approved Windfarm Development Area identified for that purpose as 'development within a constrained area D'. The crossing was approved by the existing consent. It is necessary because it is the only means of accessing the northern spur group of wind turbines. It is not practicable to avoid crossing the stream. The culvert will be approximately 35m long. It will comprise a box culvert embedded into the stream bed and at the streams natural gradient so that stream can maintain a natural substrate and channel within the culvert. Substrate and a channel will be formed at the time of construction. There will be box cuts through the rim of the peneplain on either side of the crossing. This stream crossing is assessed in more detail under the heading '*Effects on natural character of wetlands, and streams and their margins*' in section 9 of the report. Other than at the crossing, the access road is on the peneplain in improved pasture and the corner of a recently harvested pine plantation. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 9 (0.57 ha) is adjacent to two SFDs the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. SFD 9 will be closer to the wind turbine hardstand. SFD 10 (0.47 ha) is at the location of an SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the existing consent, both SFDs will be blanket fills on the peneplain surface, in improved pasture. The two SFDs will collectively have a slightly larger footprint than the approved layout at this wind turbine (1.04 ha vs 1.29 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
Eastern spur		
10	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 19). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone	very low

WTG location	*Description of effect*	*Degree*[51]
	conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The follows the peneplain surface on pasture and the area formerly in plantation. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 12 (0.52 ha) is at the same location as a large SFD (1.56 ha) in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 12 will be a blanket fill on the peneplain finger in an area of improved pasture. SDF13 (0.17 ha) and SFD 14 (0.26 ha) are likewise adjacent but configured to fit around the road and wind turbine layout in the now more detailed indicative earthworks layout. They are on the peneplain surface in areas of improved pasture (SFD15) and former plantation (SFD14). The three SFDs collectively have a smaller footprint than the approved layout (0.95 ha vs 1.56 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
11	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 11). Very minor changes are proposed to the Contingency Zone exclusions. As with other sites, the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in a mixed area of improved pasture, rough pasture including 'denser snow tussock grassland', a current shelter belt, and recently harvested plantation. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain and is in an area of rough pasture and 'denser snow tussock grassland'. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 16 (0.19 ha) and SFD 17 (0.29 ha) are in the location of an SPD in the approved layout but are reconfigured to fit the road alignment in the now more detailed indicative earthworks layout. As with the approved layout, SFD 16 and 17 are on the peneplain surface in a mixed area of rough pasture and 'denser snow tussock grassland'. They have a larger footprint than the approved layout (0.48 ha vs 0.32 ha). SFD 18 (0.64 ha) is in the vicinity of a SFD in the approved layout but is shifted to the opposite side of the wind turbine platform and reconfigured to fit the wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 18 will be on the peneplain surface in improved pasture. The collective footprint of SFD 16, 17 and 18 will be slightly smaller than that of the SFDs in the approved layout (1.12 ha vs 1.26 ha).	low

WTG location	*Description of effect*	*Degree*[51]
	In the context of the civil engineering required to construct a wind farm, the proposal avoids and reduces potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' in the rough pasture, but this would occur under the approved layout. The proposed changes will have 'low' adverse effects.	
12	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 12). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. It will provide a 10m buffer from a wetland in small swale (rather than 50m) and a 10m buffer from a second wetland that was not identified in the approved layout. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area mainly of improved pasture but including a current shelter belt and an area of rough pasture that has drifts of 'denser snow tussock grassland'. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. Acknowledging that the indicative earthworks layout is now designed to a greater level of detail, the road will follow a similar route as for the approved layout taking into account a 10m buffer from wetlands. The alignment follows the edge of the peneplain and is mostly in rough pasture and drifts of 'denser snow tussock grassland'. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 21 (0.54 ha) is at the location of a large SFD (2.02 ha) in the approved layout that occupies a shallow gully that contains a wetland. The approved SFD would have served both WTG 12 and the neighbouring WTG 13. The proposed SFD spans an area occupied by exotic shelter belt and areas of both improved pasture and rough pasture with drifts of 'denser snow tussock grassland'. As with the approved layout, SFD 21 will be a blanket fill on the peneplain surface. However, the proposed change will avoid the wetland. The SFDs for both WTG 12 and 13 will collectively have a smaller footprint compared to the approved layout (1.02 ha vs 2.02 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' in the rough pasture, but this would occur under the approved layout. At the same time, the proposed changes will avoid the wetland. The proposed changes will have 'very low' adverse effects.	very low
13	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 19). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate.	positive

WTG location	*Description of effect*	*Degree*[51]
	Acknowledging that the indicative earthworks layout is now designed to a greater level of detail, the road will follow a similar route as for the approved layout taking into account a 10m buffer from wetlands. The alignment curves across the peneplain and is in improved pasture. SFD 20 (0.46 ha) is proposed to replace a large SFD in the approved layout (as noted above, the approved SFD would have served two wind turbines). As with the approved layout, SFD 20 will be on the peneplain in an area of improved pasture. By comparison, the SFD in the approved layout would have filled in a swale with an identified wetland. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will avoid the wetland gully and will therefore have positive effects compared to the approved layout.	
14	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 14). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture, rough pasture, and a current exotic shelter belt. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain and is mostly in improved pasture but also crosses an area of rough pasture that has a small drift of 'denser snow tussock grassland'. The indicative civil design depicts the wind turbine hardstand in shallow cut, with fill batters at the end of the laydown area where the ground slopes away. SFD 23 (0.59 ha) is in the location of a SFD in the approved layout but is reconfigured to reconfigured to fit the wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout, and to avoid a wetland that the approved SFD would encroach on. As with the approved layout, SFD 23 will be a blanket fill on the peneplain surface in improved pasture. It will have a slightly smaller footprint than the approved layout (0.59 ha vs 0.70 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some positive effect by avoiding the wetland encroached upon by the approved SFD. The proposed changes will therefore have positive effects.	positive
15	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 15). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. The Contingency Zone is configured to avoid a small drift of 'denser snow tussock grassland'. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in rough pasture. The proposed changes to the Contingency Zone conform	low

WTG location	*Description of effect*	*Degree*[51]
	to the natural landscape features. The ecological evidence is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in rough pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut, with fill batters below the laydown area. SFD 24 (0.31 ha) is in the location of a SFD in the approved layout but is reconfigured to fit the indicative road design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 24 will be on the peneplain in an area of rough pasture. SFD 28 (0.30 ha) is proposed in a new location compared to the approved layout. The SFD is on the peneplain surface, in rough pasture. Collectively, SFD 24 and 28 will have a larger footprint in this area compared to the approved layout (0.61 ha vs 0.32 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'low' adverse effects.	
16	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 16). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of rough pasture including an area of 'denser snow tussock grassland'. The proposed changes to the Contingency Zone conform to the natural landscape features. The proposed changes to the Contingency Zone will occupy a greater area of such tussock, although the area is within the approved Windfarm Development Area and could be removed under the existing consent. The ecological evidence is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in rough pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut. SFD 30 (0.15 ha) is proposed in a new location compared to the approved layout. It is on the peneplain surface, in rough pasture, adjacent to the wind turbine hardstand. By comparison, the approved layout does not include a SFD in the vicinity of this wind turbine. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' in the rough pasture, but this would occur under the approved layout. The proposed changes will have 'low' adverse effects.	low
17	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 17). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with	very low

WTG location	*Description of effect*	*Degree*[51]
	the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area comprising a mix of improved pasture, exotic shelter belt, and rough pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The road alignment follows the crest of the peneplain finger and similarly crosses a mix of improved pasture, rough pasture, and shelter belt. It is aligned to avoid a wetland not previously identified within the approved Windfarm Development Area. The indicative earthworks layout depicts the wind turbine hardstand in shallow cut with fill batters below the laydown area. SFD 26 (0.58 ha) is in the location of a SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 26 will be a blanket fill on the peneplain surface in an area of improved pasture. SFD 27 (0.68 ha) overlaps with the location of a SFD in the approved layout but is reconfigured. As with the approved layout, SFD 27 will be a blanket fill on the peneplain surface in an area of mostly rough pasture and an existing shelter belt. SFD 26 and 27 collectively will have a smaller footprint compared to the two SFDs at this wind turbine in the approved layout (1.26 vs 1.57 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
Spine		
18	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 30m east from that in the approved layout (WTG 18). The shift is away from the site boundary and will have no adverse landscape effects. Changes are also proposed to Contingency Zone exclusions in response to the shift and, as with other wind turbines, so that the zone follows the gully rims and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. The change will avoid the head of a gully that the approved Contingency Zone encroaches on. Otherwise, as with the approved layout, the Contingency Zone will continue to be on the peneplain surface in an area of mostly improved pasture but including a drift of 'denser snow tussock grassland'. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain mostly in improved pasture, parallel with the existing farm track. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 11 (0.31 ha) and SFD 15 (0.19 ha) replace a SFD adjacent to the wind turbine in the approved layout, but they are reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved SFD, the reconfigured SFD 11 and 15 will be on the peneplain surface. They will have a slightly larger collective footprint (0.40 ha vs 0.35 ha)	positive

WTG location	*Description of effect*	*Degree*[51]
	but will also avoid the area of rough pasture and a corner of the 'denser snow tussock grassland' encroached upon by the approved layout. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). Compared to the approved layout, the works avoid the gully head and locate the SFD associated with the wind turbine on flatter and more modified ground. The proposed changes will have positive effects. There will be some adverse effects on the 'denser snow tussock grassland' but those effects would occur to a slightly lesser extent than with the approved layout.	
19	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 20). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of rough pasture that includes drifts of 'denser snow tussock grassland'. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow a similar route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. It is designed to have both short entry and exit roads to the wind turbine hardstand. One section is on the peneplain surface, the other will require earthworks to negotiate rising ground. The indicative civil design depicts the wind turbine hardstand in shallow cut. The works associated with the wind turbine cross areas of 'denser snow tussock grassland' but such effects could occur under the approved layout – the northern approach to the wind turbine location cannot avoid the tussock, while the southern approach is aligned to skirt the tussock. As with the approved layout, the main section of road south of WTG 19 follows the crest of the peneplain in improved pasture on the same alignment as the existing farm track. SFD 19 (0.33 ha) and SFD 22 (0.83 ha) are in the location of a large SFD in the approved layout. As with the approved layout, both SFDs are on the peneplain in rough pasture with areas of 'denser snow tussock grassland'. The proposed changes reduce the extent of coverage of this area considerably (1.16 ha vs 6.34 ha) including reducing the areas of 'denser snow tussock grassland' and localised rock outcrops that would be covered. The proposed changes also remove an SFD (0.71 ha) that is isolated from the road network and in rough pasture east of WTG 19. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' in the rough pasture, but this would occur under to a much greater extent under the approved layout. The proposed changes will have positive effects.	positive
20	It is proposed to shift the centre of the Contingency Zone approximately 50m east from that in the approved layout (WTG 22). The shift will be away from the site boundary and will have no adverse landscape effects. Changes are also proposed to Contingency Zone exclusions in response to the shift and, as with other wind turbine locations, so that the zone will follow the rim edge of the gullies (rather	low

WTG location	*Description of effect*	*Degree*[51]
	than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. While a minimum 10m buffer from wetlands is maintained in most instances, the fill batter from the road and auxiliary crane platform will encroach into the buffer in one location (Wetland 37). It is not possible to avoid this encroachment because of the presence of wetlands to north and south. The encroachment is over a small area (112m^2). Otherwise, as with the approved layout, the Contingency Zone will be on the peneplain surface in an area of in an area of rough pasture that also includes drifts of 'denser snow tussock grassland'. With the exception of the tussocks (which could be removed under the approved layout), the proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The main access follows the crest of the peneplain and generally along the alignment of existing farm track in improved pasture. A deviation from the existing track is to be provided to cross a perched wetland (Wetland 43) at the saddle on the peneplain just to the south of the wind turbine. The saddle contains wetlands that flow in opposite directions away from the crest of the peneplain. Currently, the farm track crosses the wetland on a low culverted embankment below the saddle. The indicative earthworks layout would realign the road 50m eastward to the true saddle, providing a slightly better fit to topography, and restoring natural hydrology (the existing embankment and culvert would be removed). In the approved layout, a SFD is shown in the saddle in the location of the proposed realignment. This realignment is assessed in more detail under the heading '*Effects on natural character of wetlands, and streams and their margins'* in section 9 of the report. The roading includes separate exit and entry roads between the wind turbine and the main access road. They are short sections of road, but one crosses an area of 'denser snow tussock grassland'. SFD 25 (0.41 ha) is adjacent to the wind turbine hardstand and access road. The approved layout does not indicate an SFD at this wind turbine location. SFD 25 is on the peneplain in an area of rough pasture. It is configured to avoid the areas identified as 'denser snow tussock grassland' in the vicinity. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' in the rough pasture, but this could occur under the approved layout. It includes an SFD that was not indicated at this wind turbine in the approved layout. The proposed changes will have 'low' adverse effects.	
21	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 23). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface and an area that includes a mix of improved and rough pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate.	positive

WTG location	*Description of effect*	*Degree*[51]
	The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut and fill batters below the laydown areas. SFD 29 (0.64 ha) is at the location of a SFD in the approved layout but reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 29 will be a blanket fill on the peneplain in an area of improved pasture. However, it will avoid encroaching into the saddle wetland area north of the wind turbine (between WTGs 20 and 21). SFD 31 (0.87 ha) is at the location of two SFD sites in the approved layout but is reconfigured to fit the wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 31 will be a blanket fill on the peneplain surface in improved pasture. The two SFDs collectively will have a smaller footprint (1.51 ha vs 2.95 ha) than the SFDs in the approved layout. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The avoidance of the encroachment into the wetland by the approved SFD will have a small positive effect.	
22	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 25). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut and fill batters below the blade laydown area SFD 35 (0.26 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 35 will be on the peneplain surface in an area of improved pasture. It will have a slightly smaller footprint (0.26 ha vs 0.31 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
23	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 35m south of an approved location (WTG 31). The shift is away from the site boundary and will have no adverse landscape effects. Changes are also proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved	Very low

WTG location	*Description of effect*	*Degree*[51]
	Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger, in improved pasture, and along the existing farm track. The indicative earthworks design depicts the wind turbine hardstand in shallow cut and localised fill batters below the laydown area. SFD 34 (0.48 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 34 will be a blanket fill on the peneplain surface in an area of improved pasture. It will have a smaller footprint (0.48 ha vs 1.19 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
24	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 52). No changes are proposed to the Contingency Zone exclusions. As with the approved layout, the Contingency Zone will be confined on the peneplain surface in an area of improved pasture. The road will follow the same route as for the approved layout but is designed to greater detail in the indicative civil design. The road follows the crest of the peneplain, is in improved pasture, and follows the existing farm track. The indicative civil design depicts the wind turbine hardstand in shallow cut. SFD 36 (0.37 ha blanket fill) is in the location of a SFD in the approved layout, but changes are proposed so that the footprint does not encroach on a wetland as with the approved layout. As with the approved design, SFD 36 will be on the peneplain in an area of improved pasture. SFD 38 (0.67 ha blanket fill) is in the location of a SFD in the approved layout, but changes are proposed to provide a more compact footprint that fits the indicative road and wind turbine design in the now more detailed earthworks layout. As with the approved layout, SFD 38 will be on the peneplain, in an area of improved pasture, with localised drifts of 'denser snow tussock grassland'. SFD 36 and 38 collectively have a smaller footprint than those adjacent to the wind turbine in the approved layout (0.96 ha vs 1.88 ha). SFD 40 (0.40 ha) is adjacent to the access road and in the location of an SFD in the approved layout. As with the approved layout, SFD 40 will be on the peneplain, in an area of improved pasture. It will have a slightly smaller footprint the that of the SFD in the approved layout (0.40 ha vs 0.49 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
41	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 54). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing	very low

WTG location	*Description of effect*	*Degree*[51]
	to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The access to the wind turbine location is adjacent to the main access road which follows the crest of the peneplain on the alignment of the existing farm track. The indicative civil design depicts the wind turbine hardstand in shallow cut. SFD 49 (0.32 ha) is in the same location as an SFD in the approved layout but is reconfigured to the indicative road and wind turbine design in the now more detailed earthworks layout. As with the approved layout, SFD 49 will continue to be a blanket fill on the peneplain surface in rough pasture. Its footprint will be smaller than the collective area of the two approved SFDs adjacent to this wind turbine (0.32 ha vs 1.24 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
42	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 10m west from that indicated in the layout approved under the existing consent (WTG 56). The shift will have no adverse landscape effects. Changes are also proposed to the Contingency Zone exclusions in response to the shift, and so that the zone follows the edge of the peneplain and gully rims (rather than a 50m buffer). The changes are small in area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of rough pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger, in rough pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut and localised fill batters below the laydown area. SFD 52 (0.41 ha) is located adjacent to the main access road at the intersection of the access road to WTG 42. It is adjacent to the location of a SFD in the approved layout but is shifted and reconfigured to fit the inside angle of the intersection in the indicative civil design. As with the approved layout, SFD 52 will be a blanket fill on the peneplain surface in rough pasture, adjacent to the existing farm track. It will have a slightly smaller footprint (0.41 ha vs 0.65 ha). SFD 54 (0.35 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 54 will be on the peneplain in an area of rough pasture. The collective footprint of SFD 52 and 54 is slightly smaller than that of the two SFDs at this wind turbine in the approved layout (0.35 ha vs 0.51 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape	very low

WTG location	*Description of effect*	*Degree*[51]
	features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
43	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 15m south of the approved location under the existing consent (WTG 54). The shift will have no adverse landscape effects. Changes are also proposed to the Contingency Zone exclusions in response to the shifted location, and so that the zone follows the rim of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture with a small drift of 'denser snow tussock grassland' in the north-west corner. The proposed changes to the Contingency Zone conform to the natural landscape features. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain, is in improved pasture, and follows the existing farm track. The indicative civil design depicts the wind turbine hardstand in shallow cut and localised fill batters below the laydown area. SFD 56 (0.42 ha) is in the location of a SFD in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed earthworks layout. As with the approved layout, SFD 56 will be on the peneplain surface in an area of improved pasture. The approved layout provides for four SFDs in this area, one of which falls across the canal and small reservoir of the Deep Stream hydro project. The proposed changes would reduce the SFD footprint in this area (0.42 ha vs 2.09 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
Construction site compound	The construction site compound is proposed near the entrance to the property from the end of the formed section of Eldorado Track, in the vicinity of the location indicated in the approved layout. The compound will comprise a hardstand yard with security fencing, portable offices, parking, and storage for equipment and materials. The indicative design depicts an area of approximately 1 ha (145m x 80m – with a cut-out in the SE corner to accommodate an existing wind turbine). As with the approved layout, the compound will be on a flat site, on the crest of the peneplain, in an area of improved pasture. It is approximately 100m from the formed road, beyond a foreground wind turbine. SFD 59 (0.6 ha) is adjacent to a larger SFD (2.64 ha) depicted in the approved layout under the existing consent. SFD 59 is proposed to be located a short distance to the east to avoid both the construction compound site and the existing wind turbine. As with the approved layout, SFD 59 will be on the peneplain surface in an area of improved pasture. It will have a much smaller footprint than provided for by the approved layout (0.6 ha vs 2.64 ha), acknowledging that the location of the approved SFD largely coincides with the footprint of the construction compound. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The setback is also sufficient	very low

WTG location	*Description of effect*	*Degree*[51]
	to mitigate potential visual effects from people on the formed section of Eldorado Track. Such visual effects would be temporary – the permanent operations and maintenance facility will be in the middle of the wind farm. The proposed changes will have 'very low' adverse effects on natural landscape features.	
South-eastern spur		
Concrete batching plant	A concrete batching plant is provided for as part of the existing consent. The proposed site is that of a wind turbine location (WTG 42) on the layout approved under the existing consent conditions. The indicative earthworks layout plans depict a site approximately 112m x 95m (1.6 ha). The batching plant platform largely falls within the approved wind turbine Contingency Zone and the footprint of an approved SFD. However, in common with the proposed Stage 2 wind turbines, the batching plant constraints are the topography (top of gully rims) and a 10m buffer from wetlands rather than a 50m buffer from the gully rims, while continuing to comply with the approved Wind Farm Development Area. As with the approved wind turbine Contingency Zone at this location, the concrete batching plant will continue to be on the peneplain surface in an area of improved pasture. The works will conform to the natural landscape features. The ecological assessment is that the proposed buffers are appropriate. The road will follow the same route as for the approved layout but is designed to greater detail in the indicative civil design. The section of road near the junction with the main spine road is identified in the approved layout as 'Development within a constrained area D'. It is a neck between two gully heads containing wetlands identified as having ecological value. The proposed road alignment indicated in the Stage 2 earthworks layout crosses the middle of the neck, adjacent to the existing farm track and through an area modified by drainage. The formation for the 5.5m carriageway will be narrower than that for a potential 12m carriageway provided for under the consent. The indicative civil design depicts a platform with shallow cuts on the north and west sides and fill batters on below the east and south sides. SFD 32 (0.39 ha) and SFD 33 (0.33 ha) are in the location of an SFD in the approved layout but reconfigured to fit the road design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 32 and 33 will continue to be blanket fills on the peneplain surface in improved pasture. The approved layout also provides for two further SFDs in the vicinity, one of which is mostly within the footprint of the batching plant, and the other in rough pasture on the opposite side of the road. The collective footprint of SFD 32 and 33 is smaller than that of the two SFDs indicated in this area excluding the SFD on the batching plant site (0.72 ha vs 1.00 ha) The proposed batching plant location is central to the wind farm. With respect to visual matters, it is distant from public roads and dwellings and contained between wind turbines. In the context of civil works necessary to construct a wind farm, the layout avoids or minimises effects on natural landform, vegetation, and waterbodies. The proposed works will have 'very low' adverse effects compared to the approved wind turbine site.	very low
25	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 32). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rims of the gullies and a minimum	low

WTG location	*Description of effect*	*Degree*[51]
	10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will continue to be limited to the peneplain surface in an area of rough pasture, although it also contains an area of 'denser snow tussock grassland'. Otherwise, the proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in a mix of improved and rough pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut and fill batters below the blade laydown areas. SFD 37 (0.27 ha) is located approximately 200m east of the wind turbine hardstand on the opposite side of the main access road in an area of improved pasture. It would replace an SFD in the approved layout adjacent to the wind turbine platform. The proposed location is flatter and will be a blanket fill in improved pasture rather than rough pasture. WFD 37 is configured to provide a minimum 10m buffer from wetlands. It will have a slightly smaller footprint (0.27 ha vs 0.38 ha) than the approved SFD at this wind turbine. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will potentially have some adverse effects on the area of 'denser snow tussock grassland', although this could also occur under the approved layout. The proposed changes will have 'low' adverse effects.	
26	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 33). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will continue to be on the peneplain surface in an area of improved pasture – except for the eastern edge of the zone where the ground begins to slope and comprises rough pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The indicative civil design depicts the wind turbine hardstand mainly in shallow cut and with localised fill batters on the south-east corner The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in a mix of improved and rough pasture. The road threads between the heads of two wetland swales (Wetlands 68 and 69) at a saddle on the peneplain finger. While the works avoid the wetlands themselves, it is not possible to avoid encroaching into the 10m buffer of both wetlands because of the narrowness of the gap. The combined buffer encroachment is small in area (317m^2). Stormwater culverts are proposed at this location to maintain wetland hydrology. . SFD 43 is the nearest to the wind turbine site. Neither the approved nor proposed layouts indicate an SFD at the wind turbine site itself. SFD 43 is discussed below under the operations and maintenance depot.	low

WTG location	*Description of effect*	*Degree*[51]
	In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The unavoidable small encroachments into the wetland buffers have been minimised in the indicative earthworks layout plan. The proposed changes will have 'low' adverse effects.	
Operations and maintenance depot	An operations and maintenance depot is provided for within the existing consent but the indicated location is in the vicinity of the current 33kV substation and proposed construction yard near Eldorado Track. . It is proposed to instead locate the permanent operations and maintenance depot in a more central location within the wind farm, near WTG 32. The proposed location is on the peneplain surface, adjacent to the access road, and on a mix of improved and rough pasture. The facility will comprise a hard stand area approximately 55m x 40m (2200m^2) that will have a security fence and contain a workshop shed and O&M building (a combined 700m^2) and a sealed parking area of 830m^2. The indicative civil design depicts a platform in shallow cut on its rear SW side and fill batters on its front NE side. The access will be directly from the adjacent wind farm road. The site is in an unobtrusive location, distant from formed public roads (2.7 km) and houses (4.2 km from the house on the nearest non-participating property), and in the middle of the wind farm. It is tucked behind the RL729 hill to the south. SFD 43 is adjacent to ('behind') the O&M depot site. It is a large surplus fill disposal site (1.3 ha) that could provide for the O&M depot, the BESS and the substation – as well as for WTG 26 and roading at the central part of the site. It overlaps with two SFDs in the approved layout, but the footprint is reconfigured to the roads, wind turbines, and O&M depot in the now more detailed indicative earthworks layout. As with the approved SFDs, the proposed reconfiguration of SFD 43 will continue to be a blanket fill on the peneplain surface mainly in rough pasture. The proposed reconfiguration will have a slightly larger footprint than the two approved SFDs (1.3 ha vs 1.15 ha). In the context of civil works necessary to construct a wind farm, the layout avoids or minimises effects on natural landform, vegetation, and waterbodies. The proposed works will have 'very low' adverse effects.	very low
Battery Energy Storage System (BESS)	The BESS is part of the application for resource consent for the transmission infrastructure (rather than an application to change conditions of the existing consent). The BESS will comprise a security-fenced hard stand containing 32 battery containers and associated equipment (such as current invertors and air conditioning plant) mounted on concrete foundation pads. The battery containers are roughly similar in size to shipping containers (up to approximately 3m high). The BESS will also include a large water tank for firefighting. The proposed BESS location is approximately 200m north of the substation site, on the opposite side of the access road. It is accessed directly from the road. The indicative Stage 2 earthworks layout depicts a platform approximately 75m x 60m (0.45 ha), in shallow cut on its W and S sides, and fill batters below its N and W sides. The site is the location of a SFD site (0.32 ha blanket fill) on the approved layout. It is on the peneplain surface in an area of improved pasture. It therefore minimises potential adverse effects on natural landscape features (landform, vegetation, water bodies).	low

WTG location	*Description of effect*	*Degree*[51]
	The location is also unobtrusive visually. It is in a saddle a little lower than the RL729 hill to the SW. It is in the middle of the wind farm and will be surrounded by wind turbines. It is distant from roads (2.6 km) and houses (4 km from nearest house on non-participating property). In the context of civil works necessary to construct a wind farm, the layout avoids or minimises effects on natural landform, vegetation, and waterbodies. The proposed works will have 'low' adverse effects.	
Substation	The substation is part of the application for resource consent for the transmission infrastructure (rather than an application to change conditions of the existing consent). The substation will comprise a security-fenced hard-stand platform approximately 90m x 75m (0.68 ha). It will contain gantries and electrical 'bus-work', ground mounted 33kV/110kV transformers, and ancillary equipment. The indicative Stage 2 earthworks plan depicts a platform in shallow cut and with fill batters on its S and E sides. The proposed substation coincides with a wind turbine location (WTG 35) in the approved layout. The earthworks for form the substation platform will mostly fall within the wind turbine Contingency Zone and an SFD in the approved layout. As with the approved works, the substation site is on the peneplain surface in improved pasture. It avoids a rocky outcrop below the site. The site selection therefore minimises potential adverse effects on natural landscape features (landform, vegetation, water bodies). The site is also in an unobtrusive location visually. It is in a saddle a little lower than the RL729 hill to the SW. It is in the middle of the wind farm and will be surrounded by wind turbines. It is distant from public roads (2.5 km) and houses (3.9 km to house on nearest non-participating property. SFD 44 (0.37 ha blanket fill) is in the locations of an SFD in the approved layout but reconfigured to fit roads and substation platform design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 44 is on the peneplain and in improved pasture. It will have a smaller footprint than the SFD in the approved layout (0.37 ha vs 1.64 ha). In the context of civil works necessary to construct a wind farm, the layout avoids or minimises effects on natural landform, vegetation, and waterbodies. The proposed works will have 'low' adverse effects.	low
27	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 36). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative civil design depicts the road and western end of the wind turbine hardstand in cut and fill batters as the ground slopes away at the eastern end of the laydown areas.	very low

WTG location	*Description of effect*	*Degree*[51]
	SFD 46 (0.65 ha) is between WTG 27 and the substation site. It is at the location of an SFD in the approved layout but is reconfigured to fit the road design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 46will be a blanket fill on the peneplain in an area of improved pasture. SFD 46 will have a slightly larger footprint (0.65 ha vs 0.57 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
28	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout under the existing consent conditions (WTG 26). Changes are proposed to the Contingency Zone exclusions such that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), and the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout but is designed to greater detail in the indicative civil design. The road follows the crest of the peneplain finger and is in improved pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut and fill batters below the laydown areas in the NE corner. SFD 40 (0.82 ha blanket fill) is in the same location as a SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 40 will be on the peneplain in an area of improved pasture. It will have a slightly smaller footprint than the two SFDs adjacent to the wind turbine in the approved layout (0.82 ha vs 0.99 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
29	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout under the existing consent conditions (WTG 28). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the rim edge of the gullies and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. It will continue to avoid the localised rocky outcrop above and to the west of the wind turbine location. The proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative civil design depicts the wind turbine hardstand in cut on its uphill western side and fill batters below the blade laydown area on the eastern side.	very low

WTG location	*Description of effect*	*Degree*[51]
	SFD 42 (1.2 ha) is in the same location as a SFD in the approved layout adjacent to the access road but configured to fit the road design in the now more detailed indicative earthworks layout. While it has a larger footprint than the SFD in the approved layout (1.2 ha vs 0.43 ha), almost all SFD 42 falls with the approved Contingency Zone of an approved wind turbine that is to be deleted from the consent. As with the approved layout, SFD 42 will be a blanket fill on the peneplain in an area of improved pasture. SFD 46 (0.56 ha) is adjacent to the location of a SFD in the approved layout but is reconfigured to be closer to the wind turbine platform. SFD 50 (0.24 ha) is on the western side of the hardstand in a different location to the approved layout. Both SFD 46 and SFD 50 will be blanket fills on the peneplain in an area of improved pasture. The combined footprint will be slightly larger than the SFD in the approved layout (0.80 ha vs 0.65 ha). The proposed changes include deletion of two approved wind turbine locations, and a 1.18 ha SFD on the peneplain finger further to the east. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
30	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout under the existing consent conditions (WTG 34). Changes are proposed to the Contingency Zone exclusions such that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of rough pasture, although it will include a small drift (0.07 ha) of 'denser snow tussock grassland'. Otherwise, the proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut and fill batters below the blade laydown. SFD 41 (0.31 ha) is in the location of a SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 41 will be on the peneplain in an area of rough pasture. It will have a smaller footprint (0.31 ha vs 0.70 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' but this would occur under the approved layout. The proposed changes will have 'very low' adverse effects.	low
31	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout under the existing consent conditions (WTG 37). Changes are proposed to the Contingency Zone exclusions such that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m	very low

WTG location	*Description of effect*	*Degree*[51]
	buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of mixed rough and improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is rough pasture. The indicative civil design depicts the wind turbine hardstand in cut with localised fill batters below the laydown area. SFD 47 (0.42 ha) is in the location of a SFD in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 47 will be on the peneplain in an area of improved pasture. It will have a slightly larger footprint (0.42 ha vs 0.36 ha). SFD 48 (0.95 ha) is in a different location than SFDs in the approved layout. It is adjacent to the access road and is in a flat area of the peneplain surface in rough pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
32	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 40). Changes are proposed to the Contingency Zone exclusions such that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of rough pasture and including relatively large drifts of 'denser snow tussock grassland'. Other than the tussock (which likewise falls within the approved Windfarm Development Area), the proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in rough pasture. The indicative civil design depicts the wind turbine hardstand partly in cut and partly with fill batters on its south-east side and below the blade laydown area on the north-west side. SFD 51 (0.37 ha) is adjacent to two SFDs in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 51 will be on the peneplain surface in an area of rough pasture. The footprint will be slightly smaller (0.37 ha vs 0.54 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on the area of 'denser snow tussock grassland' in the rough	low

WTG location	*Description of effect*	*Degree*[51]
	pasture, but this could occur under the approved layout. The proposed changes will have 'low' adverse effects.	
33	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 43). Changes are proposed to the Contingency Zone exclusions such that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface mostly in an area of improved pasture. Part of the proposed Contingency Zone extends into rough pasture and includes a corner (<300m^2) of 'denser snow tussock grassland'. By comparison, the Contingency Zone in the approved layout encroaches over more of the tussock and over the small wetland that is excluded under the revised layout. The proposed changes to the Contingency Zone conform to the natural landscape features to a greater extent and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and straddles areas of rough and improved pasture. The indicative civil design depicts the wind turbine hardstand in cut with fill batters below the laydown area at the eastern end. SFD 53 (0.43 ha) and SFD 55 (0.17 ha) – adjacent to the road – are at the location of a SFD in the approved layout but are reconfigured to fit either side of the road design in the now more detailed earthworks layout. As with the approved layout, SFD 53 will be on the peneplain mostly in an area of improved pasture. SFD 55 will be mostly in improved pasture: part of the SFD extends into rough pasture but it avoids an adjacent area of 'denser snow tussock grassland'. The combined footprint of SFD 53 and 55 will be slightly smaller than the approved layout in this location (0.60 ha vs 0.73 ha). SFD 57 (0.44 ha) – adjacent to the wind turbine – is in the location of a SFD in the approved layout but reconfigured to fit the wind turbine hardstand/laydown design in the now more detailed earthworks layout, and to avoid a small swale. As with the approved layout, SFD 57 will be a blanket fill on the peneplain in an area of improved pasture. It will have a smaller footprint than the approved layout (0.44 ha vs 1.13 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The works will have some adverse effects on a very small area of 'denser snow tussock grassland' but such effects could occur to a greater extent under the approved layout. Likewise, the changes avoid a wetland that is potentially encroached upon in the approved layout. The proposed changes will have positive effects.	positive
34	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 48). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate.	very low

WTG location	*Description of effect*	*Degree*[51]
	The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut and fill batters below the blade laydown area. SFD 60 (0.23 ha) is near the location of a SFD in the approved layout but is a proposed relocation to the opposite side of the access road. SFD 62 (0.20 ha) is in the same location as a SFD in the approved layout. As with the approved layout, both SFD 60 and 62 will be blanket fills on the peneplain surface in an area of improved pasture. Their collective footprints will be similar (0.43 ha vs 0.40 ha) to the approved layout at this location. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
35	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 45). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger, is in improved pasture, and parallels the existing farm track, The indicative civil design depicts the wind turbine hardstand in shallow cut. SFD 61 (0.20 ha) – adjacent to the wind turbine hardstand – is at the location of a SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. SFD 63 (0.24 ha) – adjacent to the access road – is at the location of a SFD in the approved layout but is reconfigured to be closer to the road design in the now more detailed indicative earthworks layout. As with the approved layout, both SFD 61 and 63 are blanket fills on the peneplain in an area of improved pasture. Collectively, they have a smaller footprint (0.48 ha vs 1.08 ha) than that of the SFDs in the approved layout at this location. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	low
36	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 46). No changes are proposed to the Contingency Zone. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture and localised rock outcrops. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger except to skirt a rocky knoll	very low

WTG location	*Description of effect*	*Degree*[51]
	(the existing farm track goes over the knoll). It is in improved pasture. The indicative civil design depicts the wind turbine hardstand in shallow cut with fill batters below the hardstand on the eastern side. SFD 66 (0.15 ha) and SFD 67 (0.21 ha) are proposed adjacent to the access road and wind turbine respectively. The approved layout does not include SFD in the vicinity – the nearest SFD would be adjacent to wind turbine 37 (see below). Both SFD are on the peneplain surface at the toe of the rocky knoll and are in improved pasture. They will not have adverse effects on natural landscape features. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
37	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 47). No change is proposed to the Contingency Zone. As with the approved layout, the Contingency Zone will be on the undulating surface of a lower peneplain finger, in an area of improved pasture with scattered rock outcrops. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The layout in this area avoids the locally prominent knoll and rocky outcrop east of WTG 36 and NW of WTG 37. The access road to WTG 37 follows the topography more closely and skirts the rocky outcrop to a greater extent compared to the route depicted in the approved layout. To this end, it is proposed to extend the eastern edge of the Stage 2 Wind Farm Development Area by approximately 50m. That change would have positive effects compared to the consented layout. SFD 70 (0.29 ha) is in the same location as a SFD in the approved layout but is reconfigured to fit the indicative road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 70 will be a blanket fill on the undulating peneplain finger in an area of improved pasture. It will have a smaller footprint (0.29 ha vs 0.80 ha). It is proposed to remove a second SFD (0.39 ha) from the approved design to avoid localised outcrops. While the rocky outcrops are a minor feature, their avoidance will nevertheless have positive effects. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have slightly positive effects.	positive
38	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 49). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the peneplain surface in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture.	very low

WTG location	*Description of effect*	*Degree*[51]
	The indicative civil design depicts the wind turbine hardstand in shallow cut with fill batters below the blade laydown areas. SFD 68 (0.40 ha) is nearby to a SFD in the approved layout but is reconfigured to fit the indicative turbine hardstand/laydown design in the now more detailed indicative earthworks layout. It is located on a flatter area further from localised rocky outcrop. As with the approved layout, SFD 68 is a blanket fill on the peneplain finger and in improved pasture. It has a smaller footprint (0.40 ha vs 0.96 ha), In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
39	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 100m north of the that indicated in the layout approved under the existing consent (WTG 50). Changes are also proposed to the Contingency Zone exclusions in response to the change in wind turbine location, and so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer). It is proposed to alter the boundaries of the Stage 2 Wind Farm Development Area to accommodate the changes. There will be no adverse landscape effects from these changes. As with the approved layout, the Contingency Zone will be on the undulating surface of the peneplain finger, in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment follows the contours around the rocky knoll. SFD 71 (0.16 ha) is adjacent to a SFD in the approved layout but and will be closer to the indicative wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 71 will be a blanket fill on the peneplain in an area of improved pasture but will avoid the rocky outcrop. It will have a smaller footprint (0.16 ha vs 0.33 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	positive
40	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 160m north of an approved location under the existing consent (WTG 51). The change will have positive landscape effects because the location is a flat saddle area instead of the rocky knoll of the approved location. Changes are also proposed to Contingency Zone exclusions in response to the shifted location, and so that the zone follows the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the zone will be on the undulating surface of the lower peneplain finger in improved pasture but will avoid a localised rocky outcrop. The proposed changes to the Contingency Zone conform to the natural landscape features and the ecological assessment is that the changed buffers are appropriate.	positive

WTG location	*Description of effect*	*Degree*[51]
	The road will follow the same route as the approved layout, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The alignment is across the saddle on improved pasture. It follows a similar route to the consented windfarm layout but is more closely aligned to the contours (the road to both WTG 39 and 40 descends the terrace scarp in a small depression, and curve across the saddle). SFD 76 (0.23 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the indicative wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 76 will be a blanket fill on the undulating peneplain saddle in an area of improved pasture. It has a smaller footprint (0.23 ha vs 0.43 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
Southern spur		
44	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 92). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on the surface of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout acknowledging that the indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The earthworks design depicts the wind turbine hardstand in cut, and fill batters below the laydown area as the ground slopes along the finger. SFD 72 (0.22 ha) is alongside the wind turbine hardstand and laydown area. The approved layout does not depict a SFD site in this area. SFD 72 will be a blanket fill on the peneplain finger in an area of improved pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
45	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 80m north of an approved location under the existing consent (WTG 87). Changes are also proposed to Contingency Zone exclusions in response to the shifted location, and so that the zone follows the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. The changes will have no adverse landscape effects. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout has been designed to a greater level of	very low

WTG location	*Description of effect*	*Degree*[51]
	detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The alignment follows a sweeping curve so that the wind turbine hardstand and laydown areas are aligned across the finger parallel with the contours. The earthworks design depicts the wind turbine hardstand in cut on the uphill side to the north-east with fill batters below the laydown areas to the southwest and southeast. SFD 75 (0.29 ha) is below the wind turbine location. The approved layout does not depict a SFD site in this area. SFD 75 will be a blanket fill on the peneplain finger in an area of improved pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
SFD 58 and 65	SFD 58 (1.20 ha) is alongside an existing wind farm access track. It is at the location of a SFD in the approved layout but reconfigured to fit the existing road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 58 will be a blanket fill on the peneplain finger in an area of improved pasture. The footprint will be smaller (1.20 ha vs 1.87 ha). SFD 65 (1.19 ha) is alongside an existing wind farm access track. It is at the location of a SFD in the approved layout. As with the approved layout, SFD 65 will be a blanket fill on the peneplain finger in an area of improved pasture. The footprint will be slightly smaller (1.21 ha vs 1.33 ha). SFD 58 and 65 will collectively have smaller footprints compared to the approved layout (2.39 ha vs 3.20 ha) and will be similar in all other respects. They will therefore have slightly positive effects.	positive
	The approved layout provides for two SFDs (1.81 ha and 1.50 ha) on the finger plateau to the south. It is proposed to remove these SFDs from the changed conditions for Stage 2, acknowledging that the existing Stage 1 of the wind farm will have made used of SFD sites.	
46	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 59). Minor changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road is similar to that of the approved layout in that it is accessed direct from Eldorado Track, except that the proposal has a loop track to avoid the need to turn vehicles, acknowledging that the indicative earthworks layout is now designed to a greater level of detail. The indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut with fill batters below the laydown area on the north side.	very low

WTG location	*Description of effect*	*Degree*[51]
	SFD 69 (0.35 ha) is adjacent to the location of a SFD in the approved layout but reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 69 will be a blanket fill on the peneplain finger in an area of improved pasture. The footprint will be smaller (0.35 ha vs 0.89 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
47	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 80m southwest from the approved layout (WTG 67). The wind turbine location will be 60m further from Eldorado Track so that it would avoid blades overflying the road. The shift in nominal turbine location will have no adverse landscape effects. Changes are also proposed to Contingency Zone exclusions in response to the shifted location, and so that the zone follows the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 73 (0.34 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 73 will be a blanket fill on the peneplain finger in an area of improved pasture. It will have a similar footprint (0.34 ha vs 0.37 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
48	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 82). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut and fill batters below the blade laydown area.	very low

WTG location	*Description of effect*	*Degree*[51]
	SFD 74 (0.19 ha) is proposed adjacent to the wind turbine hardstand. The approved layout does not indicate an SFD near this location. SFD 74 will be a blanket fill on the peneplain finger in an area of improved pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
49	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 95). Minor changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut and fill batters below the blade laydown area. SFD 77 (0.18 ha) is at the location of a SFD under the approved layout but reconfigured to fit the road and wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. SFD 78 (0.16 ha) is in a new location adjacent to the wind turbine access road. As with the approved layout, both SFDs will be blanket fills on the peneplain finger in an area of improved pasture. Their combined footprint will be that same as the of the SFD under the approved layout at this wind turbine (0.34 ha vs 0.35 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
50	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 90m north of an approved location under the existing consent (WTG 96). The shift will have no adverse landscape effects but will be more practicable given the approved wind turbine location is on the edge of its Contingency Zone. Changes are also proposed to Contingency Zone exclusions in response to the shifted location, and so that the zone follows the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The indicative earthworks design depicts the wind turbine hardstand in shallow cut with localised fill batters below the southern corner of the laydown area. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. However, it follows a sweeping alignment compared to the route in the	positive

WTG location	*Description of effect*	*Degree*[51]
	approved layout to more easily negotiate the change in level from WTG49, and to align the wind turbine civil works across the slope to better align with the contours. The alignment swings outside the approved Windfarm Development Area by up to approximately 50m. Changes are proposed to the Stage 2 Wind Farm Development Area to accommodate these changes, the net effect of which will be positive. SFD 80 (0.25 ha) is adjacent to the wind turbine location. The approved layout does not indicate an SFD near this location. SFD 80 will be a blanket fill on the peneplain finger in an area of improved pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'positive' effects compared with the approved layout.	
51	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 30m southeast of an approved location under the existing consent (WTG 79). Changes are also proposed to the Contingency Zone exclusions in response to the shift, and (as with other locations) so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout, acknowledging that the indicative earthworks layout has been designed to a greater level of detail. The alignment follows the crest of the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut with localised fill batter below the blade laydown area. SFD 79 (0.26 ha) is adjacent to the access road. It is approximately 200m southwest of a SFD in the approved layout but is reconfigured to fit the road design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 79 will be a blanket fill on the peneplain finger in an area of improved pasture. It will have a slightly similar footprint (0.26 ha vs 0.31 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
52	It is proposed to shift the centre of the Contingency Zone (nominal turbine location) approximately 60m north of an approved location under the existing consent (WTG 75). The change in wind turbine location will have no adverse landscape effects but will be more practicable given the approved wind turbine location would have resulted in blades overflying Eldorado Track. Changes are also proposed to the Contingency Zone and its exclusions in response to the shifted location, and so that the zone follows the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), and complying with the road reserve. A change is proposed to the Stage 2 Wind Farm Development Area to accommodate the changes. These changes will have no adverse landscape effects. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. The proposed changes to the	very low

WTG location	*Description of effect*	*Degree*[51]
	Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The wind turbine will continue to be accessed direct from Eldorado Track as with the approved layout, acknowledging that the indicative earthworks layout has now been designed to a greater level of detail. The road alignment is on the crest of the peneplain finger and is in improved pasture. However, the confined nature of the area means it is not practicable to avoid a fill batter from the access road encroaching over the head of a gully. The extent of the encroachment is small (<200m^2) and is over the shallow head of the gully which is an area of rough pasture. It avoids any wetland. There will be a 'very low' adverse effect on the natural landscape. A small change is proposed to the Stage 2 Wind Farm Development Area to accommodate these earthworks. SFD 81 (0.56 ha) is northwest of the wind turbine location. The approved layout does not indicate a SFD at this location. SFD 81 will be a blanket fill on the peneplain finger in an area of improved pasture. In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	
	SFD 82 (0.93 ha) is at the location of a SFD under the approved layout, on the opposite side of Eldorado Track from WTG 52, and near the access road to WTG 53. As with the approved SFD, it will be a blanket fill on the peneplain surface in an area of improved pasture. The footprint of SFD 82 will be slightly smaller than that of the SFD at this location under the approved layout (0.93 ha vs 1.01 ha).	
53	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 77). Changes are proposed to the Contingency Zone exclusions so that the zone will follow the gully rim and a minimum 10m buffer from wetlands (rather than a 50m buffer), while continuing to comply with the boundary of the approved Windfarm Development Area. As with the approved layout, the Contingency Zone will be on top of the peneplain finger in an area of improved pasture. The proposed changes to the Contingency Zone conform to the natural landscape features. The ecological assessment is that the changed buffers are appropriate. The road will follow the same route as for the approved layout but entails access at both ends of the wind turbine platform and a realignment of the existing farm track to bypass the wind turbine. The indicative earthworks layout is now designed to a greater level of detail than the approved layout. The alignment along the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut. SFD 83 (0.54 ha) is adjacent to the access road. It is 700m north of the SFD om the approved layout, at the opposite end of the wind turbine earthworks. As with the approved layout, SFD 83 will be a blanket fill on the peneplain surface in an area of improved pasture. The footprint will be larger than that of the SFD under the approved layout (0.54 ha vs 0.12 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	very low
54	The centre of the Contingency Zone (nominal turbine location) has not changed from the approved layout (WTG 76). No changes are proposed to the Contingency	very low

WTG location	*Description of effect*	*Degree*[51]
	Zone exclusions except to trim the zone to avoid encroaching onto the road (the approved layout encroaches on the road). There are no adverse effects from this change. Direct access will be provided from Eldorado Track as with the approved layout. The access is across the peneplain finger and is in improved pasture. The indicative earthworks design depicts the wind turbine hardstand in shallow cut and with fill batters below the blade laydown area. SFD 84 (1.16 ha) is at the location of a SFD in the approved layout but is reconfigured to fit the wind turbine hardstand/laydown design in the now more detailed indicative earthworks layout. As with the approved layout, SFD 84 will be a blanket fill on the peneplain finger in an area of improved pasture. It will have a smaller footprint (1.16 ha vs 2.48 ha). In the context of the civil engineering required to construct a wind farm, the proposal avoids and minimises potential adverse effects on natural landscape features (natural landform, waterways, vegetation). The proposed changes will have 'very low' adverse effects.	

APPENDIX SIX. PRIVATE VIEWS

1. The table assesses effects on visual amenity from properties within 6 km of the nearest proposed Stage 2 wind turbines. Beyond 6 km, we are confident the effects will be 'very low'. The assessments are made from roadside observations and desk-top analysis (photo simulations, topographic plans, aerial photos, digital terrain model). The table describes the nature of the effect and assesses the degree of effect against the 7-point scale described in **Appendix Two**. The dwellings referred to in the table are identified in Figure 7 in the **Attachment. Plans and Photosimulations (separate A3 document)**.

2. It is important to note that the assessment is of the proposed changes to the consented wind farm, not an assessment of the wind farm per se (other than the activities to be authorised by new resource consents). To that end, comparison is made between the 'realistic consented Stage 2' and the 'proposed Stage 2' – as depicted in the photo simulations.

#	*Address*	*Distance*[54]	*Nature of effect*	*Degree*[55]
	North-east			
1	217 Old Dunstan Road 'Gladford Station)	5.0 km (WTG 1)	House appears oriented NW and NE. Wind farm will be to W and SW. Foreground shelter belts to W and SW will limit views. Midground plantations will contribute to perspective depth. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' would be difficult to perceive because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. The differences between the proposed Stage 2 wind turbines and the existing Stage 1 wind turbines would not be perceptible because they are at the other end of the wind farm. Stage 1 is 9.8 km away.	very low
2	Gladford Station 2nd house	5.4 km (WTG 1)	House appears oriented to NE and NW. Wind farm will be to W and SW. Foreground shelter plantation to W	very low

[54] Distance is to the nearest potential Stage 2 wind turbine location which is identified in brackets (2025 numbering). Some existing Stage 1 wind turbines are closer than the nearest proposed Stage 2 wind turbines with respect to houses at the southern end of the wind farm.

[55] A conservative approach is taken by recording effects as 'very low' (negligible) even if it appears that views will be completely screened.

#	Address	Distance[54]	Nature of effect	Degree[55]
			and SW will limit views. Midground plantations will contribute to perspective depth. As above, the changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' would be difficult to perceive because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. The differences between the proposed Stage 2 wind turbines and the existing Stage 1 wind turbines would not be perceptible because they are at the other end of the wind farm. Stage 1 is 10 km away.	
	Southeast			
4	1108 Black Rock Runs Road 'Nether Lee'	900m (WTG 13)	Participating property [redacted]	participating property
5	1062 Black Rock Runs Road	850m (WTG 17)	Participating property [redacted]	participating property
6	851 Black Rock Runs Road	1.7 km (WTG 28)		participating property
7	833 Black Road Runs Road 'Glen Lee'	1.9 km (WTG 28)	Participating property [redacted]	participating property
8	574 Black Rock Runs Road	4.4 km WTG 17 & 28)		participating property
9	526 Black Rock Runs Road	4.8 km (WTG 17 & 28)	House appears oriented NW. Wind farm will extend from NW to SW. Foreground shelter belts will screen views to W and SW but there will be views to NW part of the wind farm including nearest wind turbine (WTG	very low

#	Address	Distance[54]	Nature of effect	Degree[55]
	'Kindrock Station'		17). Shelter belts and plantation in the intervening landscape will contribute to perspective depth. Refer to viewpoint 2 photo simulation. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be obvious because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. The differences between the proposed Stage 2 wind turbines and the existing Stage 1 wind turbines would not be perceptible because the southern end of the wind farm is distant, beyond the southeastern spur, and partly screened by topography.	
10	612 Black Rock Settlement Road 'Black Rock'	2.2 km (WTG 36)	House appears oriented NE. Participating property [redacted]	participating property
11	555 Black Rock Settlement Road	2.9 km (WTG 36)	House appears oriented NE. Wind farm will be to W and NW. Foreground shelter belt will limit visibility. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be obvious because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together.	very low

#	Address	Distance[54]	Nature of effect	Degree[55]
			The differences between the proposed Stage 2 wind turbines and the existing Stage 1 wind turbines might be perceptible, but it would be incidental because Stage 1 is further away than the nearest wind turbines on the southeastern spur – the nearest Stage 2 will be 3km away, and the nearest Stage 1 is 5.3 km away. (The transmission line would also have some effects on views from this property – see below)	
12	463 Black Rock Settlement Road	3.6 km (WTG 36)	House appears oriented NE. Wind farm is to W and NW. Foreground plantation will screen nearest part of wind farm to W. Views across farmland to more distant (4km +) NW part of wind farm. Intervening shelter belts will contribute to perspective depth. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be obvious because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. The differences between the proposed Stage 2 wind turbines and the existing Stage 1 wind turbines might be perceptible, but it would be incidental because Stage 1 is further away than the nearest wind turbines on the southeastern spur – the nearest Stage 2 wind turbine will be 3.6 km away, and the nearest Stage 1 is 5.8 km away.	very low
	South			
14	1876 Mahinerangi Road 'Pinelee'	5.1 km (WTG 37)	House appears oriented NE. Wind farm will be to NW. Foreground trees will reduce visibility. Foreground trees and sheds will contribute to perspective depth. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be obvious because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such	low

#	Address	Distance[54]	Nature of effect	Degree[55]
			factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. For comparison, the photo simulation from viewpoint 4 is from a similar angle but 1 km closer to the wind farm. The differences between the proposed Stage 2 wind turbines and the existing Stage 1 wind turbines may perceptible but are likely to be incidental. The nearest Stage 2 wind turbine will be 6.3 km away and the nearest Stage 1 is 8.3 km (The transmission line and switching station would also have some effects on views from this property – see below)	
15	68 Eldorado Track 'Thornicroft'	4.5 km (WTG 55)	Participating property [redacted]	participating property
16	168 Eldorado Track	3.4 km (WTG 55)	Participating property [redacted]	participating property
17	256 Eldorado Track 'Tarndale'	2.7 km (WTG 55)	House appears oriented NE away from wind farm. Wind farm will be to NW. Surrounded by tall and dense shelter trees (pine and gums) which will substantially reduce visibility (cannot see house from road). Views, from where they are afforded, will be to southern spur (where Stage 1 and Stage 2 wind turbines will be mixed) and southeastern spur. For reference, photo simulation from viewpoint 5 is opposite the nearest part of the farm approximately 500m closer to the wind farm than the dwelling. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be obvious because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic	low

#	Address	Distance[54]	Nature of effect	Degree[55]
			coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. While the difference in size between the consented/proposed wind turbines and the existing Stage 1 wind turbines will be apparent, it will not be pronounced. The existing and consented/proposed wind turbines will appear generally similar. There would a 'low' degree of effect on aesthetic coherence amongst the wind turbines. However, this would occur in any event between the existing Stage 1 wind and the 'realistic consented	
18	453 Eldorado Track	900m (WTG 55)	[redacted]	participating property
19	2203 – 2204 Mahinerangi Road Mahinerangi Fishing Village	5.4 km (WTG 55)	Approximately 35 'fishing cribs' on the edge of Lake Mahinerangi. The cribs are clustered closely in two groups either side of Mahinerangi Road. Orientation is generally south toward the lake in the opposite direction from the wind farm. Views toward the wind farm are limited, especially from the cribs on the southern side of Mihinerangi Road, by the rising ground to the north, the foreground proximity of cribs to each other, and in some cases by hedging. Cribs with the clearest views will be those on the northern perimeter of the settlement, and the individual dwelling on the hill 50m west of the main Fishing Village. For reference, the photosimulation from viewpoint 6 is adjacent to the Fishing Village. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be obvious because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together.	very low

#	Address	Distance[54]	Nature of effect	Degree[55]
			The difference in size between the existing Stage 1 wind turbines and the consented/proposed Stage 2 wind turbines may be perceptible but will be incidental. The nearest wind turbines will be existing Stage 1 wind turbines at 5.0 km and 5.1 km. The nearest Stage 2 wind turbines will 400m to 500m further back. The wind turbines will have a similar appearance as depicted in the photosimulations. There would be a very low effect on aesthetic coherence.	
20	Thornicroft Road 'Thornicroft'	4.1 km (WTG 55)	Participating property [redacted]	participating property
21	Thornicroft Road 'Thornicroft'	3.5 km (check) (WTG 55)	Participating property [redacted]	participating property
22	69 Waipori Cemetery Road 'Boothill'	5.2 km (WTG 55)	House appears oriented to SE toward outlook over Lake Mahinerangi, in opposite direction to wind farm site. Foreground rising terrain will partially screen wind farm. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' might not be perceptible because the wind turbines are at varying heights in response to topography and have the same rotor diameter. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. Any adverse effects would be 'very low' considering these factors together. The difference in size between the existing Stage 1 wind turbines and the consented/proposed Stage 2 wind turbines may be perceptible but will not be pronounced in part because the Stage 1 and 2 wind turbines will be different distances. The nearest wind turbines will continue to be the existing Stage 1 wind turbines at 4.4 km and 4.6 km. The nearest Stage 2 wind turbines will 400m to 500m further back. Any effects on aesthetic coherence will be 'very low' effect – the wind turbines will have a generally similar appearance.	very low

#	Address	Distance[54]	Nature of effect	Degree[55]
	West			
24	1057 Eldorado Track	1.5 km (WTG 44)	The crib appears oriented NE. There will be views across open tussock to the wind farm. The nearest part of the wind farm is the wind turbines on the southern spur to the SE. The changes in height between the 'realistic consented Stage 2' and 'proposed Stage 2' will be perceptible but not pronounced because the comparison is with wind turbines of the same rotor diameter, and because wind turbine height varies anyway in response to topography. Any perceived differences will not affect landscape character and values. There will be no change to such factors as dominance, the scale relationship of the wind farm with the broad landscape, the appropriateness of the setting, the aesthetic coherence amongst the wind turbines, and consistency between the wind farm and underlying landform. With respect to dominance, the increase in height will be offset by the nearest wind turbines continuing to be the existing Stage 1 wind turbines, with the nearest Stage 2 wind turbine 200m further away. Any adverse effects of the changes would be 'low' considering these factors together. The difference in size between the existing Stage 1 wind turbines and the consented/proposed Stage 2 wind turbines will be apparent but will not be pronounced. The wind turbines will be generally similar in appearance. There will be a 'low' degree of effect on aesthetic coherence between the Stage 1 and Stage 2 wind turbines. Note: Four wind turbines are consented on the Thomas property as part of the existing consent. These have not been considered as part of the baseline for this part of the assessment.	low
			Visual effects of transmission line	
11	555 Black Rock Settlement Road	1.8 km	House appears oriented NE. The proposed transmission corridor is to the NW and W beyond the rear boundary of the farm. Foreground shelter belt will limit visibility, and midground ridge and shelter belts will further restrict views and provide perspective depth. The pole design will have a low-key appearance.	very low

#	Address	Distance[54]	Nature of effect	Degree[55]
			With respect to cumulative effects the existing pylon transmission line is 3.8 km to the S and beyond intervening shelter belts and rolling topography. The degree of adverse effect on visual amenity will be 'very low' having regard to the design, distance, orientation of the house in the opposite direction, and the extent of screening.	
14	1876 Mahinerangi Road 'Pinelee'	1.8 km	House appears oriented NE. Proposed transmission line corridor is to W through N. Foreground trees and sheds, and midground rolling ridge, will provide some screening and contribute to perspective depth, especially to nearest part of the line and switching station. The clearest view will be to the more distant section of the transmission line on the plateau approximately 3 km to NW. For comparison, the existing 110kV pylon line passes approximately 550m to the north of the house. The transmission line will introduce cumulative electrical infrastructure to the landscape, but the pole design will have a low-key appearance compared to the existing pylon transmission line and will be further away. The degree of adverse effect on visual amenity will be 'very low' having regard to the design, distance, and extent of screening.	very low
17	256 Eldorado Track 'Tarndale'	1.1 km	House appears oriented NE. Surrounded by tall and dense shelter trees (pine and gums) which appear to restrict views. However, house is elevated, potentially providing outlook over the Broad Stream valley toward the proposed transmission line. The section of proposed transmission line corridor on the high part of the plateau NE and N of the house will be approximately 2.0 km – 3.5 km away. This will be the section with the clearest potential visibility. The crossing of Broad Stream valley to the E (~1.4 km) and on the spur to the SE (~ 1.1 km) will be closer, but midground shelter belts and rolling spurs will provide partial screening and additional perspective depth in those directions. There will be some cumulative effects in conjunction with the existing pylon transmission line. In this instance the existing line is beyond the proposed pole line, and trends in the opposite direction away from views.	low

#	Address	Distance[54]	Nature of effect	Degree[55]
			The pole design will have a relatively low-key appearance. The degree of adverse effect on visual amenity values will be 'low' having regard to the use of poles for the line, distance, and partial screening.	

APPENDIX SEVEN. OUTSTANDING NATURAL LANDSCAPES

Lammermoor Range

Dunedin City Council area

1. The Lammermoor Range west of the wind farm is identified as part of the part of the High Country Outstanding Landscape Area (OLA) in the Operative District Plan 2006, and part of the High Country Outstanding Natural Landscape (ONL) in the 2GP Dunedin City District Plan.

2. The values to be protected are listed in Appendix A3.2.1.2. Some of the listed values are specific to other parts of what is a very large ONL. Those considered relevant to the Lammermoor Range west of the wind farm are highlighted:

> *A3.2.1.2 Values to be protected*
>
> *The following features and characteristics have been identified as important to protect:*
>
> *a) Natural science values:*
>
> *i).Historic iconic landmark ridgelines including: Rock and Pillar Range; the Lammerlaw Range;* ***the Lammermoor Range****; and elevated sections of the Taieri Ridge.*
>
> *ii) The lowland tor landscape (listed as a significant landform (NZ Geological Society Geopreservation Inventory for the Otago Region).*
>
> *iii)* ***Rock outcrops which give rise to a dramatic skyline and a highly memorable landscape.***
>
> *iv) Significant landform features, i.e. Rock and Pillar solifluction features (NZ Geological Society Geopreservation Inventory for the Otago Region).*
>
> *v)* ***Highly coherent natural landform under an apparently largely unmodified grassland vegetative cover. This is landmark high country area distinctive in Dunedin****, particularly within the Rock and Pillar Range.*
>
> *vi)* ***Fragile ecosystems, e.g. cushion bogs****.*
>
> *vii)* ***Intact scrub and snow tussock vegetation sequences progressing to sub-alpine herbfields. The retention of enough tussock grassland to give the impression of a semi-natural vegetative character.***
>
> *viii)* ***Skink habitat beneath rocky outcrops****.*
>
> *ix) Mt Ross, Gladsmuir Crater, Conical Hill and Mt Stoker, all assessed as being significant.*
>
> *X) Distinctive features within the Outstanding Natural Landscape Area including: Bald Hill; Yellow Hill; and Scratchback Hill.*

b) Cultural and historic values:

*i) **Values of significance to Manawhenua. See Appendices A4.66, A4.67 and A4.62**.*

ii) Central Otago Rail Trail between Hyde and Tiroti, which includes heritage engineering features.

iii) Historic traditional farming stations with associated routes and tracks.

iv) Human made elements which emphasise local character and contribute to visual quality, e.g. stone buildings, rock fence posts.

c) Aesthetic and amenity values:

*i) **The large scale, open, expansive, remote wilderness character.***

ii) A skyline which is almost entirely free of human structures when viewed from the Middlemarch valley or from the Upper Taieri Gorge Railway line.

*iii) **Limited visual impact of human imposed elements such as tracks, buildings and exotic tree plantings. The relative visual dominance of the natural landscape elements over these is a fundamental characteristic.***

*iv) **Snow tussock grassland. The extent and quality of the visual contribution made by these highly significant intact areas.***

*v) **Recreational values. Sub-alpine tramping and links with Central Otago tracks**. Mountain biking and four wheel driving along Dunstan Road, and other access ways; i.e., Department of Conservation tracks within the Rock and Pillar Range.*

*vi) **A night sky with outstanding capacity to view astronomical features free from light pollution.***

3. The boundary of the mapped ONL west of the wind farm follows Deep Stream and Barbours Stream at the base of the scarp. That is, the scarp is part of the identified ONL.

4. We concur with the identification of the Lammermoor Range as part of an ONL, with the mapped boundary in the area west of the wind farm site, and with the identified values. We considered the potential effects of the proposed changes to the wind farm consent on the ONL in that context.

Clutha District Plan

5. The Lammermoor Range is not included in the 13 'potentially outstanding landscapes' listed in Table 13.3A of the Clutha District Plan.

6. The 2015 *Clutha District Landscape Management Recommendations* report (CDLMR)[56] was commissioned by the Clutha District Council as one of several studies to assist in the review of the Clutha District Plan. Its purpose is to recommend areas that should be recognised and managed as 'outstanding natural features and landscapes' under Section 6(b) of the RMA. The report was prepared by registered NZILA landscape architect Mike Moore.

7. The report recommends that the Clutha District Council recognise and manage three areas as Outstanding Natural Landscapes, one of which is 'Lammerlaw High Country' which includes the Lammermoor Range. The part of the range that falls within Clutha District is opposite the south-western end of the wind farm site (i.e. the southern and south-western spurs).

8. The report describes the values of the 'Lammerlaw High Country' as follows:

> *Landscape Values*
>
> *This area includes the high country associated with the Lammerlaw Range and is largely tussock covered. The area identified coincides to a large extent with the part of the Te Papanui Conservation Park that is within Clutha District. The area is of very high ecological value, protecting a large intact tussock grassland area increasingly rare internationally, and the insect fauna of the area is of national importance. It is host to a large variety of native plants and animals including many rare wetland plants.*
>
> *The landscape is characterized by a uniform but asymmetric landform pattern comprising broad ridges with parallel streams dissecting the slopes in rhythmical patterns. It has a strong sense of remoteness. The area also has cultural values being significant to Kai Tahu and containing gold mining relics such as water races which fed the Gabriels Gully and Waipori gold fields. Protection of this landscape is important in terms of Section 6(b) and (c) of the RMA.*
>
> *The key landscape values are as follows:*
>
> ***Natural Science / Expressive values***
>
> *- High ecological / biodiversity values associated with the large intact area of tussock grassland, insect fauna of national importance and rare wetland plants.*
>
> *- The dissected peneplain landform is expressive of the effects of water and wind erosion on an ancient land surface.*
>
> ***Aesthetic / Wild and Scenic values***

[56] Clutha District Landscape Management Recommendations – Outstanding Natural Features and Landscapes (2015), Mike Moore Associates Landscape Architects

- The uniform but asymmetric landform pattern is distinctive and highly memorable. The grassland cover provides for high landform coherence.
- There are high natural character values based on the indigenous vegetation cover and vast landscape scale.
- A sense of remoteness associated with the scale and naturalness of the landscape.

Transient values
- Lighting effects and the effects of snow cover can highlight the character of the peneplain landform.

Tangata whenua values
- Te Papanui (the Lammerlaw Range) has Ara tawhito, Mauka, Wahi taoka and Wahi tohu values for Kai Tahu.

Historic Heritage values
- Relic goldfields water races feeding Gabriels Gully have heritage significance.
- Pastoral farming historic relics include a musterers' hut and fenceline remains.

Shared and recognized values
- The high conservation values are recognized in the Department of Conservation Otago Conservation Management Strategy and in the Conservation Park status of most of the area.[57]

9. Within the recommended ONL, the report recommends Te Papanui (the Lammerlaw Range) for specific recognition as an Outstanding Natural **Feature** because of its Ara tawhito, Mauka, Wahi taoka and Wahi tohu values. It is unclear whether this refers just to the Lammerlaw Range which runs in a northwest-southeast direction parallel to Mata-Au (Clutha River) and at right angles to the alignment of the Lammermoor Range, or whether it refers to the wider Lammermoor Range plateau.

10. The values above were assessed using the 'Pigeon Bay factors' that were the accepted approach at the time. Those factors remain relevant but would likely be considered now under three aspects – physical, associative, perceptual – outlined in Te Tangi a te Manu, the Institute's landscape assessment guidelines. We consider the Lammermoor Range west of the site and within Clutha District would rate high/very high for each of those aspects.

- It has high values for its physical aspects, having regard to its distinctive geomorphology and expression of geomorphological processes, ecological factors including sub-alpine vegetation dominated by carpet of snow tussock and bog wetlands, and degree of naturalness.
- It has very high values for its perceptual aspects, having regard to the abrupt scarp demarcating the high country, the distinctive flat skyline, the almost unbroken cover of golden tussock, the openness, expansive scale, and the amplification of such qualities by transient high-country weather including occasional snow cover and the play of light that picks out the pattern of incised gullies.
- It has high value for its associative aspects, having regard to the significance of Te Papanui to Māori, the role of the high country to Otago's identity, and the conservation park status

[57] The section of the Lammermoor Range within Clutha District and west of the wind farm site is not within Te Papanui Conservation Park. The boundary of the park is set back approximately 1 km from the top of the scarp.

and recreational use. The area adjacent to the wind farm also includes associations with the Waipori gold field.

11. We therefore concur that the Lammermoor Range has the outstanding qualities of an ONL. Such a classification would be consistent with the identification of contiguous parts of the high country as ONL in Dunedin City (and similarly further west in Central Otago District).

12. The mapped boundary of the recommended ONL in this area follows the 700m contour which is the toe of the scarp in the saddle immediately west of the Thomas Block. The ONL therefore includes the upper parts of the scarp. We consider it is appropriate to include the scarp in the mapped ONL, as has been recommended, because the scarp is integral to the view toward the Lammermoor skyline from the lower country. It would be generally consistent with the approach taken in Dunedin City where the ONL includes the scarp – although the boundary in the Dunedin City District Plan transitions to the plateau as it approaches Clutha District so that the ONL boundaries would not align).

13. In summary, we concur with the identification of the Lammermoor Range as part of an ONL within Clutha District, with the mapped boundary, and with the values identified. We carried out our assessment of effects of the proposed changes to the wind farm on that basis.

Consideration of the wind farm site as a possible ONL

14. In contrast to the Lammermoor Range, the wind farm site and its surroundings are not an ONL.

15. The Environment Court decision noted:

> *[98] The witnesses did not identify nor do we find that there are any outstanding landscapes or features under section 6(b) within the site.*[58]

16. The Court went on later in the decision to confirm the site is not an ONL and is separate, in landscape terms, from the upland plateaus of the Lammerlaw and Lammermoor Range.

> *[222] …No evidence was produced to this Court suggesting that the landscape on the site was either an outstanding natural landscape or part of an outstanding natural landscape under section 6(b) of the Act*.
>
> *[223] Mr Carr submitted that it was near to the outstanding natural landscape of Te Papanui and Lammermoor. We do not accept that the wind farm site is part of an outstanding natural landscape if that was the purport of Mr Carr's submission. The site is on the intermediate slopes between the lower land and the upland plateaus of Lammerlaw and Lammermoor. The physical separation of the application site, both in terms of height above sea level, Lake Mahinerangi to the south and the valley to the north, clearly separates the site in landscape terms. To that extent we accept the evidence of Dr Boffa and Ms Buckland.*

17. The Joint Witness Statement prepared by the landscape experts for the Environment Court hearing stated that *"While there are two areas identified as outstanding natural landscapes in the Dunedin City Plan, the wind farm envelope does not, in our opinion, rate as an outstanding*

[58] Upland Landscape Protection Society Incorporated v Clutha District Council, Otago Regional Council and Trustpower, Decisions No C 85/2008 [Interim Decision], paragraph 98.

natural landscape in terms of Section 6(b) of the RMA". They went on to say, *"That the landscape qualities and values of the Mahinerangi landscape are moderate to high and increase in significance towards and within the adjacent Te Papanui Conservation Park area."*

18. The 'Landscape Management Recommendations' report prepared for Clutha District to identify outstanding natural landscapes does not identify the site as a potential ONL, nor even as a candidate that warrants further consideration for the lesser category of Significant Natural Landscape.

19. For the avoidance of doubt, we considered the site in terms of the three main aspects outlined in Te Tangi a te Manu.

- The site has moderate values for its physical aspects. While it has the interesting geomorphology of the former peneplain, it is lower and less pronounced than peneplain on the range to the west. Its vegetation cover has been significantly modified and converted to improved pasture. It has a lower degree of naturalness, being characterised by the features of productive farmland (roads, buildings, and shelter belts) and energy production (dams, reservoir, pipeline, races, small hydro-electric power plants).
- The site has moderate values for its perceptual aspects. It is less prominent that the backdrop Lammermoor Range, has a less distinctive skyline, and does not natural qualities such as the expansive cover of golden tussock. Its expansive qualities are broken up by shelterbelts and stands of trees. It has the appearance of more ordinary farmland, and also characterised by energy generation features which now must consider the consented and partly constructed wind farm.
- The area to the south-west (mostly outside the wind farm site) has moderate-high value for its associations with the Waipori gold field including relics of the mining era and histories such as the drowned former settlement at Waipori Junction. The wind farm site itself is not understood to have the same significance to Māori as Te Papanui, nor does it have obvious recreational values. Recreation appears limited to walking access to the Lammermoor Range from the end of the formed Eldorado Track.

20. Outstanding natural landscapes often rate highly for all aspects – each reinforcing the others. The site and its immediate surroundings, on the other hand, do not rate highly for any one aspect. It does not have the outstanding qualities of an ONL.

ATTACHMENT. PLANS AND PHOTOSIMULATIONS (SEPARATE A3 DOCUMENT)