Waimakariri District Landscape Evaluation

Outstanding Natural Features, Natural Landscapes & Significant Amenity Landscapes

Prepared for Waimakariri District Council

26 September 2019

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1.0 Executive Summary

Waimakariri District Council (WDC) has commissioned an assessment of the district's landscapes as part of its review of the operative District Plan. Under its statutory obligations the Council needs to confirm the location/boundaries and values of the Outstanding Natural Features and Landscapes (ONL and ONFs) in the district. This study includes a review of the existing ONLs identified in the district plan and the identification of two additional ONFs. Since the issue of a draft document in July 2018 further evaluation work has been undertaken to also consider Significant Amenity Landscapes (SAL) and this evaluation has been incorporated into the ONF/ONL assessment repot.

This evaluation uses current best practice landscape assessment methodology, based on a combination of established methodology, case law and experience with similar studies throughout New Zealand. For the purpose of analysis, the various attributes used to evaluate landscapes have been grouped into three attribute groups –biophysical values, sensory values and associative values.

This study has been undertaken in parallel with, and draws on, two other closely related studies being prepared for WDC[1]- the Rural Character Assessment and Coastal Natural Character Assessment.

The evaluation has been undertaken by the study team of landscape experts. Consultation with Te Ngāi Tūāhuriri Rūnanga (manawhenua)[2], the community, or stakeholders has not been undertaken. Consequently, the findings of this assessment may be subject to change following consultation.

Summary of Findings

Within the Waimakariri District, one ONL and two ONFs and one SAL have been identified. (refer **Figure 1)**

Landscape / Feature	Natural Science values	Sensory Values	Associative Values	Overall Evaluation (Proposed)
Waimakariri River	Very High	High	High	ONF
Puketeraki Range and Oxford Foothills	Very High	High	High	ONL
Ashley River/Rakahuri and Saltwater Creek Estuary	Very High	Very High	High	ONF
Ashley River/Rakahuri	Moderate High	High	High	SAL

[1] Currently being prepared by Boffa Miskell Ltd

[2] A WDC commissioned cultural study is currently being prepared for the District.

2.0 Study Purpose and Scope

2.1 Purpose

All landscapes are dynamic, they are continually changing as a result of the combination of natural processes and changing land uses and activities. Sometimes, changes in land use alter landscapes in a way that conflicts with the special attributes that the community values about a landscape or natural feature. Consequently, there is a need to manage landscape change, particularly in those landscapes most valued by the community. A key step in developing policy to manage landscapes is to undertake an assessment, to identify, evaluate and map those valued landscapes. If robustly and rigorously applied, landscape assessment should inform both the approach and decision-making process relating to how landscapes are or can be managed. Information to assist this process is provided in the final section of this report. This assessment has been prepared in response to the Council's obligations under the Resource Management Act (RMA) and Canterbury Regional Policy Statement (CRPS).

The Operative Waimakariri District Plan contains ONL provisions that were prepared in the mid-1990s. Since that time landscape assessment methodologies have evolved through Environment Court case law and the revised CRPS now specifies the 'matters of assessment' to be considered in the assessment of landscapes to identify ONFs and ONLs. Identification of SALs uses the same assessment framework.

2.2 Project Scope

- Undertake an assessment of the district's landscapes and identify the ONFs/ONLs/SALs– their extent, and the values that make them significant.
- Prepare GIS maps for ONL/ONF/SALs and report to document the landscape values.
- Identify threats and pressures on the landscape values of the identified ONFs, ONLs and SALs to inform the development of provisions to protect those values.

This information will be used to inform the review of the provisions in the relevant chapters of the district plan.

3.0 Statutory Context

3.1 Resource Management Act

The Resource Management Act (RMA) is the principal statute governing the management of New Zealand landscapes. The relevant directives within the Act regarding the protection and management of landscapes are set out in part II, and include:
Section 6(b): Shall recognise and provide for: The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.

As part of the wider environment to be managed under Part 5 of the RMA, adverse landscape effects resulting from inappropriate activities must be avoided, remedied or mitigated.
SALs acknowledge the importance landscapes can make to amenity values and quality of the environment. Section 7 requires that particular regard shall be given to the maintenance and enhancement of amenity values (Section7(c)) and the quality of the environment (Section 7(f)).

The RMA defines amenity values as:
"those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes."
The quality of the environment is not defined by the RMA.

3.2 Canterbury Regional Policy Statement (CRPS)

Chapter 12 of the CRPS sets out the issues, objectives, policies and methods in relation to Landscape. Chapter 12 includes objectives seeking the identification of ONF/ONL and their recognition and protection. It also provides for the identification and management of other landscapes of importance that are not outstanding (for natural character, amenity or historic and cultural heritage reasons). However, this is not a mandatory requirement for territorial authorities. This study only considers ONF and ONLs[3].

The CRPS provides clear direction for assessments to identify ONL and ONFs.

Policy 12.3.1 Identification of outstanding natural features and landscapes

To identify the outstanding natural features and landscapes for the Canterbury region, while:

1. *recognising that the **values set out in Appendix 4** indicate the outstanding natural features and landscapes for Canterbury, at a regional scale; and*
2. *enabling the specific boundaries of outstanding natural features and landscapes, for inclusion in plans, to be determined through detailed assessments which address the **assessment matters** set out in Policy 12.3.4(1).*

Values set out in Appendix 4

Appendix 4 - Identifies the ONLs and ONFs within the Canterbury region at a regional scale. The Lower Waimakariri River and Gorge ONF/ONL detailed in Appendix 4, lies partially within the Waimakariri District.

ONLs and ONFs identified at a district scale can be different to those identified as part of a regional study. This is explained and illustrated further in Appendix 2.

Assessment Matters- Policy 12.3.4

[3] A parallel study, currently being prepared, considers the natural character of the Waimakariri District coastal environment.

In order to achieve consistency of assessments across the region the CRPS defines a list of matters to be assessed in Policy 12.3.4. The application of these assessment matters is a mandatory requirement for territorial authorities within the Canterbury Region.

Policy 12.3.4 Consistency of identification of outstanding natural features and outstanding natural landscapes

Assessment matters-

(1). considering the following assessment matters which address biophysical, sensory and associative values when assessing landscapes in the Canterbury region:

(a) Natural science values

(b) Legibility values

(c) Aesthetic values

(d) Transient values

(e) Tāngata whenua values

(f) Shared and recognised values

(g) Historic values

3.3 Waimakariri District Plan

Chapter 5 of the operative Waimakariri District Plan addresses ONLs and ONFs.

The Plan currently identifies an ONL area that includes the Puketeraki Mountains, Lees Valley and the front ranges including Mount Oxford through to Mount Thomas. The ONL has been divided into three areas, the "Core", "Buffer" and "Ashley Gorge". Prominent ridges are also defined. These are shown on Map 134 (in the District Plan) *Outstanding Landscape Areas and Prominent Ridges*.

The plan Objectives relating to the ONL area are as follows:

Objective 5.1.1

The protection of characteristics that contribute to the natural character of the outstanding landscapes and natural features.

Issue 5.1 - The loss or degradation of the characteristics and qualities of the outstanding landscapes and natural features.

Policy 5.1.1.1 Identify the outstanding landscapes and natural features within the Waimakariri District.

Policy 5.1.1.2 Avoid or remedy adverse effects of inappropriate subdivision, use and development of land on the characteristics and qualities of the Outstanding Landscape Area as set out in Tables 5.1 and 5.2.

Policy 5.1.1.3 Avoid, remedy or mitigate the adverse effects of land use, subdivision and development on the landscape qualities of prominent ridges within the Outstanding Landscape Area.

Policy 5.1.1.4 Maintain the ability to view the Canterbury Plains and Ashley Gorge from selected viewpoints on the Lees Valley Road.

4.0 Landscape Evaluation Methodology

The section below summaries the methodology used for the landscape assessment. (Refer to **Appendix 2** for detailed background and methodology).

This assessment evaluates and identifies the ONF/ONL/SALs in the District.
Outstanding Natural Landscape – is a landscape with attributes that are exceptional or pre-eminent which make it stand out from the wider landscape. While evidence of human presence and activity may be apparent, natural attributes dominate[4]. Natural in this sense means perceived naturalness rather than solely the integrity or intactness of natural systems or indigenous naturalness[5]. (refer **Appendix 2**). The two criteria which must be met are that the landscape or feature is both 'natural' and 'outstanding'.

Outstanding Natural Feature: is defined in the same way as 'outstanding landscape' except it applies to a discrete geographical area or element within a landscape (such as a hill or river), often viewed from outside rather than experienced from within.

Significant Amenity Landscapes: acknowledge the importance landscapes can make to amenity values and quality of the environment. Such landscapes may not make the necessary thresholds of 'outstanding' or 'natural' but require particular regard under Section 7 of the RMA. SALs tend to be more modified cultural features and landscapes where we work, live or play which are well recognised and highly valued by the community. They are widely appreciated for their values that contribute to a location's pleasantness, aesthetic coherence, and cultural identity, as well as their scenic and recreational qualities.

4.1 Defining Landscape Values

Landscape Values - *Derives from the importance that people, tangata whenua, and communities attach to particular landscapes and landscape attributes*[6]. Consequently, a landscape may be valued by different people for a wide variety of reasons and such values may also change over time.

[4] Boffa Miskell derived definition

[5] Refer Appendix 2 for detail and supporting case law

[6] NZILA Best Practice Note 2010

In order to evaluate the numerous landscape values that can comprise any one place, it is necessary to tease out and consider each of the constituent values/attributes separately, and then combine them to come up with an overall evaluation.

Current best practice landscape assessment methodology, based on a combination of case law and experience, recognises that a range of attributes can be considered when evaluating landscapes[7]. For the purpose of analysis, the attributes can be aligned with the three broad means by which landscapes are understood – the biophysical, the sensory and the associative.

Table 1 lists the attributes considered in this assessment[8] as they generally align with the broader groupings of biophysical, sensory and associative values.

The *italicised* attributes are those 'matters of assessment' listed in Policy 12.3.4 of the CRPS (required to be considered for this assessment).

Table 1

Landscape Value Attributes		**Description**
Attribute Grouping	**Attribute**	
Biophysical *(Natural Science)* Geology, ecology, hydrology etc	Abiotic	The presence of important or recognised geological, hydrological or topographical features
	Biotic	The presence of important native vegetation communities, wildlife or ecosystems
Sensory Perceptual dimension including appreciation through our senses and aesthetic qualities such as legibility, coherence etc	*Legibility*	How obviously the feature or landscape demonstrates its formative processes
	Aesthetic	Appreciation of beauty-Including naturalness, vividness, coherence
	Naturalness	The perception of the predominance of nature in the landscape
	Vividness	How striking or memorable an area of landscape is, including its role in the mental maps of a district or region
	Coherence	The way in which the visual elements or components of any landscape come together
	Transient values	The presence of wildlife or other values at certain times of the day or year
Associative Cultural meanings, history, identity and belonging.	*Shared & recognised values*	Whether the values are shared and recognised
	Tāngata Whenua values	Cultural and spiritual values for Tāngata Whenua
	Historic Heritage Associations	The presence of known historic or heritage associations

[7] Amended Pigeon Bay Criteria or factors_ Refer Appendix 2 for full explanation

[8] A more detailed understanding of the landscape attributes considered, including their definitions and reliance on relevant case law is also set out in Appendix 2:

Given the intrinsic complexity of landscape values, it is inevitable that some attributes listed above may be considered to overlap with others, be applicable to more than one attribute grouping or be subsets of one another. Consequently, landscape assessments may vary slightly in terms of the attributes used. Similarly, district and regional plan requirements for 'matters of assessment to be considered' can also vary.

4.2 Evaluating Landscape Values

Evaluation of the landscape has been based on site information, originating from desktop research, findings of the WDC Rural Character Assessment and draft Waimakariri Coastal Natural Character study[9], and analysis of GIS data sets. Mana whenua and community input has not been sought at this stage.

For each potential ONF/ONL/SAL (candidate sites) the landscape attributes listed above were collated and evaluated. Professional judgement was used to evaluate the biophysical, sensory and associative values for each and rated on a seven point scale ranging from very high to very low. An overall judgement was then made as to whether the threshold for ONF/ ONL had been achieved.

Very Low	**Low**	**Moderate Low**	**Moderate**	**Moderate High**	**High**	**Very High**

4.3 Evaluation Process

The evaluation process was undertaken using the following steps

1. **Desktop review** Collate relevant research, GIS data, findings from relevant studies
2. **Prepare draft assessment** of desktop information in relation to biophysical, sensory and associative values for each candidate site.
3. **Prepare draft mapping** of candidate site boundaries
4. **Undertake field survey** to confirm desktop assessment of values and refine boundaries.
5. **Evaluate** biophysical, sensory and associative values, determine if sites meet threshold for ONF/ONL/SAL status and amend boundaries as required to encapsulate relevant landscape values.

4.4 Thresholds for ONFL and SALs

ONFL Threshold - for a feature or landscape to achieve status as 'outstanding' they need to rate Very High in Biophysical or Sensory or Associative values and at least high in biophysical and sensory attributes to be 'natural' enough.
SAL Threshold - for a feature or landscape to achieve status as a SAL they need to have at least High levels of both associative and sensory values.

[9] Report currently being prepared.

4.5 Mapping Landscape Values

The mapping for the GIS maps was undertaken at a scale of 1:10,000 based on land form and land cover boundaries, rather than land ownership (cadastral boundaries). Interrogation of the GIS lines at scales finer than 1:10,000 and ground truthing will reveal that the lines may not align to some physical features. The maps included in this document are for reference; they simply illustrate the mapping provided in the corresponding GIS data sets which were provided to WDC.

5.0 Proposed Outstanding Natural Features Landscapes and Significant Amenity Landscapes in the Waimakariri District.

5.1 Summary of Findings

Within the Waimakariri District, one ONL, two ONFs and one SAL have been identified and are illustrated on **Figure 1**.

Landscape / Feature	Natural Science values	Sensory Values	Associative Values	Overall Evaluation (Proposed)
Waimakariri River	Very High	High	High	ONF
Puketeraki Range and Oxford Foothills	Very High	High	High	ONL
Ashley River/Rakahuri and Saltwater Creek Estuary	Very High	Very High	High	ONF
Ashley River/Rakahuri	Moderate High	High	High	SAL

5.2 Adjoining and Overlapping ONL & ONF Areas

Canterbury Regional Policy Statement

- The Waimakariri River is identified as an ONL/ONF as the *Lower Waimakariri River and Gorge.*

Christchurch City Council

- the Waimakariri River and Brooklands Lagoon are identified as ONL/Fs.

Selwyn District Council (SDC)

- SDC are currently undertaking consultation with landowners on potential ONLs and ONFs. The technical landscape report has identified the Waimakariri River as a potential ONF, and also two hill country ONLs (*Waimakariri Catchment* and the *Front Ranges*) that adjoin the northwestern boundary of the Puketeraki Range and Oxford Foothills ONL.

Hurunui District Council

- No Adjoining ONLs or ONFs

5.3 Delineation of ONL and ONF Areas

Defining ONFs/ONLs/SALs for statutory purposes requires they be delineated on maps. However, in reality the complex of landscape values cannot be precisely contained within abstract boundaries. Therefore, the boundaries should more practically be considered as transition zones between adjoining landscapes with differing values, rather than a hard and fast line of change.

When it comes to considering the appropriateness of activities at or near an ONF/ONL/SAL boundary, the key considerations should be the potential effects on the identified values that contribute to the 'outstanding' or 'significant amenity' status of the area.

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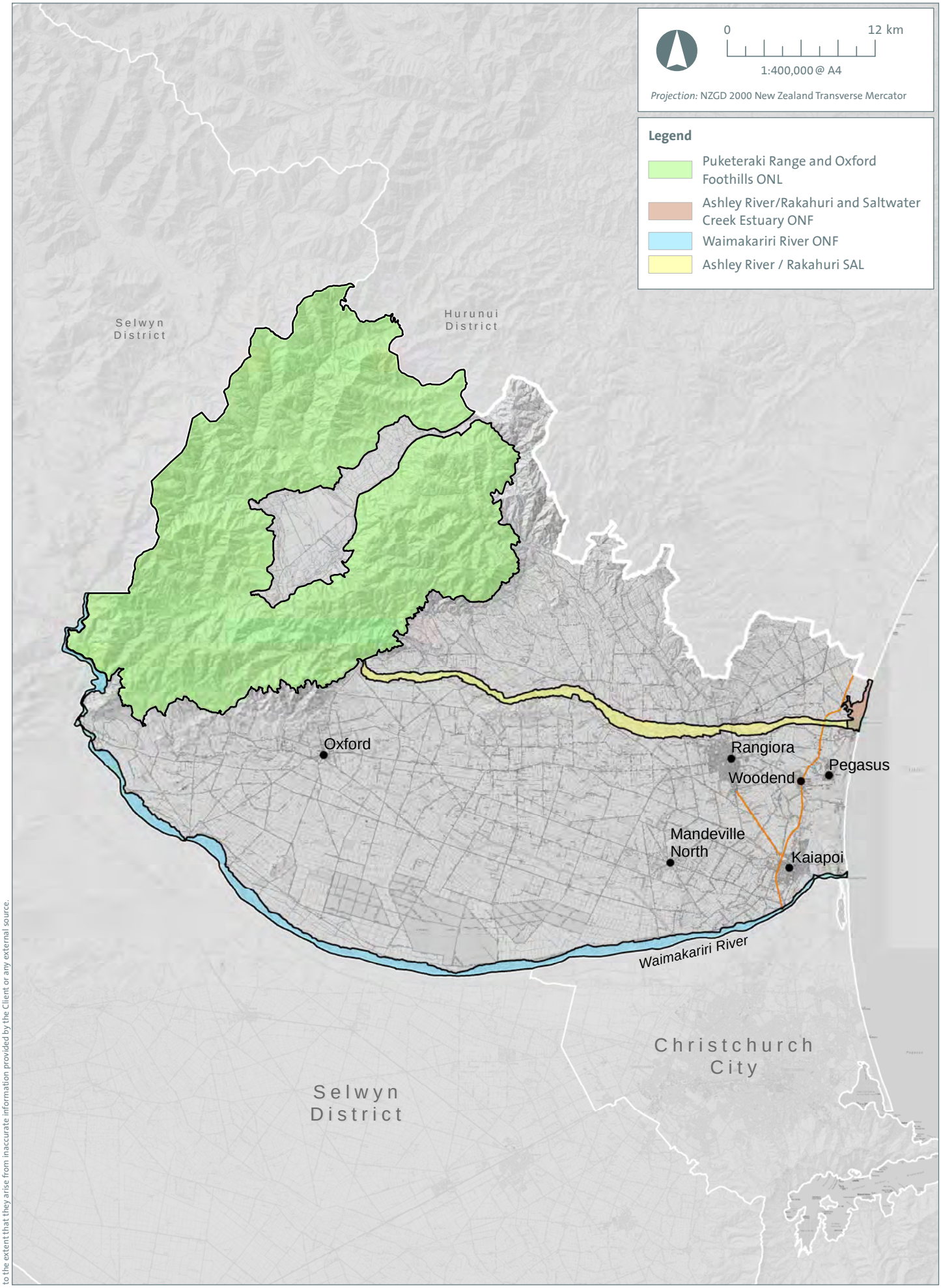

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WAIMAKARIRI DISTRICT LANDSCAPE STUDY

Proposed ONL, ONFs and SAL

Date: 26 September 2019 | Revision: 1

Plan prepared for Waimakariri District Council by Boffa Miskell Limited

Project Manager: **bron.faulkner@boffamiskell.co.nz** | *Drawn:* HWi | *Checked:* BFa

Figure 01

5.4 Proposed Waimakariri River ONF

The lower 85km of the Waimakariri River wraps around the western and southern sides of the Waimakariri District. The river is contained in a steep sided and winding rocky gorge for approximately 17km separating the Torlesse and Puketeraki Ranges down to Woodstock station. From Woodstock the river changes to its distinctive broad braided riverbed traversing the plains to the sea. The braided river is restricted through the lower gorge near View Hill (Gorge Bridge). The river terminates at the coast via the mouth at Kairaki in association with Brooklands Lagoon (located on the southern side within Christchurch City).

At a regional scale the Waimakariri River between Woodstock and the coast has been identified as an ONFL[10]. (Lower Waimakariri River and Gorge). The river upstream of Woodstock lies within the Waimakariri Basin ONFL[11]. The lower Waimakariri River and Brooklands Lagoon were also identified as an ONFLs in neighbouring Christchurch City.

Characteristic pattern of the braided riverbed and channels

[10] 2010. Environment Canterbury, *Canterbury Regional Landscape Study Review*

[11] ibid

Proposed Waimakariri River ONF		
	Landscape Values	Rating
Biophysical	The river is a large scale functioning alluvial system which is a formative element that created the Canterbury Plains, (movement of gravel loads from the mountains, river channels, silts and gravels that underlie the plains and source of loess). Braided rivers are rare (globally) and the Waimakariri is recognised as one of the best examples of its kind in New Zealand. Braided rivers are a 'naturally uncommon ecosystems' and have a threat status of 'endangered'. The riverbed provides significant indigenous and migratory bird habitat particularly at the river mouth and Brookland Lagoon. Valuable bird and fish habitat associated with the braided river. Salmon and trout migrate to the headwaters of the river to complete their breeding cycle.	Very High
Sensory	The wide braided gravel river bed traversing through the Canterbury plains is an iconic feature of the Waimakariri District and the Canterbury Plains. Waimakariri Gorge (upper and lower) is a highly legible landscape feature, revealing the underlying geology with high aesthetic value. Beyond the gorge the gravel banks and old river terraces reveal the formation of the plains. Sinuous braided patterning of the gravel riverbed contrasts with the geometric patchwork of the plains. The contrast and patterning of the braided river channels are highly memorable feature of the area. The river creates a visual and physical connection from mountains to sea. Braided river system is dynamic and constantly changing through variability in flow over the seasons with freshes, low flows and flood events. High flood flows are particularly dramatic and memorable. Wind-blown dust from the riverbed following floods is a characteristic feature of the Canterbury plains.	High
Associative	Waimakariri River and its tributaries are identified as Wāhi Taonga by Ngāi Tūāhuriri in the District Plan. Historically the river was an important travel route to Maori which linked the east and west coasts of the South Island with numerous habitation sites along the river boundary. Important mahinga kai and resource gathering area for manawhenua. Sinuous braided pattern of the river has been recognised as distinctive signature characteristic of the plains and has inspired both literature and art.	High

	Waimakariri River Regional Park offers recreational opportunities and environmental enhancement on the margins of the lower reaches of the river. The river and its margins provide for many recreational activities, including jet boating, kayaking, rafting, fishing, and hunting, cycling and walking. Tourist jet boats operate in the picturesque upper gorge. Establishing bridges across the Waimakariri and controlling the hazard from flooding were two of the key endeavours of early engineers to 'control' the river.	

Mapped Extent:

Refer to **Figure 2**. The river and its margins within the Waimakariri District have been identified as an ONF (the southern banks and lower Waimakariri fall within adjacent districts of Christchurch City and Selwyn District). The mapping includes the braided river bed and the immediately adjancent flood plain/ banks, including vegetation growing on the edge of the active gravel bed. Where wide areas of exotic vegetation or forestry, such as willow and pine plantation, extend across the wider abandoned river banks, these areas were excluded.

The ONL on the river margin/ banks includes some access roads and recreational tracks but excludes productive agricultural land.

The centre line of the river defines the Waimakariri District Boundary with the southern part in Selwyn District (west of Weedons Ross Road (West Melton) and Christchurch City (Weedons Ross Road to the coast).

Adjoining and overlapping ONL/F areas.

The Waimakariri River is identified in the CRPS as an ONL/ONF as the *Lower Waimakariri River and Gorge* and Christchurch City Plan has identified the River and Brooklands Lagoon as an ONL/F.

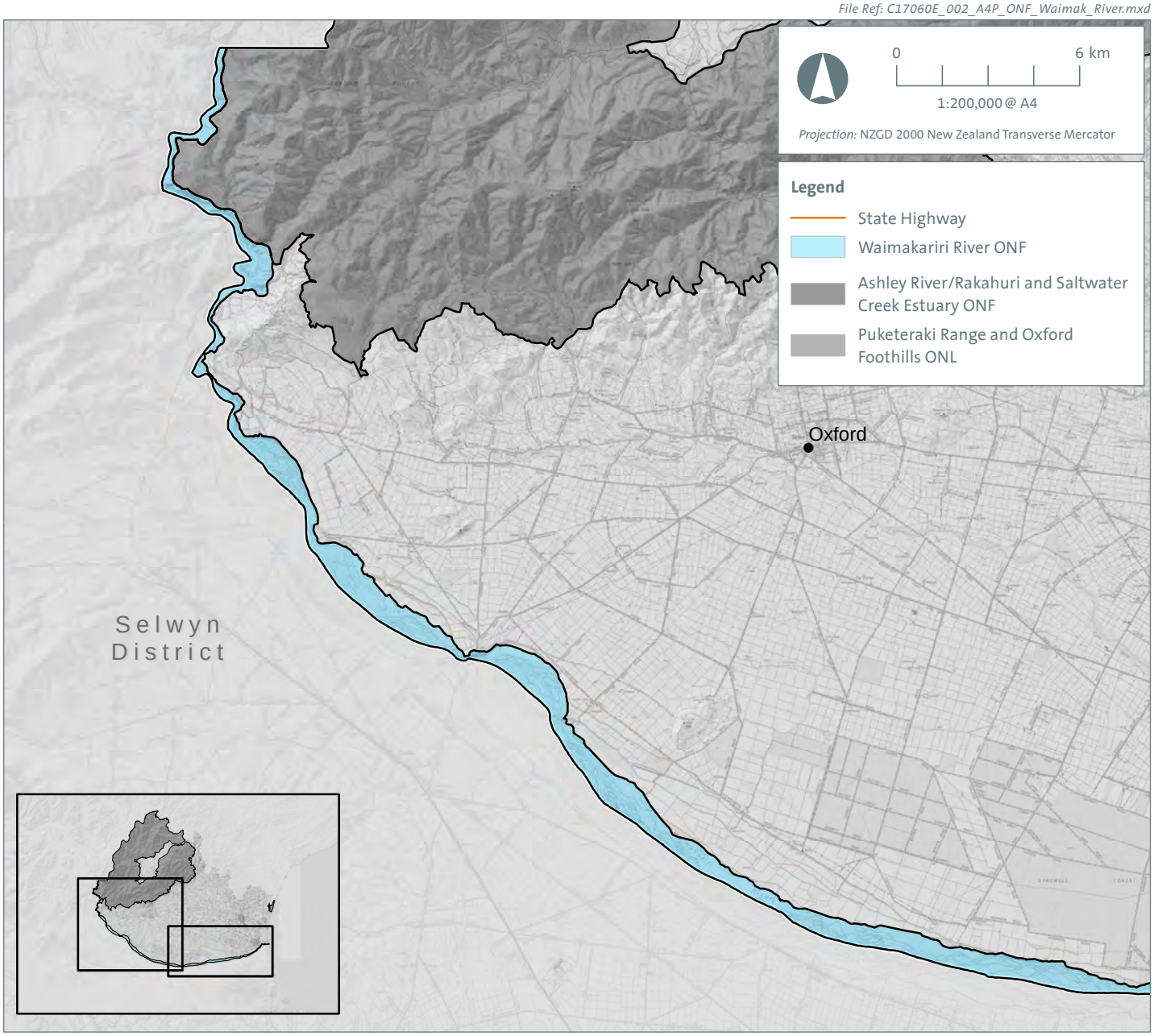
Evaluation Summary

The **Waimakariri River** has been identified as an Outstanding Natural Feature. It is considered outstanding due to its Very High biophysical values and High sensory and associative values.

The sinuous braided pattern of the Waimakariri River bed, which traverses the patchwork of the plains landscape, is an iconic feature and part of the identity of the Waimakariri District and Canterbury Plains. The dynamic braided river system with its wide gravel river bed is uncommon and retains very high biophysical values.

The Waimakariri River formed part of a network of trails used by tāngata whenua on their journeys between the east and west coasts and was an important mahinga kai and resource gathering area. The river itself is valued for its recreational opportunities in particular, fishing, boating and kayaking and the river bed is also popular for land-based recreation activities, much of it retaining a remote character.

Modifications within the Waimakariri River are relatively few and generally small in scale including: gravel extraction, tracks, exotic vegetation including some plantation forestry irrigation intakes and bridges and transmission lines crossing the river. However, erosion and flood control structures are extensive in places along the river margin.



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WAIMAKARIRI DISTRICT LANDSCAPE STUDY

Proposed Waimakariri River ONF

Date: 26 September 2019 | Revision: 1

Plan prepared for Waimakariri District Council by Boffa Miskell Limited

Project Manager: **bron.faulkner@boffamiskell.co.nz** | *Drawn:* HWi | *Checked:* BFa

Figure 02

5.5 Proposed Puketeraki Range and Oxford Foothills ONL

Existing ONLs in the district plan include parts of the Puketeraki Range, and the Oxford Foothills including Mt Oxford, Mt Richardson and Mt Thomas. As part of this assessment the existing ONLs have been reviewed and amended. **Figure 3** shows both existing ONL and the proposed ONL boundaries- The existing boundaries include the ONL, the ONL Buffer area and prominent ridges. **Figure 3a** shows just the proposed ONL.

The Puketeraki Ranges and Oxford foothills comprise a small part of the Canterbury foothills north of the Waimakariri River with elevations between approximately 500m - 1950m. Lees Valley is nestled between the ranges and foothills as a small intermontane basin. The Puketeraki Range is a relatively high and steep alpine and sub alpine environment with many bare ridges and slopes. The lower and more rounded Oxford hills are typified by their dense beech/ podocarp forest cover that forms the notable backdrop to this part of the district. The well-known Canterbury peaks of Mt Oxford, Mt Richardson and Mt Thomas mark the highpoints of the Oxford hills. Many of the rivers that traverse the district originate in these hills and ranges (Eyre River, Cust River, Garry River, Ashley River/Rakahuri and Okuku River).

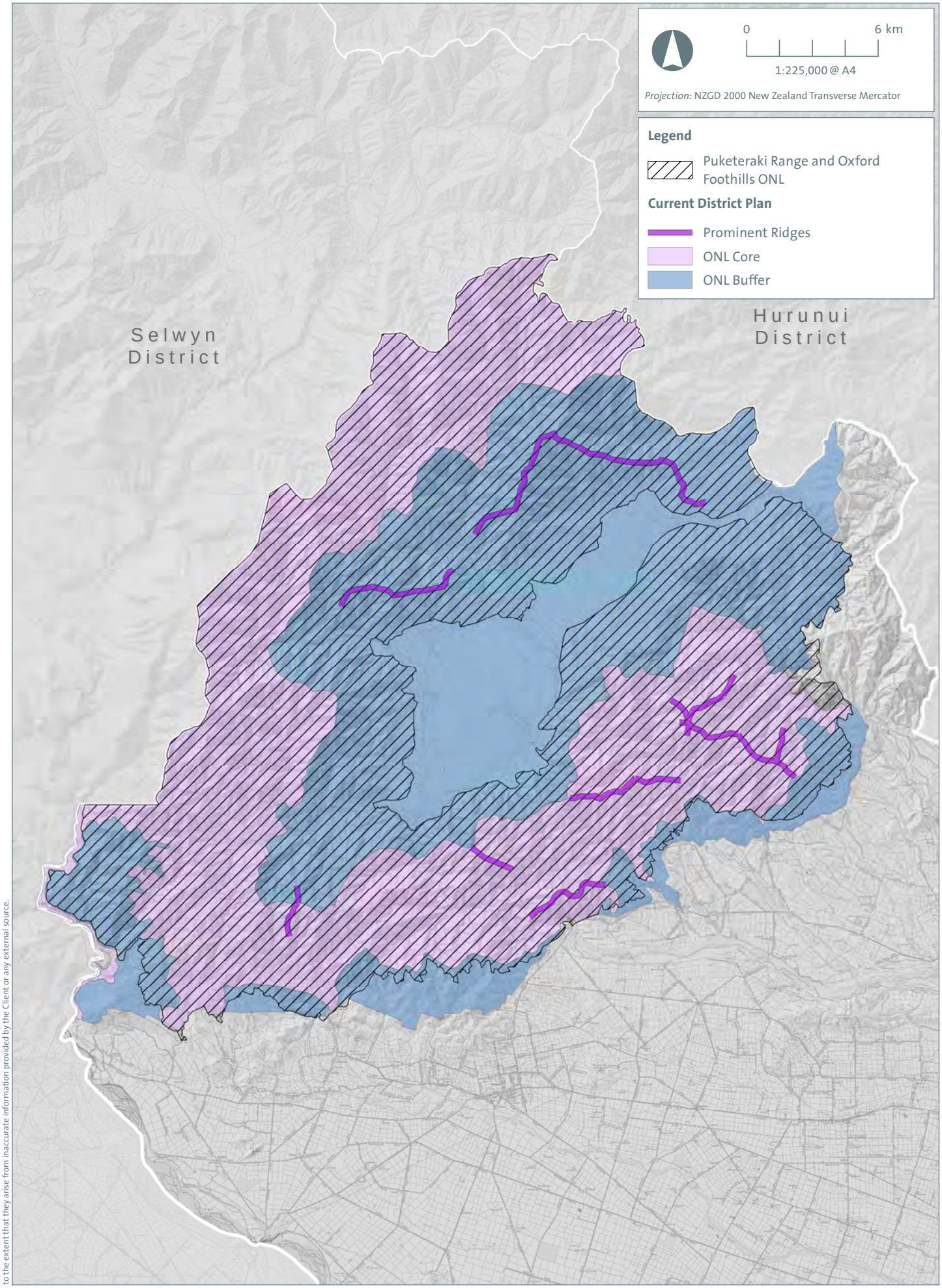
The slopes of the ranges and hills that enclose Lees Valley rise up from the flat valley basin floor. Within the valley a scenic high-country landscape with pastoral grazing can be found with a similar character to other valleys and basins in Canterbury. The lower slopes and hills, with more gentle topography, have been subject to more intense grazing and development than the upper slopes which are steeper. The slopes with a northerly aspect, exposed to the prevailing norwest gales and drying winds support less vegetation than more sheltered gullies and slopes. The ridge tops and skyline that encloses the valley are prominent features of Lees Valley.

Ashley River/Rakahuri winds through the steep sided gorge- View from Lees Valley Road

Proposed Puketeraki Range and Oxford Foothills ONL		
	Landscape Values	Rating
Biophysical	The steep Puketeraki Ranges support a diverse range of indigenous habitats, including snow tussock, subalpine scrub, alpine rockfield vegetation above 1200m and induced short tussock grassland, matagouri scrubland, scree slopes and pockets of remnant beech forest at lower elevations. Extensive areas of indigenous beech forest and remnant podocarp forest are the dominant vegetation cover on the slopes, gullies and hilltops of the Oxford Foothills including the Oxford Forest and Mt Thomas Forest conservation areas. Nationally Significant Okuku Triassic Monotis locality Geopreservation site lies in the NW area of The Okuku Range and Lees Pass. Nationally Significant Bullock Creek debris flow Geo-preservation site lies at the foot of Mt Thomas, this feature is a very good example of an eroding gully, debris flow and debris flow fan.	Very High
Sensory	The hill and mountain landforms have a dominant physical presence in the surrounding area of the upper plains and Lees Valley. The lush dense forested slopes of the Oxford foothills strongly contrast with the flat pastured plains and provide a rich dark coloured background to the local areas of View Hill, Oxford and Ashley Gorge/Glentui. Many incised rivers and streams dissect the landforms with steep sided gullies, and rocky/gravel beds forming the upper part of the river catchments. Ashley Gorge is a significant and legible feature of the area where the river cuts through the Oxford foothills connecting the upper catchment/Lees valley and the plains. The hills and mountains enclose Lees Valley with their dominant physical and scenic presence, and their seasonally changing appearance is a signature feature of the valley. The enclosing upper slopes, ridgelines and skylines in particular are a highly visible and prominent feature of the valley. The hills and mountains have a remote and wild character with a dominance of indigenous vegetation and are valued for their high natural values. The Puketeraki Ranges are legible landforms in the upper Waimakariri River valley, formed and sculpted by glaciers, streams, rivers and erosion, they continue to be dynamic landforms. High level of openness and naturalness in the ranges and western side of the Oxford hills with limited built modification, (roads, fences and building).	High

	Transient values of the Norwest arch over the silhouetted hills and mountains. In addition, seasonal change of the mountainous landscape including snow covered ridges and peaks to dry, golden tussock lands, as well as dramatic weather changes and cloud formations are key ephemeral values. Seasonal change of the trees within Ashley Gorge picnic area. The high ranges are frequently covered in snow during the winter months and at other times of the year, which are visible from the plains.	
Associative	The mountains, indigenous forest, Ashley River/Rakahuri and its tributaries, are identified as Wahi Taonga by Ngāi Tūāhuriri in the District Plain. Historically the forests of the foothills and upper plains were a source of abundant food including kiore (rat) for Ngāi Tūāhuriri. The Oxford foothills have a strong timber milling heritage. By the mid-1870s 11 sawmills were operating in the area, milling the indigenous timber and leading to the establishment of Oxford township. Some historical tracks and structures associated with logging operations are still evident in the foothills, such as those found around the Wharfdale Track area. The hills and ranges have high recreational values with a well-used track and hut network. The tracks provide good access to the area for walkers, mountain bikes, trampers and hunters in vicinity of the populated plains. Ashley Gorge and Glentui recreation areas have high amenity and recreational values as well-known destinations, popular for picnicking, swimming, canoeing, rafting, fishing and provide walking access to the forests and hills beyond. Public conservation land of Oxford Forest and Mt Thomas Forest Conservation area is within this ONL. The Oxford Hills provide backdrop to the district and local Oxford communities. With well recognised and characteristic silhouettes and skylines which include the prominent highpoints of Mt Oxford, Mt Richardson and Mt Thomas.	High
Mapped Extent: Refer to Figures 3 and 3a		
The ONL wraps around the Lees Valley floor and consequently can be considered to have an exterior and interior boundary. **Exterior Boundary**- The north, east and west boundaries are aligned with the District boundary along the ridge top of the Puketeraki Range and the Waimakariri River. The southern exterior boundary (along the front of the Oxford foothills) is aligned to define the lower extent of the indigenous forest, excluding larger areas of exotic forest and farmland. **Interior Boundary around Less Valley** excludes the flatter more intensively farm valley floor characterised by cultivation/crops, fenced paddocks, farm track networks, exotic woodlots and buildings. The ONL includes any public conservation land, areas of indigenous forest, enclosing lower and steep upper slopes, and major ridgetops/skylines. (refer below for more detail)		

Evaluation Summary
The ranges and hills are highly valued for their natural values. Their varied elevation and aspect of the topography provides an extensive and diverse range of habitats from the exposed alpine environments of the mountaintops to the sheltered densely forested slopes and gullies of the Oxford Hills. The physical presence and aesthetic qualities of the mountains and the hills combine to provide a significant and memorable backdrop to Lees Valley, the Oxford/Ashley area and the upper plains. The snow topped mountains in the winter are a dramatic and characteristic seasonal variation to the upper plains backdrop. The varied topography, in combination with a good track and hut network make the area easy to access and together the hills and mountains provide numerous recreational opportunities, making it a popular destination for outdoor pursuits.
Comparison with existing ONL Core and Buffer areas identified in the operative District Plan
Internal Boundary Figure 3 shows the proposed ONL extending down the slopes of Lees Valley beyond the 'core ONL' but does not include the valley floor (as included in the 'ONL Buffer' area). Some aspects of the Lees Valley landscape, when considered as a whole, have high sensory landscape values. But not all of the existing 'ONL buffer area' is considered to reach the threshold of 'outstanding'. Factors which contribute to the high sensory values of the valley relate to its complete sequence of landforms including the ridges, upper slopes, lower slopes, valley floor and rivers as a legible and intact landform. The enclosed nature of the valley further emphasises the physical and visual presence of the enclosing hills and the vividness of the skylines. There are pockets of indigenous vegetation in the lower parts of the valley (including the red tussock wetlands in the northwest end of the valley with very high ecological value). However, modifications through farming has substantially modified the majority of the valley floor and toe slopes with improved pastures, roads, farm tracks, buildings, shelterbelts, woodlots, and fenced paddocks that extend some way up the up the lower slopes. While the valley floor and toe slopes add visual context and 'complete' the Lees Valley landform they are not of themselves natural enough to be included in the proposed ONL. **Oxford Foothills Boundary** The proposed ONL boundary excludes a fringe of the existing ONL Buffer These 'left over' ONL Buffer areas have been significantly developed and modified for farming or forestry use including earthworks, loss of indigenous vegetation and ecological systems, establishment of fences, buildings, roads and other structures. In particular, production forest harvest operations disrupt the visual coherence and natural appearance of the of the hills. The existing ONL areas were identified and mapped in 1996. It is possible that some of the 'left over' ONL areas have undergone further development in the intervening years. Regardless of this, the methodology and thresholds used for this assessment has been consistently applied in this assessment.



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WAIMAKARIRI DISTRICT LANDSCAPE STUDY

Puketeraki Ranges and Oxford Foothills ONL

Date: 26 September 2019 | Revision: 1

Plan prepared for Waimakariri District Council by Boffa Miskell Limited

Project Manager: **bron.faulkner@boffamiskell.co.nz** | *Drawn:* HWi | *Checked:* BFa

Figure 03

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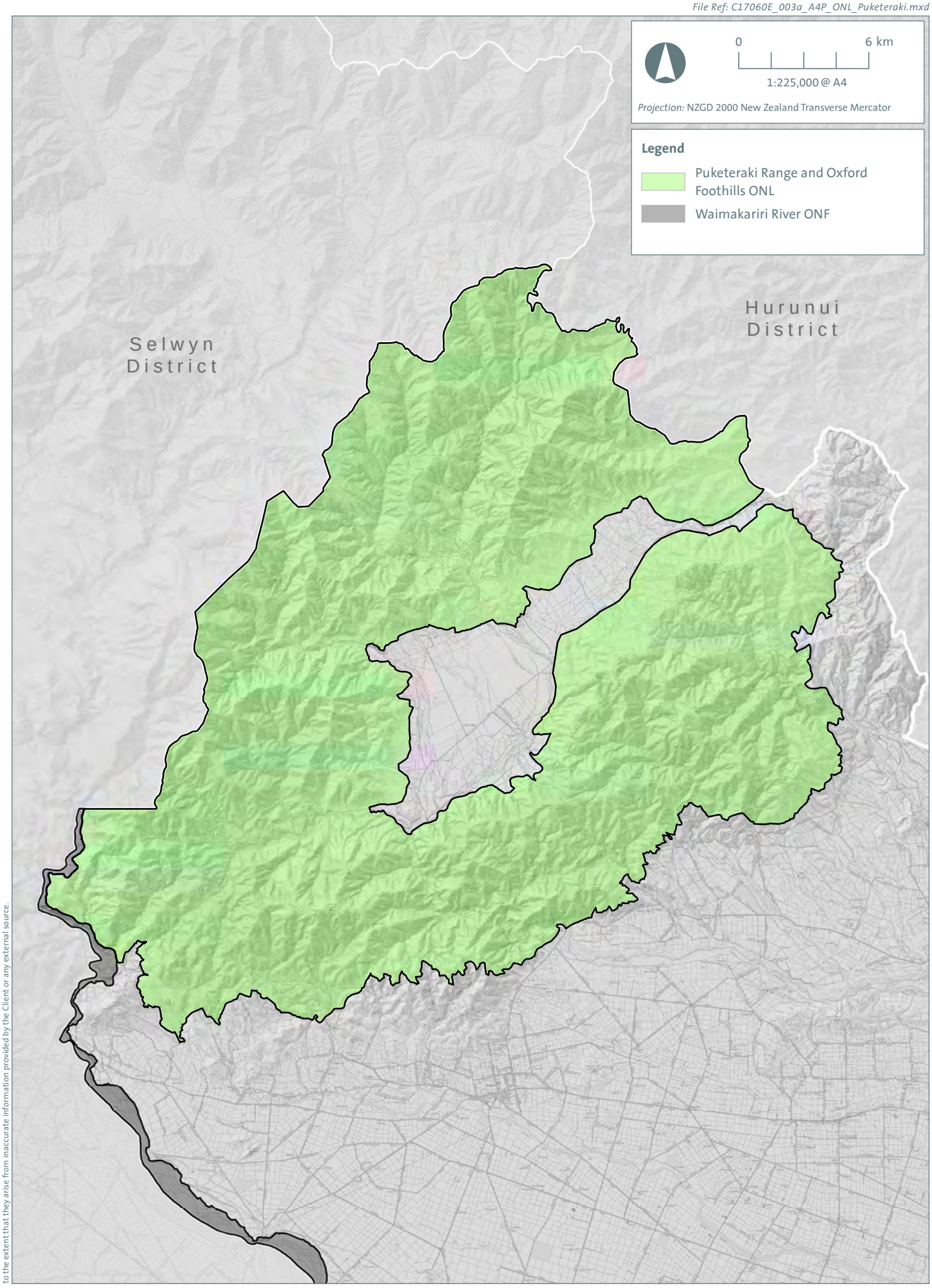

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WAIMAKARIRI DISTRICT LANDSCAPE STUDY

Proposed Puketeraki Ranges and Oxford Foothills ONL

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Figure 03a

5.6 Proposed Ashley River/ Rakahuri Saltwater Creek Estuary ONF

The district extends to the area above Mean High Water Springs (MHWS) shown on **Figure 4,** which defines the District/Regional boundary along the beach and estuary. However, the physical tides and coastal processes obviously extend well inland of this MHWS line[12]. At a landscape scale the whole area is experienced in its entirety regardless of statutory boundaries and has been considered as such for this evaluation.

The natural character assessment of the marine area of the Canterbury Coast[13] (area below MHWS) identified the *Ashley River Mouth/Rakahuri Saltwater Creek Estuary* as having outstanding natural character. The relevant natural character details have been included and considered in this landscape evaluation.

The *Draft Waimakariri Coastal Natural Character Study* (May 2018) being prepared for WDC identifies the Ashley River mouth/ Rakahuri Saltwater Creek Estuary (above MHWS) as an area of Outstanding Natural Character.

Ashley River/Rakahuri Estuary ONF

[12] Typically, the District/Regional jurisdictions are defined so the marine part of the coastal environment lies beyond the District boundary and is therefore manged by the Regional Council. Regardless, this assessment considers the area within the District boundary albeit technically part of the marine environment.

[13] 2017, Environment Canterbury. *Draft Marine Natural Character Study of the Canterbury Coastal Environment*

Proposed Ashley River/ Rakahuri Saltwater Creek Estuary ONF		
	Landscape Values	Rating
Biophysical	The proposed ONF includes the combined estuaries of Saltwater Creek and Ashley River/ Rakahuri and their associated mud banks, mud flats and open brackish water. The coastal side of the estuary, adjoining Pegasus Bay is made up of a sandy beach and dunes which forms Ashworth Spit and ponds behind the spit. The estuary is a Regionally Significant barrier-enclosed estuary system. It is identified as a geo-preservation site which comprises of one of the most complex river mouths on the Canterbury coast, indicating lateral channel instability. The estuary system has very high biophysical values and remains one of the least modified estuary systems in Canterbury. It includes a relatively extensive, intact and diverse sequence of estuarine vegetation communities in its lower reaches. The estuary has been identified as an ecological hotspot with extensive areas of salt marsh with a variety of specialised native plant species occurring along the upper and lower zones. The estuary mudflats and Ashworth Spit and ponds provide internationally significant habitat for migratory wading birds (like the Bar-tailed Godwit,) and provides high value wetland habitat for a variety of fish species (Inanga (whitebait), eels, Koaro, flounder, common smelt, torrent fish and bullies). The estuary is also a feeding and resting zone for the riverbed nesting birds, and host to over 90 recorded species, including the bar-tailed godwit. The CRPS lists the overall ecological significance ranking of High The Ashley River/Rakahuri and Saltwater Creek Estuarine areas are recognised by the International Union for Conservation of Nature (IUCN) as a wetland of “international significance”.	Very High
Sensory	The estuary mudflats, channels and saltmarshes and the sandspit, foredunes beach and ponds and coastal edge are unmodified and retain a very high level of legibility, as to their formation by coastal processes and the movement of sediments and gravels down the river/stream. The natural forms and patterns of the landforms, vegetation and tidal movements give the area a high degree of naturalness that is apparent, a sense of remoteness and tranquillity through the lack of modification is apparent. The visual coherence of the estuary, sandspit, beach and vegetation is high due the lack of modification. Experienced within its boundaries the estuary can have a high degree of memorability depending on the tides and seasonal colour contrast of	Very High

	the vegetation, with low angle light of sunrise and sunset reflecting off the mudflats and tidal waters the most intense. Transient values of the estuary are very high reflecting the dynamic coast environment with its constant changes of tide, river flow, wind, light refection on the water, presence of migratory birds and fish.	
Associative	Ashley River/Rakahuriri, its tributaries and estuary, and the coastline are areas identified as Wahi Taonga by Ngāi Tūāhuriri in the District Plan. The estuary is an important area to mana whenua for mahinga kai particularly for īnanga (whitebait), flounder and eel. Some evidence of pre-1769 occupation at a recorded archaeological site on the northern edge of the Ashley River/Rakahuri Saltwater Lagoon confluence containing moa bones, adzes and post holes. The estuary, spit and beach are popular recreational destinations for swimming, fishing, whitebaiting, bird watching and kayaking. Several road ends provide a variety of locations to access the area and walking, cycling extend the access around the margins.	High
Mapped Extent: (Refer Figure 4)		
The inland extent of this ONF is defined by the transition between the active coastal and estuarine landforms, vegetation and habitat and the modified dry land used for farming and other purposes. The mapped area includes areas below MHWS, as they form an integral part of the landscape while falling outside the district's jurisdiction.		
Evaluation Summary:		
The estuary system is recognised as an ecological hotspot. Being largely unmodified in nature provides feeding and breeding habitat to a diverse range of fish and bird species. It is one of the most complex and intact estuary systems remaining in Canterbury. The unmodified nature and high naturalness of the estuary landforms, and vegetation combined with the wildness of the coastal environment give the area high sensory values, which are recognised and enjoyed by many. Recreational activities such as fishing, birdwatching, walking and simple quiet enjoyment draw people to the area.		

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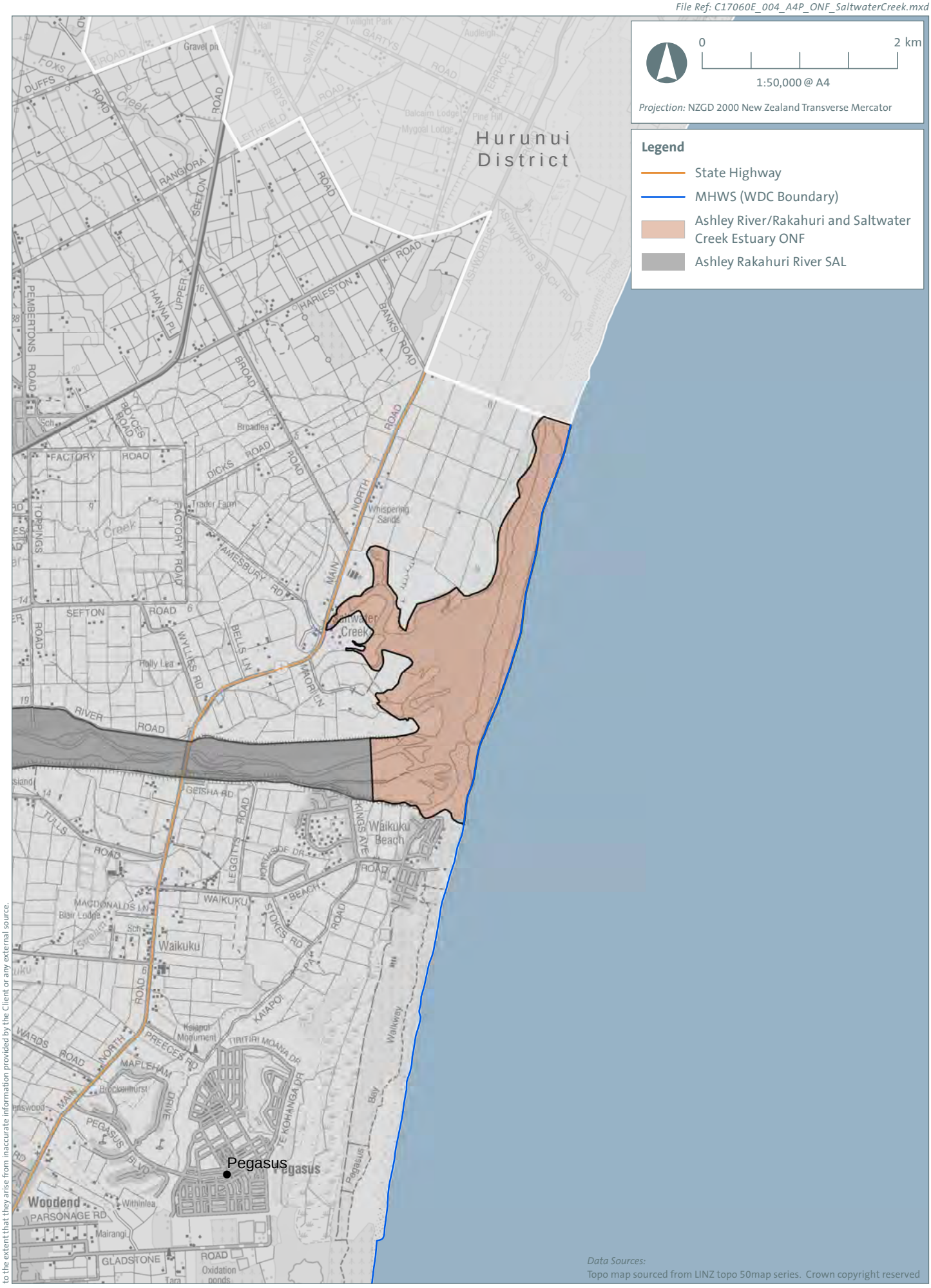

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WAIMAKARIRI DISTRICT LANDSCAPE STUDY

Proposed Ashley River/Rakahuri and Saltwater Creek Estuary ONF

Date: 26 September 2019 | Revision: 1

Plan prepared for Waimakariri District Council by Boffa Miskell Limited

Project Manager: **bron.faulkner@boffamiskell.co.nz** | *Drawn:* HWi | *Checked:* BFa

Figure 04

6.1 Proposed Ashley River/Rakahuri SAL

The Ashley River/Rakahuri is one of the Waimakariri District's largest braided rivers, with the proposed SAL section of the river being forty-five kilometres in length. Flanked by predominantly poplar and willow, the river meanders through farmland from the Ashley Gorge to its mouth at Waikuku beach.

The river is a popular recreational resource for the Waimakariri District, with numerous four-wheel driving, biking, and walking tracks. Most of this activity is localised to the lower reaches of the river along the stop banks and in the river bed. Organisations such as Riding for the Disabled and the North Canterbury BMX Club also use the margins of the river.

As well as having important recreational value, the Ashley River/Rakahuri provides excellent habitat for nationally vulnerable and endangered bird species. The Ashley Rakahuri Rivercare group, a local volunteer organisation, works with the Department of Conservation to trap pests, remove the river bed of weeds, and work with local users of the river to enhance its ecological health.

Ashley River/Rakahuri from the Ashley Bridge

Proposed Ashley River/Rakahuri SAL		
	Landscape Values	Rating
Biophysical	Holocene loose gravel river deposits formed from sand, silt and clay (GNS Science, 2018). The Ashley River/Rakahuri is a rare braided river system unique to New Zealand and the Canterbury Plains. Braided rivers are 'naturally uncommon ecosystems' and have a threat status of 'endangered'. The river is also one of the steepest braided rivers in New Zealand which transports large volumes of sediment during flooding events. The braided river bed is highly managed and is constrained along both banks for most of its length by plantings and stop banks to contain flood waters. Vegetation predominantly consists of willow/poplar species along with gorse and broom. Patches of exotic forest are also scattered along the river bank between the Cones Road bridge north of Rangiora to the Ashley Gorge. Rare pockets of native vegetation are also present including species such as common broom (*Carmichaelia robusta),* korokio (*Corokia cotoneaster*), mingimingi (*Coprosma propinqua*), kowhai (*Sophora microphylla*) in drier areas, and Pukio (*Carex secta*), harakeke (*Phormium tenax*), and karamu (*Coprosma robusta*). Highly valued for the native endangered and threatened bird species which nest in the river shingle. Species include the nationally vulnerable wrybill (*Anarhynchus frontalis*), and banded dotterel (*Charadrius bicinctus*), the nationally endangered black fronted tern (*Chlidonias albostriatus*), the declining white fronted tern (*Sterna striata*), pied stilt (*Himantopus himantopus*), and the nationally critical black billed gull (*Larus bulleri).* In the lower reaches of the park wet areas inside the stopbank host established populations of native wetland species including sedges and wetland grasses. Raupo Berm in Lower Ashley is a good example of historic backwaters containing remnant sedges. Important habitat for native and exotic fish species. Pockets of remnant vegetation in the Lower Ashley provide important whitebait/inanga spawning sites.	Moderate-High
Sensory	Highly legible braided river which is expressive of its alluvial formative processes, changing form with each flood, and movement of gravel loads from the mountains to the sea. Memorable landscape feature and landmark for the local communities of Rangiora, Ashley, Oxford, and Glentui, as forms a physical barrier across this part of the plains. The river's presence is marked by river itself and the continuous bands of tall poplar along its banks. Valued by the community for its wilderness and natural environment and sounds sights and smells of the river environment. Distinctive braided pattern of gravel beds and river channels unique to New Zealand and the Canterbury Plains.	High

	The Ashley River forms a clear connection between the foothills of the Southern Alps and the Pegasus Bay. Transient values include flooding or a "fresh" when the water floods the river bed bank to bank changing the channel structure. Other values include the dry river bed during the summer months, seasonal bird habitat, seasonal change of willows and change in the braid patterns following each flood.	
Associative	The river corridor is highly valued by the community for its recreational, open space and biodiversity values and is recognised as such by its status as the Ashley Rakahuri Regional Park extending from the Okuku River confluence downstream to the Ashley Estuary. Activities include walking, cycling, and fishing and picnic and camping facilities are also available. Popular trails include the Taranaki Walkway near the mouth of the river and the Mike Kean walkway. Game bird shooting is also popular and permitted mostly to the west of the Cones Road bridge. Organisations such as Riding for the Disabled, and the North Canterbury BMX Club are present on the south of the Ashley River/Rakahuri near the Cones Road bridge. The Ashley Rakahuri Rivercare group is a community led organisation which aims to protect the ecological state of the Ashley Rakahuri River. The group traps pests in the river and works with other commercial and recreational users of the river to ensure the protection of the river's health. Local Māori Ngāi Tūāhuriri have a significant association to the Rakahuri and wider Waimakariri area based on historical occupation and Mahinga Kai. Rakahuri translates to 'sky turned around' and was added as a dual name for the river in 1998 under the Ngai Tahu Claims Act. Mahinga Kai for Ngāi Tūāhuriri. The river was a valuable source for cabbage tree root, bracken fernroot, tuna, matamoe, and panako. Prior to the river's development the lower tributaries of the Ashley River/Rakahuri were an important habitat for inanga (whitebait), waikōura (freshwater crayfish), and tuna (eels) (Te Rūnanga o Ngāi Tahu, 2019). Exotic fish species such as chinook salmon, rainbow trout, and brown trout can still be caught between October and April each year. Because of its significance, the Ashley River/Rakahuri is considered a Wahi Taonga under the District Plan. Kaiapoi Pa was accessed by waka from the Ashley/ Rakahuri River (Mahaanui Kurataiao Limited, 2019). Historical flood events are part of the local history with some of the river's worst floods occurring during the early to mid-20th century.	High

Mapped extent: (Refer to **Figure 5**)
The Ashley River/Rakahuri and its margins have been identified as a SAL. The mapping includes the braided river bed, the immediately adjacent flood plain, stop banks, flood management planting and vegetation growing on the edge of the active gravel bed. The mapped extent also includes recreational areas and access tracks. Productive agricultural land has generally been excluded. **Adjoining and overlapping ONL/F features** The Ashley Rakahuri SAL adjoins the Puketeraki Range and Oxford Foothills ONL to the west (which includes the gorge and upper parts of the river), and the Ashley River/Rakahuri Saltwater Creek Estuary ONL to the east.
Evaluation Summary
The Ashley River/Rakahuri has been identified as a Significant Amenity Landscape. It is considered significant due to its High sensory and High associative values. Being a naturally uncommon ecosystem and home to some of New Zealand's endangered and vulnerable bird species, the river is of high ecological significance to the local community and Canterbury Region. However due to extensive modification from stopbanks, four-wheel drive tracks, gravel extraction, and invasion of exotic weeds (such as gorse and broom) the biophysical value of the river has been reduced. This may change in future with the work of organisations such as the Ashley Rakahuri Rivercare Group. The river is of significance to Ngāi Tūāhuriri as a mahinga kai. Today it is recognised for its recreational opportunities, offering anglers the ability to catch exotic species such as chinook salmon, brown trout and rainbow trout.

6.2 Kaiapoi River

The lower reaches of the Kaiapoi River were also assessed as a candidate site as a SAL. However, its landscape values were not found meet the SAL threshold. The lower reaches are highly modified with low apparent naturalness of a river in dominantly urban/residential setting, continued dredging of the bed, linear stop banks, and mown berms. In addition, the aesthetic coherence of the river corridor is interrupted by dead willow which are a dominant feature (noting that in time this will change).

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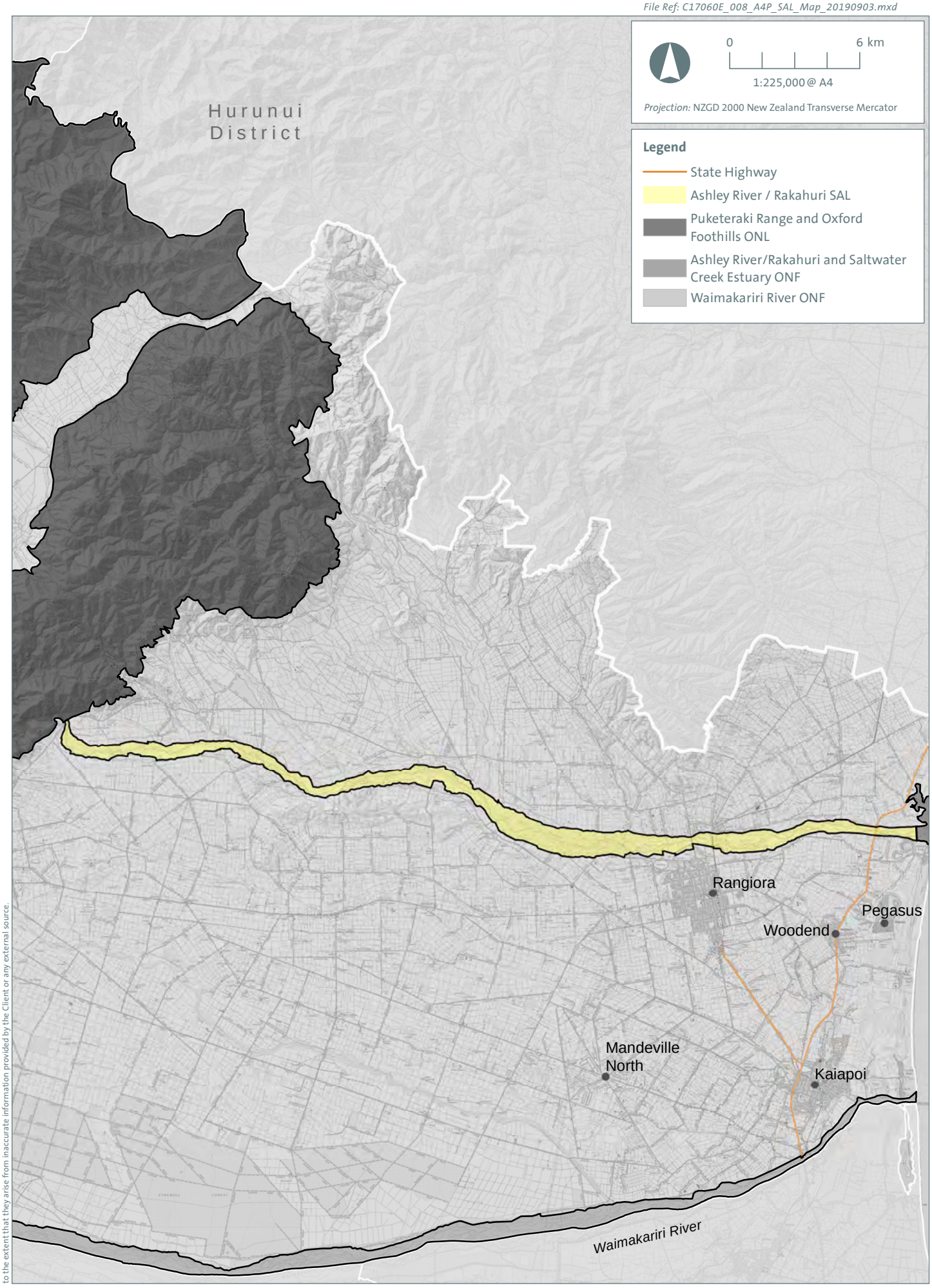

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WAIMAKARIRI DISTRICT LANDSCAPE STUDY

Proposed Ashley River / Rakahuri SAL

Date: 26 September 2019 | Revision: 0

Plan prepared for Waimakariri District Council by Boffa Miskell Limited

Project Manager: **bron.faulkner@boffamiskell.co.nz** | *Drawn:* HWi | *Checked:* BFa

Figure 05

6.0 Pressures and Threats to Waimakariri Landscape Values

The landscape evaluation provided in this report identifies three proposed ONF/ONLs and a SAL in the Waimakariri District. Each of the identified landscapes or features are subject to differing pressures, which are outlined below. At a generic level, landscape change is often, but not always, brought about by economic drivers influencing land use activities. Indigenous forest logging, pastoral farming practices, plantation forestry, vegetation clearance, land drainage, and river management are examples of activities that have influenced and shaped Waimakariri landscapes and continue to lead to changes in the rural environment. The ONF/ONL/SALs identified are sensitive to change and need to be carefully managed through provisions in the District Plan, in order to protect the outstanding and significant amenity landscape values.

Generally, threats to landscape values arise where:

- activities go through a significant change and/or become larger in scale and therefore a more dominant and singular feature of the landscape e.g., large scale forestry compared with small scale tree planting interspersed with indigenous outcrops and open pasture;
- introductions of buildings and structures that interrupt and detract from the otherwise undeveloped and dominantly natural landscape;
- planting and/or structures obscure or alter the natural topography and outline of natural landforms, skylines, river and coastal margins;
- earthworks alter natural contours;
- cumulative change i.e. landscape change arising over time from incremental development or “creep” where an existing modification in the landscape is used to justify further change.

More specifically, these effects are often related to some key activities, such as earthworks, loss of areas of significant indigenous vegetation, and the placement of buildings, structures and tree plantings in the landscape. These individual threat types have been addressed separately below.

6.1 Earthworks

Earthworks can include but is not limited to quarrying, gravel extraction, land development, access tracks and roads, works associated with establishment of structures, buildings and infrastructure such as wind turbines.

Earthworks physically alter natural landforms such as coastal edges, river margins, slopes, hills tops, ridgelines and skylines. Depending on the scale of the earthworks, they can significantly modify the integrity of the landform by changing the local topography and associated natural features. Earthworks also have visual effects and can leave exposed and cut surfaces which often contrast with surrounding vegetation and natural contours. In particular, if earthworks

are carried out on slopes and elevated land, the scarring can be visually prominent with an adverse effect on the visual coherence of a view or landscape. Cuttings on steep slopes which are prone to erosion can also create unnatural patterns that in turn amplify excessive scaring. The location, shape, volume, duration and size of earthworks generally determine their visual impact, but other factors, such as extent and treatment of cut, batter and spill on slopes are also important aspects that can influence the landscape outcomes of larger-scale earthworks. Remediation of earth worked areas by planting and re-grassing, can assist to reduce both the medium and long term visual effects of disturbed ground.

6.2 Buildings, Structures and Utilities

Buildings, structures and utilities can modify or dominate a landscape depending on their location in relation to topography and vegetation, and their colour, materials, finish, height and scale.

In addition, buildings such as dwellings can result in modification of the surrounding land area as a result of consequential changes such as domestication of the landscape with gardens, washing lines, driveways etc. Threats to landscapes can also arise from cumulative effects from a variety of activities, such as a change in farming practices (dairy conversion), subdivision, or from incremental 'creep' or intensification of development over time, where an existing modification in the landscape leads to further co-location of modification.

Fragmentation of the landscape should be avoided where the physical and visual connections which contribute to the visual cohesion and legibility of the landscape and its natural patterns could be affected. Fragmentation of the landscape is most evident on elevated land due to its high visibility, where the establishment of building platforms, buildings and driveways can visually interrupt the cohesiveness of a landform. The typically linear and abstract forms of such earthworks and buildings often do not integrate well with the natural patterns of the landscape (such as indigenous vegetation patterns that relate to the underlying topography do). Fragmentation can also occur where once open or expansive landscapes are enclosed by the visual clutter of buildings and structures and where new plantings physically enclose open spaces.

Ridgelines are particularly sensitive to the locations of buildings, structures and utilities since their appearance on the skyline is often visually prominent from a variety of viewpoints. The expressiveness of particularly legible landforms may be modified by buildings, structures and utilities, if they visually dominate their surroundings.

Buildings and structures can include farm buildings, sheds, and backcountry huts. In particular large-scale buildings such as those related to primary production operations can be dominant elements in the landscape due to their scale and blocky form.

Utilities can include hydro dams, flood stop banks, irrigation canals, telecommunication towers, electricity pylons, wind turbines, masts and solar panels. Some by their nature are required to be located on hilltops and ridgelines with potential effects on prominent skylines.

When considering the effects of buildings and structures within an ONF/ONL and SAL, consideration should be given to:

- Type of building/structure and the effects on the landscape character;
- Location in relation to the landform and topography and specific landscape features that are particularly legible within the ONL/ONF/SAL;
- Scale, form, and finish of any building/structure, including colour, reflectivity and materials;
- Impact on coherence of landscape character or pattern of natural features such as indigenous vegetation, ridges, rock outcrops etc;
- The nature and extent of existing development within the vicinity or locality;
- Whether or not the proposal is likely to lead to the introduction of urban/ domestic /industrial elements into the landscape, inconsistent with rural amenity values.
- The extent to which the number of dwellings or the building coverage on a site would visually dominate or contrast with existing character and amenity values;
- The need for any increased height of a building/structure in order to undertake the proposed activity and how this may detract from views and outlook from adjoining properties or from public roads and places;
- Cumulative effects and potential to visually dominate the landscape in general;
- The benefits that may be obtained from clustering of buildings/structures within the landscape;

6.3 Vegetation Change

Removal of Indigenous Vegetation

The presence of indigenous vegetation contributes strongly to the landscape values of the ONFs and ONL. This vegetation may include small pockets of exotic planting where its boundaries align sympathetically with the topography and land cover features present in the landscape. In all cases, the presence of indigenous vegetation contributes to the biophysical and often sensory landscape values. The loss of this vegetation may have significant landscape and visual effects and could diminish an ONF/ONL.

From a landscape perspective consideration should be given to the extent to which the loss of indigenous vegetation will adversely affect:

- The natural science values of an ONF/ONL. (Indigenous ecosystem integrity and function);
- The overall natural character of an area, including its natural elements, patterns and processes;
- Associative values of the indigenous vegetation cover for recreational, and cultural purposes.
- Sensory and aesthetic values of the vegetation at a site and wider landscape scale.
- Natural character associated with the coast, a water body or wetland.

Grazing

Stock grazing of hill country and other agricultural land within identified ONLs/ONFs and SALs has been part of the established farming systems for decades and could continue at similar stocking rates. Intensification of grazing systems and any commensurate need for

cultivation/cropping/fencing should be discouraged, particularly on elevated locations and in areas with high ecological value. This type of change in land use has the potential to reduce the ecological and aesthetic values of the ONL/ONF/SAL.

New Planting/ Afforestation

New planting of trees and vegetation may include plantation forestry, viticulture, tree crops, vegetation for honey production and carbon sequestration, woodlots, shelterbelts and amenity planting.

New tree plantings can have visual effects on the openness of the landscape and in some cases this reduction in openness can have adverse effects on the legibility of landscapes. Tree planting for commercial purposes is often linear in form with distinctive, unnatural edges and generally consists of exotic, single species. This results in an 'unnatural' appearance of plantation forests compared with indigenous vegetation communities. The landscape effects of the larger scale, commercial plantation forests also include the creation of access tracks and visual scaring of the landform during harvesting, especially in steep terrain.

The National Environmental Standards (NES) for Plantation Forestry 2017 does not permit afforestation in ONLs and does not apply to areas of plantation forest less than 1Ha. While the NES focus is on forestry for commercial purposes, there are some types of new plantings that may be beyond the scope of the NES that can potentially impact on landscape values.

Small-scale woodlots, shelterbelts, viticulture, orchards and erosion control planting may be accepted in sensitive landscapes, but numerous or large-scale plantings can lead to significant visual and physical effects that causes degradation of landscape values. The creation of unnatural lines and abstract patterns can have effects on the naturalness and legibility of outstanding and significant amenity landscapes. While there may be appropriate locations for smaller scale vineyards or food production tree crops, it is recommended to control establishment of these within ONF/ONLs and SALs.

Planting for honey production, and carbon sequestration are likely to occur on less productive land (often hill country) and can potentially exhibit an artificial 'plantation' nature with straight row planting, angular edge boundaries and uniform aged plants. Similarly, shelterbelt plantings can create prominent abstract patterns in the landscape.

In addition to the establishment of new areas of planting any subsequent harvesting activities have the potential to create additional and long-lasting landscape and visual effects through the construction of access roads and processing/storage platforms.

When considering the effects of tree planting the scale, location and layout in relation to the underlying landform, species composition and edge treatment should be considered. Typically, amenity planting and indigenous re-vegetation tends to avoid a large scale and uniform layout.

Location, visibility and encroachment (physical and visual), are important considerations for outstanding natural landscapes which would result in the visual obscuring of these landscapes. Planting on or near skylines may also present an unnatural contrast which is inappropriate in

outstanding landscapes. Consideration of cumulative effects when assessing scale may also assist in avoiding physical encroachment of trees in outstanding natural landscapes.

For new tree planting, consideration should be given to:

- The scale of planting;
- Mix of species and the effect on the naturalness of the landscape;
- Visual domination, and in particular effects on openness of the landscape;
- The potential for the planting to block views from roads and other public places;
- Effects on existing vegetation patterns;
- Layout, including spacing and pattern in relation to land form;
- Relationship to other areas of forestry and the potential for cumulative effects on landscape values;
- Potential to obscure or encroach upon important landforms and local features;
- Location and visibility of tracks (covered by earthworks matters); and
- The purpose of the planting

Wilding Trees

Wilding trees establish slowly over time. While a few scattered trees are unlikely to impact on landscape values in the short term the insidious nature of their spread can over time reach a tipping point where the landscape values are impacted. Dense canopies of wilding trees can change open hill country into forest with the loss of indigenous habitat, openness and natural colouring of the landscape, and the visual coherence and expressiveness of the topography of the land and natural features such as rock outcrops. Wilding trees should be controlled, especially within ONFLs, from the earliest stages of establishment.

Forest Harvesting

Harvesting of production forests is an anticipated stage of a 20-25 year cycle. The visual and landscape effects of forest harvesting can be significant, largely due to their often large scale (clear felling) and high level of visibility when located in elevated locations. The visual change due to the removal of uniform green tree canopy being replaced with bare and regenerating slopes can endure for many years until the next plantation is established. The physical scaring of slopes by access track and skid site construction greatly compounds the visual effects. The overall effect of large scale harvesting is the resulting disrupted and discordant appearance in terms of colour, texture and naturalness which impacts on the aesthetic values and coherence of a landscape.

6.4 Specific Sensitivities of Outstanding Natural Features and Landscapes and Significant Amenity Landscapes.

The following tables outline key sensitivities and likely threats to each of the proposed ONF/ONL and SAL:

Proposed ONF/ONL	Key Sensitivities/ identified values	Likely Threats	Comments
Waimakariri River	Legibility of natural landforms and vegetation and natural functioning of the braided river system. Braided river system is dynamic and constantly changing through variability in flow over the seasons Braided rivers are a 'naturally uncommon ecosystems' provides significant indigenous and migratory bird habitat.	Earthworks and quarrying (gravel extraction, encroachment of farming practices). Buildings, structures and utilities (including irrigation canals, hydro dams, etc.). Forestry and shelterbelts encroachment into riverbed. Native vegetation clearance. Further encroachment into the river corridor of activities on adjacent land. Activities that threaten the ecological and habitat values. Flood control measures, including groynes, stop banks and planting that channelises the braided river bed. Spread of weeds across the river bed and banks, including	To retain the integrity of the braided river system and its margins any form of modification should be minimised. It is acknowledged that works may be required for flood management purposes such as gravel extraction or construction of flood control structures. These works should also be minimised as far as possible. Flood protection measures and structures should, where possible, be constructed from local rock and gravel to visually blend them in and help retaining the natural character of the river. Buildings, structures and utilities are not appropriate in the river corridor. If they are essential parts of linear utility networks that need to cross the river such as power

Proposed ONF/ONL	Key Sensitivities/ identified values	Likely Threats	Comments
		associated habitat loss.	transmission, pipes or bridges, their effects need to be assessed on a case by case basis. Land uses that require modification of the landform or disruption of the braided vegetation patterning of the river margins (such as pastoral grazing or crops) should be avoided to retain the legibility of the river system. Ensure that land use activities on land adjacent to the ONL boundary will not require additional flood protection structures in the future within the ONL, impacting through the constriction of the river margins. Forestry operations should only be allowed in the ONL if essential for flood management. Replacement of exotic tree species with indigenous species for flood management plantings should be encouraged to

Proposed ONF/ONL	Key Sensitivities/ identified values	Likely Threats	Comments
			enhance the natural values of the river. New vegetation planting should be restricted to requirement for flood protection and native revegetation of appropriate areas. Existing areas of high value indigenous vegetation should be protected and opportunities for enhancement and restoration pursued. Enable recreational use while protecting the identified values through management (such as restricting vehicle access or activities to designated locations)

Proposed ONF/ONL	Key Sensitivities/ identified values	Likely Threats	Comments
Puketeraki Range and Oxford Foothills	Visual sensitivity of the ONL. Integrity of natural landforms and physical features with associated vegetation. Continuous cover of dense forested hills. Diverse range of indigenous habitat.	Change in farming practices extend to higher elevations. Earthworks and quarrying, track formation. Prominent buildings and structures. Subdivision and associated fencing, planting, buildings	Forestry or other land use change on the slopes and ridges that visually alters the existing vegetation patterns, topography, texture and colour of the land should be avoided in order to retain the natural values and visual integrity of the slopes, ridgelines and skylines. The NES for

	Highly legible mountains, hills, river gorges, ridge tops and skylines largely unmodified. Remote character with few built structures High level of open ness in the ranges and western side of the Oxford foothills. High level of naturalness associated with the extensive and intact areas of indigenous forest and undeveloped high country. Upper slopes, ridgelines and skylines in particular are highly visible and prominent features. Important recreational values throughout the area.	Utilities particularly on elevated locations including wind farms and towers. Production plantations and shelterbelts; Native vegetation clearance. New or changing forms of recreation that physically impact on vegetation or landforms or disrupt the remote and quiet nature of the hills and ranges.	Plantation Forestry 2017 does not permit afforestation in ONLs. Earthworks, such as for access tracks and fence lines, on unmodified slopes, ridgelines /skylines can create long lasting linear scars in the landscape which adversely affect the aesthetic values of the ONL and effects should be assessed. New buildings, structures and utilities are not appropriate in the ONL as they can easily become prominent elements in a landscape especially if sited in elevated locations. It is acknowledged that some utility structures may be required to support essential service networks. The siting of utility structures with regard to potential visual effects on ridges and skylines and need for access tracks should be carefully considered to ensure the visual integrity of the unmodified continuous ridgelines and skylines of the hills and ranges is maintained.

			The extensive areas of indigenous forest, shrub and tussocklands are a key feature of the ONL. The removal of any of this native vegetation will adversely impact on the visual and landscape values of the hills and ranges, as well as the intrinsic values of the ecosystems. Indigenous vegetation in the ONL should be retained and protected, and opportunities be sought for enhancement and restoration. The hills and ranges are valued for their remote and natural values as a recreational destination. Recreational activities should continue to be enabled as long as impacts from existing or new uses do not adversely affect the values that contribute to the ONL's recreational value

Proposed ONF/ONL	Key Sensitivities/ identified values	Likely Threats	Comments
Ashley River/Rakahuri and Saltwater Creek Estuary	One of the least modified/most intact estuary systems in Canterbury including beach, dunes, mudflats and channels. Ecological hotspot- Extremely high values for birdlife and migratory birds, fish and invertebrates. High degree of naturalness, remote and wild character. Valued as a local fishery, for birdwatching and quiet enjoyment.	Earthworks in estuary margin. Flood management structures. Damage to estuary, its margins and associated vegetation from vehicles or farming practices. Quarrying; Buildings and structures on estuary margins. Utilities (such as powerlines stormwater pipes/channels. Forestry and shelterbelts. Native vegetation clearance.	Modification of the estuary landforms and margins should be avoided to retain the natural integrity of the ONL and functioning of the estuary systems. Vehicle use in and around the estuary can cause physical damage and disrupt bird and fish habitat especially during breeding seasons. Grazing stock beside and in the estuary, can damage the mudflats and vegetation cover of the estuary margins and should be excluded from the ONF. Encourage restoration of indigenous riparian cover, and management of exotic weeds on the estuary margins to enhance the natural values of the estuary. Production woodlots crops and shelterbelts are not appropriate on the estuary margins as their vertical nature will reduce the openness,

			integrity and visual legibility of the ONF. Buildings, structures, and utilities should be avoided in the estuary and its margins to retain the natural values of the area. Opportunities should be sought to enhance ecological values of the estuary system through restoration and management of adjacent and wider catchment land use activities.

Proposed SAL	Key Sensitivities/ identified values	Likely Threats	Comments
Ashley River/Rakahuri SAL	A highly dynamic, naturally uncommon braided river ecosystem Home to many indigenous endangered and vulnerable bird species Important for a variety of recreational users	Impact of gravel extraction within the river bed, on bird habitat Further encroachment into the river corridor and margins by activities on adjacent land e.g. agriculture Flood management structures Spreading of weed across the river bed Buildings and other forms of infrastructure Four-wheel drive access and damage Water extraction	Modification of the braided river system and its margins should be minimised where possible. Due to the dynamic nature of the Ashley River/Rakahuri it is understood that flood management practices such as gravel extraction and construction of flood protection structures is required. Structures constructed for flood mitigation measures should be constructed from local rock and gravel to fit within the

Proposed SAL	Key Sensitivities/ identified values	Likely Threats	Comments
			context and character of the river. Only essential structures should be present within the river bed, such as transmission lines or bridges. These structures should be assessed on a case by case basis. Other structures are not appropriate in the river corridor. Further encroachment into the river corridor should be avoided to retain the river's intactness and protect from further modification. Replacement of exotic tree species with indigenous species for both ecological enhancement and flood management should be encouraged. Enable recreational use while protecting the identified values, in particular bird habitat, through management (e.g. designated areas for four-wheel drive access)

7.0 Review of Existing ONL Plan Provisions and Recommendations.

The Operative District Plan does not have provisions for SALs. The provisions for ONLs are considered below.

Existing ONL

The operative district plan identifies one ONL area which encompasses the Puketeraki Ranges and Oxford Foothills including Lees Valley. The ONL comprises 'Core' ONL areas, 'Buffer' and prominent ridges. This landscape evaluation report identifies the extent of the proposed ONL (Puketeraki Ranges and Oxford Foothills, Figure 3) which includes all of the Core, some of the Buffer and all but a short section of the prominent ridges. (Refer Section 5.5).

Chapter 5. Outstanding Landscapes and Natural Features- Objectives and Policies

The current Objectives and Policies are relatively generic and address the requirements of Section.6(b) of the RMA and the CRPS Chapter 12 provisions (which give effect to the Section 6(b))

s.6(b): *Shall recognise and provide for: The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.*

Policy 5.1.1.4 is more specific and relates to protecting identified viewshafts. Viewshafts have not been identified in this landscape evaluation. However, if through community consultation continued protection of the viewshafts is considered to be important they can be retained, and provisions drafted to protect them.

Chapter 12. Outstanding Landscapes and Natural Features- Rules

The rules focus particularly on tree planting (including species selection), structures and earthworks, which continue to be relevant threats to the landscape values of the ONLs (refer Section 7). The rules identify the activity status of activities in the Core, Buffer and Prominent Ridges.

The NES for Plantation Forestry will supersede many of the plan provisions that relate to forestry. However, we understand that for ONLs more stringent provisions can be identified by territorial authorities to protect landscape values than in other parts of the district.

Recommendations

In recent second-generation district plans, that we are aware of, the tendency is toward a more specific approach to the management of ONLs/ONFs (eg. Christchurch City), rather than generic provisions that apply to all ONF/Ls. In response to case law (King Salmon decision) it is now best practice to tailor provisions to the specific values associated with individual ONF/Ls that contribute to their 'outstanding' status. This approach clearly recognises that one size does not fit all for ONLs ie an estuary, river and high country landscape provide a variety of values to be

protected from differing threats. The approach taken in the operative district plan, where the ONL is considered to comprise separate components (core, buffer and ridgelines) is similar in this regard in that particular rules apply to the individual components. However, with multiple and very different ONLs (as proposed) is would not seem practicable to further subdivide these areas into separate components.

It is recommended that the plan provisions should recognise the specific landscape values of each ONL/ONF throughout the hierarchy of objectives, policies and rules. The tables in Section 7.4 define the key sensitives, likely threats, and policy guidance for each of the ONL/ONFs to inform the process of developing targeted policy to protect landscape values.

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Appendix 2: Landscape Evaluation Methodology

Introduction

The methodology used for this assessment has been and developed and documented by Boffa Miskell. It represents what is considered to be current best practice approach and rationale based on the collective experience of the Boffa Miskell landscape planning senior practitioners and guided by direction from relevant Environment Court case law.

Identifying Outstanding Natural Features and Landscapes (ONLs and ONFs)
A fundamental output of this assessment is the identification of any ONF/ONL that meet the 'outstanding' threshold under RMA Section 6(b).

The two criteria which must be met are that the landscape or feature is both 'natural' and 'outstanding'.

In terms of section 6(b), 'natural' usually means perceived naturalness rather than (for instance) the integrity or intactness of natural systems. These criteria for naturalness identified in case law (C180/1999 - WESI vs QLDC p. 57) include:

- relatively unmodified and legible physical landform and relief;
- the landscape being uncluttered by structures and/or obvious human influence;
- the presence of water (lake, river, sea);
- the presence of vegetation (especially native vegetation) and other ecological patterns.

The first two criteria of naturalness are necessary components of a natural landscape as they are indicators of human induced modification. However, the last two criteria are not essential as highly natural landscapes may have little or no water and vegetation cover in the absence of human modification, such as evidenced within parts of the Southern Alps. Notwithstanding this, it is accepted that the last two criteria may enhance naturalness in landscape terms, however their absence does not necessarily detract from naturalness.

Case law has found that the word 'outstanding' in 'outstanding natural features and landscapes' in section 6(b) means 'conspicuous, eminent, especially because of excellence' and 'remarkable' (C180 / 1999 - WESI vs QLDC p. 48). Usually an outstanding natural landscape should be so obvious (in general terms) that there is no need for expert analysis (C180/1999 - WESI vs QLDC p. 57).

Defining Landscape Values

Landscape values reflect the relative value to different landscapes or natural features held by society. A landscape may be valued by different people for a wide variety of reasons. Such values may also change over time. Most commonly, an assessment of landscape value underpins the traditional approach to conserving and protecting the most highly valued

landscapes. This typically reflects formal acknowledgment through a recognised landscape classification process.

Landscape values can be described as the environmental or cultural benefits that are derived from various landscape attributes. These attributes will, in many instances, be the components and image of the landscape as established in the assessment of landscape character. In some instances, a particular landform may itself be considered to hold important value. It may be that the character of a given landscape makes it a particularly striking representative of its kind or providing identity based on its uniqueness or rarity.

When judging landscape value, it is recognised that there are various ways in which landscapes may be appreciated and thresholds for value determined. The range of criteria that the Environment Court has reinforced for landscape practitioners to consider when evaluating landscapes is referred to as the Amended Pigeon Bay criteria or factors (C32/1999 – Pigeon Bay Aquiculture Ltd v CRC and C180/1999 – Waikatipu Env. Society v QLDC). These criteria or factors include:

1. the natural science factors - the geological, topographical, ecological and dynamic components of the landscape;
2. its aesthetic values, including memorability and naturalness;
3. its expressiveness (legibility) - how obviously the landscape demonstrates the formative processes leading to it;
4. transient values - occasional presence of wildlife; or its values at certain times of the day or of the year;
5. whether the values are shared and recognised;
6. its value to tāngata whenua; and
7. its historical associations.

In addition, the New Zealand Coastal Policy Statement – Policy 15 (2010) gives more specific direction when identifying and assessing natural features and landscapes of the coastal environment through having regard to:

1. Natural science factors, including geological, topographical, ecological and dynamic components;
2. The presence of water including seas, lakes, rivers and streams;
3. Legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;
4. Aesthetic values including memorability and naturalness;
5. Vegetation (native and exotic);
6. Transient values, including presence of wildlife or other values at certain times of the day or year;
7. Whether the values are shared and recognized;
8. Cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Maori, including their expression as cultural landscapes or features;
9. Historical and heritage associations; and
10. Wild or scenic values.

Based on the above, there is now a level of national acceptance in the use of specified criteria as an assessment framework, however it is also increasingly recognised by practitioners that

while they are useful, they also have certain limitations. Whilst factors or criteria were not intended to form a definitive or 'complete' list of landscape values, this is how they have often been used. Many of the criteria actually overlap and some could be more usefully seen as subsets of one another rather than as separate value categories. This can be confusing and lead to some values being given more weight than others, or 'double-counting'.

Recent case law (see C11/2009 – Unison Networks vs Hastings District Council) and a recent review by the New Zealand Institute of Landscape Architects (NZILA) have reordered the Pigeon Bay criteria into three categories. This focuses an understanding of landscape values into biophysical or natural science aspects, sensory and aesthetic aspects and other associative aspects. Biophysical, sensory and associative attributes can all be surveyed in a relatively objective way, using techniques that others can understand, repeat, review and critique. Condensing the Pigeon Bay criteria and NZCPS factors into these categories reduces the risk of emphasising some criteria at the cost of others and enables assessors to interpret the landscape values with greater validity and reliability.

The exercise of identifying ONF and ONL utilises the mapping of significant values on GIS where possible, which enables the ability to analyse where particular values overlap. The identification of an appropriate boundary reflecting the important biophysical, sensory and associative values identified can be conceived of as mapping the separate value attributes identified within each landscape character area (see Image 1). The evaluation must also recognise that not all values are able to be mapped (such as sensory or aesthetic values). From this, a judgement identifying the findings of the landscape evaluation is able to delineate areas that displayed notable high qualities of a range of biophysical, sensory and associative values.

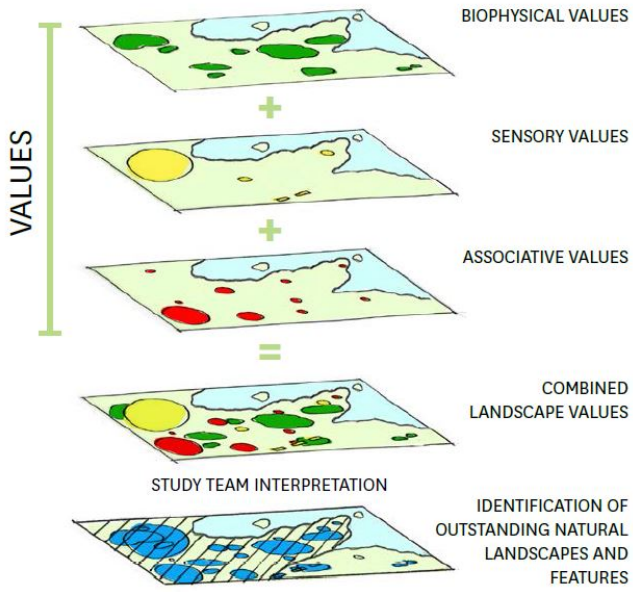

Image 1: Layering of landscape attributes to order to identify outstanding natural landscapes

When identifying the potential location of ONF/ONL it is recognised that the boundaries identifying valued areas of landscape, do not necessarily coincide with landscape character areas, the latter of which is based on determining areas of landscape with distinctive key characteristics. The following diagram (Image 2) illustrates the different relationships between landscape character areas and ONF/ONL which may occur:

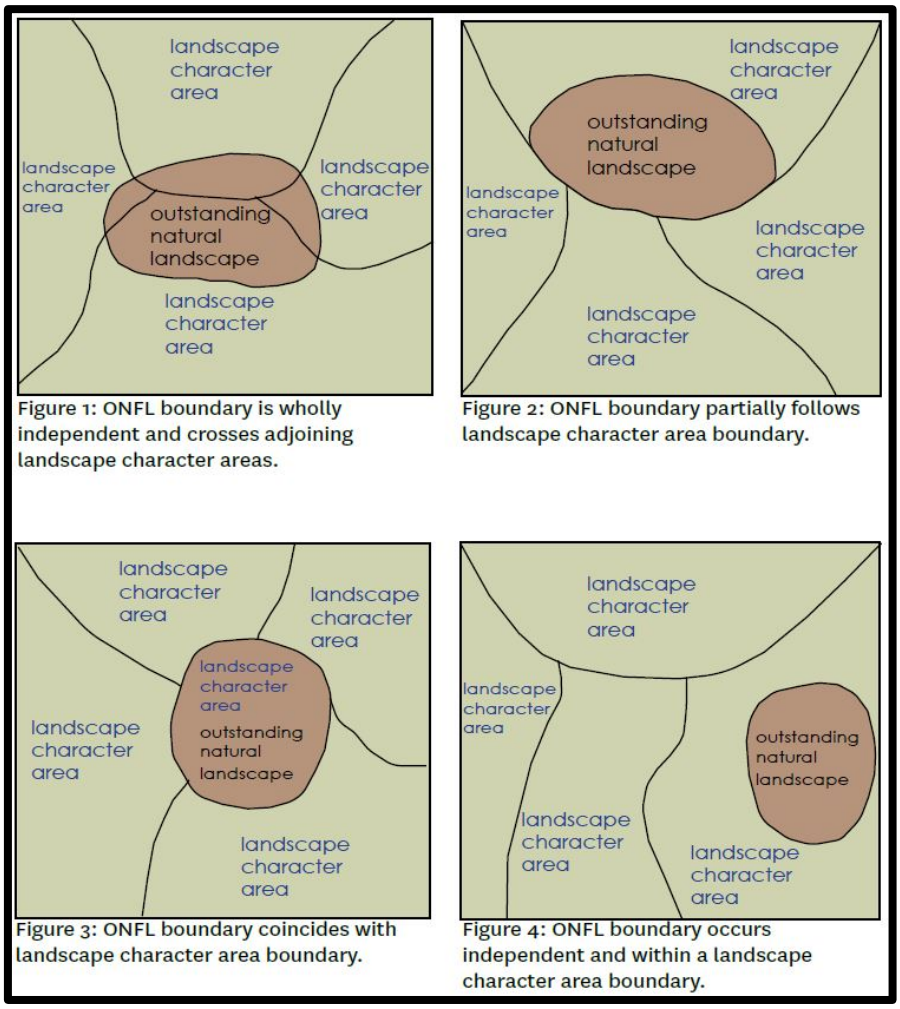

Image 2: Relationship between ONF/ONL and character areas

The process of determining ONF/ONL acknowledges that every attribute does not need to score very high to be considered as an ONF/ONL, although this will depend on the landscape under consideration. By undertaking this process, a threshold of values was also determined, which essentially concluded whether a landscape (or feature) was an ONF/ONL or not. ONF/ONL were only identified in relation to features or areas of landscape which scored at least high for biophysical, sensory and associative values.

Evaluating Landscape Values

In accordance with the above, consideration of data and findings from field work were used to determine an area of landscape's combined biophysical, sensory or associative value. This utilised the evaluation framework as set in **Table 1** in accordance with the relevant landscape attributes as described. A more detailed understanding of the landscape attributes considered including their definitions and reliance on relevant case law is also set out in **Appendix 2**:

Table 1			
Landscape Attributes		**Description**	**Assessment**
Biophysical	Abiotic	The presence of important or recognised geological, hydrological or topographical features	The underlying landform or natural feature are recognised as being important for scientific or educational purposes.
	Biotic	The presence of important native vegetation communities, wildlife or ecosystems	The area of landscape or feature contains important native vegetation communities, wildlife or ecosystems.
Sensory	Legibility	How obviously the feature or landscape demonstrates its formative processes	Geomorphological, hydrological, climate, vegetation, coastal and /or cultural processes are actively displayed in the landscape.
	Naturalness	The perception of the predominance of nature in the landscape	The landscape appears largely uncompromised by modification and appears to comprise of natural systems that are functional and healthy.
	Vividness	How striking or memorable an area of landscape is, including its role in the mental maps of a district or region	The landscape is widely recognised across the community with an ability to remain clear in the memory.
	Coherence	The way in which the visual elements or components of any landscape come together	The pattern of land cover and land use appears in harmony and is easily understood with no apparent random or significant discordant elements of land cover or land use.
	Transient values	The presence of wildlife or other values at certain times of the day or year	Changing elements, patterns and processes remain clearly apparent through times of the day or year.
Associative	Shared & recognized values	Whether the values are shared and recognised	The area of landscape or natural feature is widely recognised in the community and commonly referred to in art, literature or tourist maps.
	Tāngata Whenua values	Cultural and spiritual values for Tāngata Whenua	The area of landscape or natural feature contains cultural sites or values which are important to local iwi.
	Historic Heritage Associations	The presence of known historic or heritage associations	There are numerous and/or important historic sites identified within the area of landscape or feature.

In order to judge the relative value of landscape attributes the seven-point scale set out in **Diagram 1** was used alongside a description of the relevant landscape values which are identified:

***Diagram 1**: Landscape evaluation scale (Very Low through to Very High)*

At this stage of the assessment, the identification of ONF/ONL boundaries was primarily based on broad geomorphological and geographical patterns, see Diagram 2. Variations in land cover and land use are also taken into account as a secondary factor. This information was sourced from aerial photographs, and other GIS information, such as LCDB4 (Land Cover Data Base v.4). The process of community and land owner engagement including future consideration of associative values developed through community and Iwi engagement may further refine the areas of landscape defined.

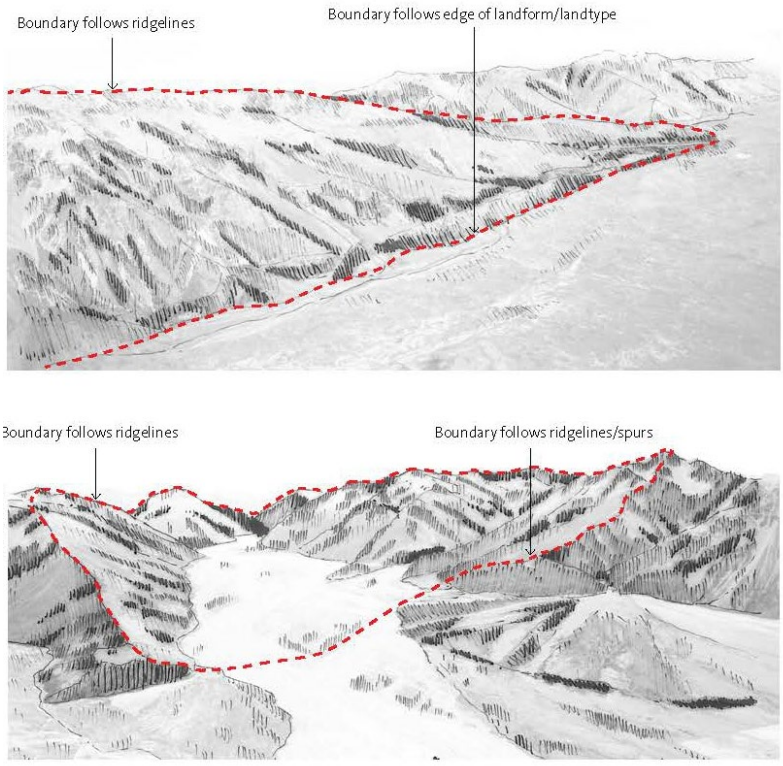

***Diagram 2**: Illustration depicting ONL and ONF boundaries*

For the purpose of this exercise, no particular distinction has been made between an Outstanding Natural Feature (ONF) and an Outstanding Natural Landscape (ONL), as they are covered under the same section of the RMA.

In general, landscape and features are differentiated as follows:

Landscapes are larger areas that are perceived as a whole and can include a number of features within them. Landscapes can be either experienced from within (e.g. from walking tracks) or seen as the whole of an outlook (e.g. looking towards the Front Ranges from the flat plains). Any mapped landscapes (or ONLs) will be identified at a district scale, underpinned by

the broader Regional ONF/ONL mapping contained within the Canterbury Landscape Review 2010.

Landscape features are discrete elements within a landscape, which are generally experienced from outside the features' boundaries. Features display integrity as a whole element and can often be clearly distinguished from the surrounding landscape. Generally, features are defined by their geomorphological landform boundaries. However, in some instances (such as areas of native bush) features are defined more readily by land cover characteristics.

Landscape Evaluation Attributes

Biophysical

Biophysical aspects incorporate a landscape's natural science elements, including its geological, hydrological, ecological and dynamic components and associations.
The natural science aspects considered by the Environment Court were described in the Queenstown decision as "the geological, ecological and dynamic components of the landscape" (C180/1999 – Waikatipu Env. Society v QLDC). In broad terms, this identifies that natural science values can represent both abiotic (including geology and soils) and biotic (in particular native vegetation communities, wildlife and ecosystems) components.

Where biophysical aspects are relevant, the key components of the landscape will be present in a way that more generally defines the character of the place. Natural features in a good state of preservation are representative and characteristic of the natural geological processes and diversity of the region. Natural features are unique or rare in the region or nationally, if few comparable examples exist. Natural features may also form a landscape feature or an element / component of the landscape.

Where possible, the analysis of biophysical aspects of landscape should use objective and quantifiable data to support a particular decision made. The Department of Conservation is one of the largest landholders in Waimakariri, with land areas encompassing major parts of the Southern Alps, including Arthurs Pass National Park and significant parts of the inland hill country.

In summary, the key biophysical aspects of landscape value include the following:

- Abiotic components including the presence of important or recognised geological. hydrological or topographical features
- Biotic components including the presence of important native vegetation communities, wildlife or ecosystems

Sensory

Sensory qualities are landscape phenomena as directly perceived and experienced by humans, such as the view of a scenic landscape or the distinctive smell and sound of the foreshore. Determining sensory and aesthetic aspects of landscape involves judgmental and subjective interpretations of nature and beauty, as well as transient matters contributing to human perception.

While an individual feature may have an aesthetic value when viewed from beyond its boundaries, aesthetic quality of landscape is more likely to relate to a place or an area. The Oxford English Dictionary (2002) defines 'aesthetic' as 'concerned with beauty or the appreciation of beauty; of pleasing appearance'. This appreciation of beauty encompasses not only the visual aspects of a landscape, but also other sensory experiences, such as sound, smell and touch.

The aesthetic value aspects considered by the Environment Court were described in the Queenstown decision as "including memorability and naturalness" (C180/1999 – Waikatipu Env. Society v QLDC). This decision also included some discussion of the adequacy of this description. It was of the view that traditional scenic and visual considerations may be underplayed. It noted that considerations such as pleasantness raised in the RMA amenity definition with reference to RMA section 7(c) will also be relevant.

The memorability of an area of landscape is often closely associated with its vividness or symbolic contribution to an area due to its recognisable and iconic qualities. Vivid or striking landscapes are more typically widely recognised across the community and have the ability to remain clear in the memory. Highly memorable landscapes often comprise a key component of a person's recall or mental map of a region or district. It is not necessary for vivid landscapes to have a high degree of naturalness. A landscape may be vivid or striking through other recognised scenic associations.

By contrast, the perception of naturalness is where landscapes appear largely uncompromised by modification and appear to comprise of natural systems that are functional and healthy. Naturalness describes the perception of the predominance of nature in the landscape. A landscape may retain a high degree of aesthetic naturalness even though its natural systems may be modified. Similarly, landscapes that have high ecological values may not display high qualities of visual naturalness.

In accordance with the above, the Courts have indicated that 'natural' in the context of landscape identification under RMA section 6(b) does not signify ecological intactness (eg EC C387/2011 – PC13 Mackenzie Basin). It is therefore important to make a distinction between ecological naturalness (indigenous nature) and landscape naturalness (perceptions of nature). Parts of the landscape can appear highly natural but are ecologically degraded. Other landscape elements require prior knowledge in order to appreciate whether they are native or exotic, despite being perceived as highly natural.

To further assist an assessment of the level of naturalness of a landscape, the Environment Court has determined four criteria for assessing naturalness (A78/2008, Long Bay – Okura Great Park Society v North Shore City Council):

- Relatively unmodified and legible physical landform and relief;
- The landscape being uncluttered by structures and /or obvious human influences;
- The presence of water (lake, river, sea); and
- The presence of vegetation (especially native vegetation) and other ecological patterns.

The first two criteria of naturalness are necessary components of a natural landscape as they are indicators of human induced modification. However, the last two criteria are not essential as highly natural landscapes may have little or no water and vegetation cover in the absence of human modification, such as parts of the Main Divide. Notwithstanding this, it is accepted that the last two criteria may enhance naturalness in landscape terms, however their absence does not necessarily detract from naturalness.

In combination with the above, legibility forms a key aspect or criteria for assessing the sensory or aesthetic value. The Environment Court described this criterion as "how obviously the landscape demonstrates the formative processes leading to it" (C180/99 – WESI vs QLDC), in other words the degree to which the processes (geomorphological, hydrological, climate, vegetation, coastal and cultural) are actively displayed in the landscape. Some landscapes (or natural features) clearly express past natural and cultural processes.

The criterion of legibility is closely linked to geological values. However, landscapes or features which are significant in terms of their geomorphological values, may not be expressive of these processes, whilst those which are highly expressive may not have a specific geomorphological value. Natural features and landscapes that exemplify the particular processes that formed them may also have strong historical connotations and a distinctive sense of place. Legibility need not necessarily relate to 'attractiveness', but clarity of natural and cultural processes is important.

Coherence forms a related aesthetic criterion which can contribute to the value of a landscape. Coherence describes the way in which the visual elements or components of any landscape come together. People generally respond positively to a landscape they can read and understand. The patterns of land cover and land use are largely in harmony with the underlying natural pattern of the landform of the area and there are no apparent random or significant discordant elements of land cover or land use.
Landscapes with high levels of coherence will have their visual elements in harmony and reinforcing each other. They will have unity, whilst they may be either visually diverse or relatively simple in terms of their elements. They 'hang together' in terms of their composition.

Transient values describe the contribution which wildlife, climate and hydrological processes make to landscape. A landscape may gain significance due to the way in which wildlife seasonally (or at times in the day) gathers or occupies a specific area. Similarly, locations that benefit from the rising or setting sun, time of day and seasons of the year may be elevated in value due to this 'transient characteristic'. This criterion is linked to those of the ecological values set and provide for the recognition of the contribution to wildlife – which may or may not have intrinsic scientific value – to the perception of landscape.

The consistent occurrence of transient features (for example the seasonal changes in the mountains or particular weather patterns and cloud formations) contribute to the character, qualities and values of the landscape. Some landscapes are widely recognised for their transient features and the contribution these make to the landscape. Where these characteristics occur regularly they become a recognised and integral part of the landscape.

In summary, the key sensory and aesthetic aspects of landscape value include the following:

- Legibility - how obviously the feature or landscape demonstrates its formative processes
- Naturalness - the perception of the predominance of nature in the landscape
- Vividness - how striking or memorable an area of landscape is, including its role in the mental maps of a district or region
- Coherence – where land cover and land use are largely in harmony with the underlying landform and there are no significant discordant elements
- Transient values - including presence of wildlife or other values at certain times of the day or year

Associative

Certain natural features and landscapes are widely known and valued by the immediate and wider community for their contribution to a sense of place leading to a strong community association with or high public esteem for the place. There should be a substantial measure of agreement between professional and public opinion as to the value of natural features and landscapes, for example as reflected through writings and paintings or through favourite locations for visitors. The presence of existing protected sites is also likely to reflect shared and recognised values.

Research has shown that many professional landscape assessments frequently reflect the views of the general public. Nonetheless, it is fully accepted that in some circumstances the expert's perceptions may be different and the findings of this assessment should be validated through community engagement. Some of the main tourist attractions in the district are often considered to be 'iconic landscapes' such as mountain ranges or coastal areas. Certain types of recreation destinations reflect the landscape resource. Conservation areas and popular recreation opportunities within them have been considered under this set of values. Scenic reserves and a number of other protected areas reflect community recognition of an area's landscape quality affording them a high level of protection.

Cultural legibility is a vital component of landscapes where many centuries of human endeavour can be unravelled through study of the present landscape. In New Zealand this aspect of landscape has received only limited and belated attention and has led to increasing contemporary recognition of how modified our 'natural' landscapes really are.
Some natural features and landscapes are clearly special or widely known and influenced by their connection to Maori values. These landscapes (or parts of them) have been identified as having particular regional importance to tangata whenua. The developing awareness of complexity of the 'cultural landscape' of the tangata whenua is covered under the cultural and spiritual values for tangata whenua evaluation criterion.

Consultation with iwi has yet to be undertaken through the landscape evaluation process which will inevitably enrich the associative values which contribute to the understanding of landscape value. Where such values are recognised, this will inevitably add to increasing the significance attached to the sensory associations and legibility of our landscapes.

Cultural and historical values are based on traditional land uses such as gathering food and materials, traditional settlement patterns, architectural periods, or notable landmarks, events or figures. Some of them are specific sites of significance, others are wider areas that reflect a high degree of unity or integrity as a setting for historic sites or activities. Individuals and communities leave their different marks on the landscape. From our choices of architecture and land use to our memories of events, landscapes can tell stories of from where and from whom we came and why we have responded to the physical environment in the ways we have. All landscapes are inextricably linked to historic processes.

In summary, the key associative aspects of landscape value include the following:

- Whether the values are shared and recognised
- Cultural and spiritual values for tangata whenua
- Historic and heritage associations