# Timaru District Landscape and Coastal Study

Landscape and Coastal Natural Character Assessment Prepared for Timaru District Council

10 June 2020



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# 1.0 Introduction

Timaru District Council has engaged Boffa Miskell Ltd to assist in determining whether the existing provisions and associated planning maps relating to Outstanding Natural Features and Landscapes are efficient and effective and therefore appropriate to be carried forward into a proposed District Plan, or if amendments to align provisions with current best practice landscape protection and management outcomes for Timaru District are necessary.

In addition to the assessment of Timaru's landscapes, BML were tasked with the definition and mapping of the terrestrial component of the district's Coastal Environment and assessing its natural character values in response to the requirements under the New Zealand Coastal Policy Statement (NZCPS) 2010.

The Timaru District Landscape and Coastal Study has been carried out in four stages:

- 1. Landscape Characterisation;
- 2. Landscape Evaluation;
- 3. Coastal Natural Character Assessment; and
- 4. Landscape Management Mechanisms.

A key goal of the Landscape Study is to ensure that Outstanding Natural Features and Landscapes (ONF/Ls) as well as Visual Amenity Landscapes (VAL), proposed in the District Plan are consistent with each other in terms of their value and boundary identification. The assessment of the natural character within the coastal environment is discussed in detail in the second part of this report.

The preparation of the Landscape Study is in response to the Council's obligations under the Resource Management Act (RMA) and Canterbury Regional Policy Statement (CRPS). As part of the review of the CRPS in 2010, Environment Canterbury (ECAN) completed a statutory review of the management of its landscapes and natural features in accordance with the requirements of the RMA<sup>1</sup>. The regional Outstanding Natural Features and Landscapes (ONF/L) review was used as one of the sources to inform this Timaru District Landscape Study.

No comprehensive landscape study has been undertaken for Timaru District in the past, with only the coastal environment, river margins and front ranges being included within a landscape assessment prepared by landscape architect Alan Petrie in 2000<sup>2</sup>. Therefore, this Landscape Study is a review of this existing information, while acknowledging all of the district's landscapes within one comprehensive assessment.

Both the characterisation and evaluation stages of this Landscape Study essentially build on the District's previous landscape assessment (Petrie, 2000), as well as the Canterbury Regional Landscape Study prepared for Environment Canterbury, a landscape assessment prepared for TDC for Geraldine Downs (BML, 2006<sup>3</sup>) as well as other existing information in the public realm. Recent relevant case law is considered as well as advances in the understanding of the concept of 'landscape' since the introduction of the RMA 1991 and the New Zealand Coastal

<sup>&</sup>lt;sup>1</sup> Canterbury Regional Landscape Study Review (July 2010) Boffa Miskell.

<sup>&</sup>lt;sup>2</sup> Landscape Assessment of Timaru District's Coastal Environment, River Margins and Front Ranges (June 2000) Alan Petrie, Moore & Petrie Landscape Architects.

<sup>&</sup>lt;sup>3</sup> Geraldine Downs Landscape Study (July 2008) Boffa Miskell.

Policy Statement (NZCPS) 2010. The coastal assessment included in this study was largely informed by the regional assessment prepared for ECAN, which was only advanced to a draft stage (BML, 2011)<sup>4</sup>.

# 2.0 Statutory Context

# 2.1 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): The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.

Natural features and landscapes that do not meet the criteria for being ranked as 'outstanding' can nonetheless qualify for protection under other clauses in section 6 or are required to be "maintained and enhanced" either as "amenity values" or part of the wider "quality of the environment" encompassed under RMA section 7(c) or section 7(f) respectively. In addition, landscapes or rivers or lakes that were not "outstanding natural features and landscapes" would still be required to have their "natural character" preserved under RMA section 6(a), or significant areas of indigenous vegetation or habitats of indigenous fauna protected under section 6(c). Natural Character matters relating to the coastal environment are covered in this report as outlined earlier.

Also, other related topics such as Section 6(e) relating to the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga are the subject of a separate report, despite aspects of this crossing into landscape considerations.

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.

# 2.2 New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement (NZCPS) is a national policy statement under the RMA. The purpose of the NZCPS is 'to state policies in order to achieve the purpose of the act in relation to the coastal environment'.

The NZCPS has highlighted the need for the identification and mapping of special landscapes occurring within the coastal environment. Policy 1 of the NZCPS gives direction to defining the extent and characteristics of the coastal environment. Policy 15 refers to natural features and landscapes and requires that natural features and landscapes within the coastal environment are identified and assessed. For the purposes of this Landscape and Coastal Natural Character Study, Policies 1, 13 and 15 are relevant, which includes the identification of the extent of the

<sup>&</sup>lt;sup>4</sup> Terrestrial Natural Character Study of the Canterbury Coastal Environment (August 2017) Boffa Miskell.

coastal environment (Policy 1), and evaluation of its natural character (Policy 13) and landscape values (Policy 15).

# 2.3 Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement 2013 (CRPS) provides a regional level approach to objectives, policies and methods to resolve the resource management issues of the Region and to achieve the integrated management of the natural and physical resources of Canterbury. Chapter 12 sets out the issues, objectives, policies and methods in relation to Landscape. Of particular relevance to this study is the identification of an issue around the inconsistent identification and management of ONF/L around the region and thus variable levels of protection of values.

To address this issue, the CRPS includes objectives seeking the identification of ONF/L and their recognition and protection, and also the identification and management of other landscapes of importance for natural character, amenity or historic and cultural heritage reasons. The third objective seeks consistency of assessment of landscapes.

Policy 1 requires identification of ONF/L including recognition of the values set out in Appendix 4 to the Statement (which sets out the ONF/L at a regional scale from the 2010 Regional Landscape Study). To achieve this policy, territorial authorities are required to set out objectives, policies and methods, including maps, to identify ONF/L at the time of a relevant district plan review, or within 7 years of the CRPS becoming operative; whichever is sooner.

Policy 3 provides for identification of other important landscapes that are not outstanding natural landscapes, for natural character, historic cultural, historic heritage and amenity purposes. This is not a mandatory requirement for territorial authorities.

Consistency of identification is managed through policy 4 which states:

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

Seek to achieve regional consistency in the identification of outstanding natural features and landscape areas and values by:

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

The application of these assessment matters is a mandatory requirement for territorial authorities within the Canterbury Region.

# 2.4 Timaru District Plan

The Operative District Plan identifies outstanding landscape areas, and significant amenity landscapes on the planning maps. However, there are no specific outstanding natural features (e.g. geopreservation sites), or areas of outstanding or high natural character, or heritage landscapes currently identified in the Plan. Chapter Part B – 2 Natural Environment covers the high-level direction for the management of outstanding natural landscapes and amenity landscapes. Specifically, Objective 3 seeks to identify, protect, and enhance outstanding landscape values of the District, and those natural processes, features and areas of significant natural value which contribute to its overall character and amenity.

Chapter Part D (1) Rural Zones further articulates the way in which activities will be managed in the outstanding landscape areas to achieve the higher-level policy direction in Chapter 2. It includes rules for the Rural 1 and 5 zones managing activities in outstanding landscape areas controlling:

- new walking tracks, fences, vehicle and stock access tracks within outstanding landscape areas (Rural 5 zone);
- buildings within outstanding landscape areas (Rural 5 zone);
- tree planting in outstanding landscape areas (Rural 5 zone);
- woodlots and forestry within outstanding landscape areas (Rural 1 and 5 zones).

There are currently no specific rules for managing activities in the amenity landscape areas. Rather the general rules for the Rural 1 and 5 Zones manage activities in these areas, and in include in particular controls on tree planting, earthworks, and structures in these areas above 900m in altitude.

# 3.0 Timaru Landscape Study

Landscape, as defined by the New Zealand Institute of Landscape Architects (NZILA), is the "cumulative expression of natural and cultural features, patterns and processes in a geographical area, including perceptions and associations" (NZILA, 2010). While all landscapes are dynamic and continually change, the rate of change varies under different physical, social and economic conditions.

Defining landscape character relies on an understanding of work done by various specialists, analysis of topographic and various other mapping and spatial data (datasets), field survey and photography, as well as aerial photography. For this particular study, much of the work has been based on a desk top analysis with field work to verify findings on a broad level. The mapping of ONF/Ls and VALs has been undertaken at a broad, district-wide scale, based on a variety of material at different scales. Engagement with stakeholders or the wider community did not form part of the brief for this study.

The description of landscape and subsequent landscape characterisation, undertaken as a first stage in the preparation of this Study, provides valuable information on the key attributes that contribute to landscape character. However, description and characterisation alone gives little assistance to the identification of the importance of values attributed to the landscape and associated influences directing the management of landscape change. To inform a rational decision on what constitutes landscape values and associated management techniques, including areas requiring legal protection such as ONF/L, criteria and justification must also be made explicit.

Within landscape character areas there are often sites or features that are significant components of the wider landscape. Such areas may encompass geological formations, stands of native forest, rivers, stretches of coastline, or important historic or cultural areas or features. These areas and features add depth and meaning to the landscape and contribute to landscape character and often communities identify with them. Once these characteristics have been identified, then values can be assigned and a special status or appropriate management regime in terms of resource planning and management can be applied if necessary. This occurs through identifying the areas and features in regional policy statements and district plans and developing specific policies and rules around them.

Effective landscape management is underpinned by landscape assessment. 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.

# 3.1 Study Approach for Landscape Study

As outlined, this Landscape Study was undertaken as an independent technical assessment by Boffa Miskell Ltd's landscape planners with limited ecological expertise. The brief did not involve the engagement of cultural specialist advice or mana whenua liaison. It also includes input from Timaru District Council staff through the review process. This Landscape Study comprises three main stages, which involved the following tasks: The first part of the Landscape Study is to prepare a **Landscape Characterisation** of the Timaru District. This first stage comprises a district-wide landscape characterisation, by which the district's land-types are classified into broad landscapes and character areas, drawing from land typing analysis conducted by Landcare Research on a regional scale<sup>5</sup>.

The second stage comprises a Landscape and Coastal Natural Character Evaluation of the district's different landscape values, including the identification of landscapes in accordance with Sections 6 and 7 of the RMA. This evaluation follows best practice methods, as identified in the CRPS, NZCPS and under the latest NZILA guidelines<sup>6</sup>. Since natural character values differ from landscape values, these two aspects of the assessment have been addressed separately in individual sections of the report (see Section 4 for Landscape Evaluation and Section 5 for Coastal Natural Character Evaluation). The maps and descriptions cover the landscape character areas within the district, identified/recommended Outstanding Natural Features and Landscapes, Visual Amenity Landscapes, an outline of the Coastal Environment, assessment of the natural character and recommended areas of Outstanding Natural Character.

The third part of the Landscape Study provides recommendations in relation to Landscape Management based on the landscape's sensitivity to land use change within the identified ONF/Ls, VALs and ONCs. This task includes a broad analysis of potential threats to these landscape and coastal natural character values that could arise. In cooperation with TDC staff involved in the District Plan Review, awareness of current and potential land use management issues has ensured that this analysis of threats is up-to-date and applicable to the district's resource management context. Through discussions with council staff identified issues have informed recommendations for the management and protection of important landscape values which can then be incorporated into objectives, policies and methods (including nonregulatory methods).

Based on our brief, we are not required to undertake landowner consultation or visits to private properties for the preparation of the study. We understand that TDC is going to lead the consultation as part of their district plan review process. Please also note that a full analysis of cultural values, sites and areas or engagement with mana whenua has not been undertaken as part of this study, however existing and publicly available information on cultural sites and values has formed part of this assessment.

<sup>&</sup>lt;sup>5</sup> And contained within the Canterbury Regional Landscape Study Review (July 2010) Boffa Miskell.

<sup>&</sup>lt;sup>6</sup> Best Practice Guide: Landscape assessment and sustainable management, NZILA Education Foundation, 2010.

# 4.0 Broad Landscape Character Descriptions for District

# 4.1 Landscape Characterisation Methodology

As a starting point, this assessment recognises that all landscapes have values and form an integral part of the environment. Accordingly, an understanding of landscape character can provide an important tool which assists with managing landscape change. Whilst a primary focus of this assessment relates to identifying areas or features with notable landscape values, any of the wider everyday rural landscapes can be vulnerable to landscape change.

To identify landscape values, the Timaru Landscape Study has relied upon professional judgement and drawn upon available information including GIS databases, but only a limited amount of field work. In December 2017 two days were spent by the study team, accessing as many areas as possible by car to assess the outlines of character areas and subsequently Outstanding Natural Features and Landscapes (ONF/Ls) and Visual Amenity Landscapes (VALs) on the ground. This provided the opportunity for familiarisation with all of the district's landscapes and ground-truthing preliminary landscape character areas identified as part of the desktop review (see below for details).

The outputs from the Landscape Study, seek to develop an understanding of landscape values and provide guidance on how best to manage landscape character and landscape values, be it for protection, productivity, development, enhancement or rehabilitation.

#### Landscape Description

'Landscape description' involves a process of data compilation during which the layers or components that make up the landscape are identified. The data gathered also included available GIS datasets which include: landform, soil, geology, drainage patterns, vegetation cover, land uses, built development, infrastructure and heritage sites.

Relevant GIS information that has been used to inform the extent of information, included:

- Topographical Maps (LINZ)
- Digital contour information at 20 meter intervals (LINZ)
- Land Cover Database 4 (Terralink, based on 2012/2013 aerials)
- Aerial Photography
- Geology (NZLRI)
- Soils (New Zealand Land Resources Inventory)
- Geopreservation Sites and Areas (Geological Society of New Zealand)
- Land Typing (Landcare Research used for the Regional Landscape Study, 2010, Environment Canterbury)
- Heritage Sites (New Zealand Historic Places Trust)
- Public Conservation Land (DOC managed)
- Ecological Regions and Districts (Department of Conservation)
- Ngāi Tahu Claims Settlement Act Tribal Property (ECAN)
- Ngāi Tahu Claims Settlement Act Statutory Acknowledgement Area (ECAN)
- Elevation and Slopes

• Existing digital mapping of landscape layers from Timaru District Council, including the coastal hazard information (100-year coastal erosion and coastal inundation lines) and zoning

#### Land Typing

'Land types' are used to distinguish major physiographic land units on the basis of topography and lithology. In New Zealand, 'land typing' has proved a useful basis from which landscape characterisation has been based and forms a minimum requirement for identifying natural features and landscapes.

In Timaru District there are 16 Land Types, which have been determined by Landcare Research and are contained within the Canterbury Regional Landscape Study Review (Boffa Miskell 2010). These can be divided into five broad categories of which some are made up of accumulated land types:

- Low Altitude Plains, comprising: L1 Plains Coastal Fringe Land Type; L2 Lower Plains Land Type; L3 Upper Plains Land Type and L4 Plains Recent Floodplains and Low Terraces Land Type.
- Foothills and Downlands, comprising: L14 Southern Loess Mantled Soft Rock Hills and Downs Land Type; L15 Southern Soft Rock Hills and Downs Land Type; L16 Southern Structural Soft Rock Hills Land Type; L17 Loess Mantled Hard Rock Hills and Downs; L22 Southern Hard Rock Hills and Mountain Land Type and L23 Igneous Hill Country Land Type.
- Front Ranges, comprising H10 Southern Eastern Front Range Land Type and H16 Igneous Mountain Range Land Type.
- Intermontane Ranges and Basins, comprising H1 Major River, Valley Fill Land Type; H3 Glacial and Fluvial Basin Floor Land Type and H15 Southern Subhumid to Humid Mountain Range Land Type.
- **High Rainfall Divide**, comprising H20 Southern Main Divide and Associated Ranges Land Type.

#### Landscape Characterisation Process

Landscape character can be defined as 'a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse'. Put simply, landscape character is what makes an area unique.

'Landscape characterisation' is the term used for the process of identifying, mapping and describing landscape character. Each area of landscape can be understood as having an identifiable character based on its individual or cumulative natural and cultural expression. Characterisation provides a sound descriptive and analytical basis defining what makes an area of landscape distinct. Communities identify with 'their' landscapes and recognise them as having a particular combination of attributes and features that give them their distinctive 'character'.

Landscape characterisation draws upon the work and descriptions prepared by the land typing specialists, but in addition aims to develop an understanding of 'sense of place'. Essentially

landscape character is the interrelationship of three broad factors – landform (encompassing land typing), land cover and land use. Within these broad factors there are many variables and it is the way in which these combine that gives broad areas of the landscape a cohesive and distinctive character.

Landscape characterisation, is a means to describe places in a way that is meaningful to the greater community and related to how people perceive and experience the landscape.

This element of the study is largely descriptive and objective. It draws on an understanding of the natural and cultural features, patterns and processes. Its focus is to identify distinguishing characteristics, which make one part of a district different from another. An understanding of the landscape characterisation of all landscapes at a district level provides a meaningful basis for the identification of significant and important landscapes within a subsequent landscape evaluation exercise.

In summary, the objectives of the Landscape Characterisation Stage are to:

- Analyse the landscape through review of GIS data, land typing, maps, aerial and landbased photographs and field survey;
- Identify and map landscape character areas;
- Describe each type and area of landscape objectively; and
- Identify and define key characteristics and forces for change within each landscape character area (see later section of this report).

In total, four Landscape Character Areas have been determined for the Timaru District, these are:

- 1. Low Altitude Plains
- 2. Downlands (comprising several areas)
- 3. Front Ranges (Four Peaks Range and Peel Forest)
- 4. Alpine Ranges and Basins (Upper Rangitata catchment and Two Thumb Range)

A description of each Character Area is provided in the following section and the character areas are shown on **Figure 11**.

### 4.2 District-Wide Landscape Character Overview

Comprising a central portion of the eastern South Island, the Timaru District is one of the smaller districts of the Canterbury Region and is broadly contained by the Rangitata River to the north and the Two Thumbs Range and Pureora/Pareora River to the south. The landscapes of the Timaru District (Refer to **Figure 11**) are diverse, ranging from the rugged and isolated mountains of the Rangitata high country in the north-west to the low, settled and highly modified plains in the north-east. The downlands of the district fringe the prominent Four Peaks- Tarahaoa/Mt Peel Range and extend out to the coast in the southern part of the district along the Pureora/Pareora River.

At a broad scale, the landforms of the Timaru District are legible and expressive of their formative past. The transition from the flat modified plains through the foothills and

downlands to the alpine ranges and basins and high divide ranges are very evident and provide a sense of place to each different landscape.

The distribution of vegetation within the district reflects the varied climatic conditions, geomorphology, and more recently, modification by humans. Areas of indigenous vegetation occur within the front ranges and the alpine mountain ranges, where vegetation sequences from valley floors through to alpine areas are clearly apparent, refer to **Figure 8**. At lower elevations, and particularly on the Kā Pākihi Whakatekateka o Waitaha /Canterbury Plains and in the downlands, large areas of indigenous vegetation have been removed and replaced with plantation forestry, pastoral grazing or residential development.

Human occupation over the past 600-1,000 years has assisted in shaping these landscapes, adding an important layer of cultural and historic heritage. Refer to **Figure 10**.

The principal transportation route from Christchurch/ Ashburton in the north to the Mackenzie Basin in the centre of the South Island and to Oamaru/ Dunedin on the southern East Coast lead through a variety of landscapes within Timaru District.





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http://data.gns.cri.nz/geology Faults sourced from Institute of Geological and Nuclear Sciences Limited (GNS)

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Figure 02



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# 4.3 Landscape Character Area 1: Low Altitude Plains



Photograph 1: View of the Low Altitude Plains, overlooking the Ōpihi River mouth and Milford Lagoon Conservation Area.

The Low Altitude Plains Landscape Character Area is within the southern portion of Kā Pākihi Whakatekateka o Waitaha/the wider Canterbury Plains. This Character Area is defined by the foothills of Peel Forest/ Four Peaks and the Geraldine Downs in the west, by the Rangitata River to the north, the coastline to the east and the downlands along the Pureora/Pareora River to the south.

This Character Area is defined by the flat, open and expansive plains which have little topographical relief and are traversed by braided river beds with associated terraces. Elevation ranges from 0 to 300m. This highly modified landscape possesses a linearity, emphasised by the characteristic shelterbelts, dissecting roads and broad scale agricultural land use. The natural landscape features of this area include the Rangitata, Örāri and Öpihi Rivers including their tributaries along with the Waitarakao/Washdyke Lagoon. The lower Pureora/Pareora River in the south is also lined by a narrow area of associated river plains, which are contained by downlands to the north.

The Low Altitude Plains include towns such as Geraldine, Temuka and Timaru. A number of small townships of varying populations are dotted throughout the plains which service the rural community and motorists along the State Highways within the district.

The Low Altitude Plains can be separated into two areas that have different landscape characteristics that are described below:

- Lower Plains (south of State Highway 79)
- Upper Plains (north of State Highway 79)

#### Landform

The Low Altitude Plains consist of flat to gently undulating, fertile, loamy to free draining soils, old greywacke gravel fans and floodplains of historic river alignments and glaciation events of the mountains in the north west. Generally, the Low Altitude Plains are open with distant views

to the Four Peaks Range and Peel Forest. While the lower plains are predominantly flat, the upper plains are more undulating as they lead up to the downlands along the base of the Four Peaks Range and Tarahaoa/Mt Peel.

In the **Upper Plains** the downland landforms visually contain the plains, with the Geraldine Downs forming a prominent feature with distinctive boundaries. The Upper Plains, in particular the areas near the foothills, display a smaller-scale mosaic of land uses that follows the landform and natural undulations.

The **Lower Plains** contain large, open areas that include the coastal environment between the Rangitata and Pureora/Pareora Rivers. The coastal environment north of Timaru township contains both fresh and brackish water features, i.e. flood plain meanders, coastal lagoons, tidal river estuaries with salt marshes. The Rangitata River is one of the major braided rivers within Canterbury, together with the Waimakariri, Rakaia and Waitaki Rivers, albeit smaller in flow and extent of river bed. It terminates in a lagoon at the north-eastern boundary of the district. The Ōrāri River bed traverses the plains from the Tara Haoa Range foothills near the settlement of Leamington for approximately 40km before flowing into the Canterbury Bight in the east. The Õpihi River crosses the plains from the south-western district boundary near the Raincliff Bridge for approximately 33km, also flowing into the Canterbury Bight. There are two Geopreservation Sites within the Ōpihi River corridor, Ōpihi taniwha rock drawing near Ōpihi and Ōpihi River mouth and Harakeke Tautoro Island contained within the Milford Lagoon Conservation Area. The coastal boundary of this landscape also includes other notable lagoons such as Spider Lagoon Conservation Area and Washdyke Lagoon Wildlife Sanctuary.

The Low Altitude Plains are bound by the Rangitata River in the north and the downlands of Timaru to the south, which form the outwash plains. Remnants of the old river courses and outwash events through the Timaru District can be identified through evidence of the deep greywacke gravel deposits, the remnant alluvial fan patterning and terrace landforms. From an aerial view the abandoned braids on the former river terraces can still be identified in many places, forming a distinctive sinuous pattern in contrast with the straight, human- induced lines of paddocks and shelterbelts.

#### Landcover

Landcover throughout the Low Altitude Plains includes a mosaic of high producing pasture, linear roads and small areas of exotic plantation forest.

In particular on the **Lower Plains** agricultural patterns of shelterbelts, fenced paddocks and irrigation pivots create a patchwork on the land when viewed from the air. Less than 10% of original indigenous vegetation exists on the plains due to intensive largescale farming practices, successive clearance and land drainage practices, which have greatly modified the nature of the plains habitat.

The **Upper Plains** appear to contain more established settlement patterns with clustered mature trees, homesteads and have more rural amenity when compared with the Lower Plains which have been mostly cleared of native vegetation. Within the Upper Plains there are gullies, steams and river terraces that contain regenerating native vegetation. Very few areas of original low land forest have been maintained, with Talbot Forest near Geraldine being one of the best examples within the Kā Pākihi Whakatekateka o Waitaha/Canterbury Plains.

#### Land Use

The predominant land use on the plains is agriculture, with dairy farming being the dominant use on the **Lower Plains** especially between the Rangitata and Ōrāri Rivers. Dryland sheep farming is found on the **Upper Plains** closer to the boundaries of the Downlands and Front Ranges Character Areas in the undulating landscape. Forestry is comparatively rare on the plains, in particular the Lower Plains, as the highly productive soils lend themselves to more intensive uses, such as farming.

Apart from Timaru, Temuka and Geraldine townships, the Low Altitude Plains include the wellestablished settlement of Pleasant Point, which lies within a 20km radius from Timaru. The smaller settlements include Peel Forest, Cave, and Pareora, amongst a number of other rural settlements/ clusters of residential development.

Major transmission lines and towers intersect the plains from the Rangitata River heading south of Pleasant Point and into the downlands west of Timaru. The towers are prominent elements in the flat Low Altitude Plains landscape.

#### Key Landscape Characteristics

- Flat, open and expansive plains which have little topographical relief
- Broad scale, highly modified agricultural land use with very little native vegetation, in particular on the Lower Plains
- A largely linear landscape which is emphasised by the characteristic shelterbelts and dissecting roads, as well as the Rangitata, Ōrāri and Ōpihi Rivers south of SH 79
- More rural amenity, clustered trees and established landscapes north of the SH 79
- Distant backdrops of the Four Peaks Range and Peel Forest
- A number of river mouths and lagoons in the narrow coastal environment

# 4.4 Landscape Character Area 2: **Downlands (multiple areas)**



Photograph 2: View from Greenvale Road on the Geraldine Downs.

This is an intermediate landscape that marks the transition between the more rugged frontal ranges (see landscape type Front Ranges) to the north and the flat, vast plains landscape (see landscape type Low Altitude Plains) to the east. This landscape forms a distinctive mosaic of land uses, with a mix of more intensive farming, extensive grazing, forestry and some native bush within the gullies leading into the Front Ranges.

The rolling Downlands Landscape Character Area can be separated into three distinctive areas which differ in land use and land cover (refer to sections below).

- The Geraldine Downs
- The Kakahu Downs
- The Pareora/ Mt Horrible Downs

#### **Geraldine Downs**

The Geraldine Downs is an interesting landform that is surrounded by the Low Altitude Plains. The small plateau area is distinctive with its rolling hills and escarpments that distinguish it from the flat surroundings, which have been formed by the Waihī River to the north and the Hae Hae Te Moana River to the south. The gullies on the Geraldine Downs are often incised and contain native vegetation, while the hilly landform is otherwise generally of a gentle gradient.

#### Kakahu Downs

The central part of Timaru District contains a large area of downlands around Kakahu Bush and the plantation forests of Kakahu Forest. This portion of the downlands character area is enclosed by the Front Ranges to the north, where the undulating terrain gives way to higher hills and mountains. These Kakahu Downs form distinctive fingers that extend into the upper plains, in particular along the northern side of the Ōpihi River that has carved its way through these downs before entering the plains near Pleasant Point, where it meets the Te Ana-a-Wai/Tengawai River.

#### Pareora/ Mt Horrible Downs

The southern portion of the Downlands are defined by the Te Ana-a-Wai/Tengawai River to the north and the Pureora/Pareora River which forms the district boundary to the south. The southern escarpment of these downlands, which extend all the way to the coast, is distinctive, in particular where Mt Horrible and Cave Hill rise to an elevation of around 400-550m above the Pureora/Pareora River.

#### Landform

The elevation of the Downlands are between approximately 300m to 935m and are much lower than the adjacent Front Ranges of the Four Peaks Range (1,587m). However, these hills and downlands provide an important gradual rise to the mountains further north and act as an important visual resource for South Canterbury, forming a backdrop or natural setting to the Timaru and the South Canterbury Plains.

The landscape of Geraldine Downs is an identifiably distinctive area. The expressive volcanic landforms are overlaid with smooth wind-blown soils and pasture cover that creates a distinctive land area with well-defined edges delineated from the surrounding flat plains. The natural landforms that characterise this hill country are the steep rocky escarpments, network of gullies, small valleys and waterways, rolling hill slopes around the perimeter of the Downs, and the flat to undulating tablelands.

Along the coast, low-lying alluvial flats in the hinterland in the northern part of the district differ to the higher rolling country to the south of Timaru Township. Continual shingle ridges, and in some areas stopbanks and railway embankments, separate the shoreline from the coastal hinterland. The sweeping shingle beaches and ridges contrast sharply with the adjoining sea cliffs. Many lagoons and wetlands have formed at the river mouths within the district, which are described in detail as part of the coastal natural character assessment in the this report.

The downlands north of the Pureora/Pareora River contain some geologically interesting areas, such as the volcanics at Mt Horrible and a number of limestone ridges. Other limestone formations can be found at Kakahu Bush, Hanging Rock and scattered to the north of the  $\bar{O}$ pihi.

#### Landcover

Within this Landscape Character Area, the coastal and lower slopes of the downs are predominantly high producing exotic grassland and cropping, however, there are frequent locations where native regenerating scrub is apparent, mainly within gullies and on steeper slopes leading into the Front Ranges. Scrub here comprises predominantly of matagouri, manuka, kanuka, some gorse and broom, and some mixed native species found in gullies depending on the elevation and micro-climatic conditions.

Pasture covers much of the remainder of the character area especially in the productive undulating hill areas south west of Timaru with mixed exotic shrubland, gorse and regenerating indigenous vegetation also common in steeper areas.

Plantation forestry has also been established in some parts, mainly contained within the Kakahu Forest with other plantations scattered throughout the landscape. The Kakahu Forest, which extends as far north as the upper Hae Hae Te Moana River from the boundary of the Kakahu Downs with the plains, contains large-scale, productive plantations that lead to a lower aesthetic appeal of these areas, in particular at harvest time. A number of forestry roads cross these downlands.

Talbot Forest Scenic Reserve, located on the southern edge of the Geraldine Downs, is a natural remnant podocarp forest that is highly valuable from an ecological perspective. It contributes significantly to the uniqueness of this landscape, and provides a 'greenbelt' backdrop to Geraldine township. Talbot Forest and other native plant remnants add significant ecological value to the Downs landscape and provide a strong sense of special ecological identity to the Geraldine Downs.

Several scenic reserves are also found within this area which include Ōrāri Gorge, Waihī Gorge, Hae Hae Te Moana, and Kakahu Bush Scenic Reserves. A relict long-tailed bat population is centred on the small forest remnants, riparian strips and limestone areas around Hanging Rock on the Ōpihi River system.

#### Landuse

The current predominant land use on the downlands is agricultural, with pastoral grazing of sheep and beef farming being dominant within the Pareora/ Mt Horrible Downs. Progressive farming techniques have replaced the original vegetative cover with exotic grasslands and on some of the gently undulating terrain adjacent to the plains centre-pivot irrigation has been introduced, leading to more intensive grazing. In general, the more undulating downlands have been subdivided into large grazing blocks and present a mainly coherent agricultural land use pattern.

Large plantations of production forestry are present within the Kakahu Downs.

The Geraldine Downs is primarily small-scale pastoral grazing of sheep, cattle and some deer. Rural residential activities have led to a landscape change in this area over the past decades. These activities are characterised by features such as farm fencing and residential buildings. Interspersed within this farming landscape are small patches of exotic forestry, horticulture, and native bush and small localised wetlands/ponds. Residential dwellings are a prominent part of the Geraldine Downs landscape today.

Otherwise there are few small settlements located within the downlands character area, most of them occurring along the sheltered, accessible edges with the plains.

#### Key Landscape Characteristics

- Mosaic of land uses, with openness of the landscape in grazed areas
- Cohesive repetition of well-maintained rolling hills of pasture
- Patches of native vegetation follow the undulating topography, occur predominantly in gullies
- Views of surrounding plains and mountains
- Areas of plantation forestry, in particular large-scale plantations at Kakahu Downs
- Pastoral grazing being a dominant land use in most areas
- Rural residential activities occurring more frequently in particular within Geraldine Downs, where the rural amenity is high

# 4.5 Landscape Character Area 3: Front Ranges



Photograph 3: View from Slip Panel Road overlooking the Front Ranges, which form the back drop to the plains landscape when viewed from the east.

The Front Ranges Character Area borders the Mackenzie District to the west and adjoins the Low Altitude Plains and Downlands to the south-east. The Front Ranges include Peel Forest and part of the Four Peaks Range and Tara Haoa Range which continue north into the Mackenzie District. The major peaks within the Four Peaks Ranges (Timaru District) are Devils Peak rising to 1587m and Fiery Peak rising to 1525m. Fiery Peak is within the Four Peaks Range Conservation Area.

These ranges are often snow-covered in winter and provide the skyline in longer distance views from the plains that define the district. The angular outline of the low mountain peaks contrast with the rounded form of the downlands.

Mt Peel/Waikari Hills Conservation Area and Peel Forest Scenic Reserve form the northern part of the Front Ranges. Peel Forest Scenic Reserve is the largest in the Geraldine area covering 783 ha (DOC).

#### Landform

The prominent mountain ranges have an alpine character and the location of the Front Ranges at the western extent of the Canterbury Plains makes them a visually important part of the backdrop. The ranges within Timaru are the southern-most mountains containing the plains in an arc towards the coastal downlands in this part of the region.

The landform of this Landscape Character Area contains typically steep to very steep, and in other places strongly rolling or dissected mountain ranges of greywacke sandstone and igneous rock. These ranges located on the fringe of the Upper Plains rise to almost 1600m. Extensive scree and bedrock outcrops are evident at higher altitude, along with sharp crested peaks and relatively smooth flat-topped ridge crests.

#### Landcover

The landcover of the Front Ranges has not been modified to the same extent as the plains below. The remaining native vegetation communities are generally restricted to steep slopes and

gullies. They include mountain beech fragments (of various sizes), mixed broadleaf forests, sub alpine shrublands, fernland, tussock grasslands and low producing grassland. Podocarp forests around the base of the foothills have been heavily logged and only very small fragments remain.

Snow tussock, subalpine scrub and alpine and rockfield vegetation features above 1100 to 1200 with an induced short tussock grassland and scrubland at lower elevations. Significant remnant forest cover is present only on the south easterly aspect of the Four Peaks Range.

Peel Forest Park Scenic Reserve and Mt Peel Waikari Hills Conservation Area cover 783 hectares located on the base of the Tara Haoa Range in Timaru's high country. This conservation area, which is managed by the Department of Conservation, contains significant pockets of indigenous podocarp and hardwood forest. The three largest trees in Peel Forest are kahikatea (white pine), tōtara, and mataī (black pine). Peel Forest has a graduation of vegetation from mature forest to exposed tussock and herb-field communities. The forest, predominately podocarp and broadleaf rain forest, covers the mountain slopes to about 360 metres. The moist climate is good for the growth of podocarp forest and ideal for ferns; 36% of all the native ferns growing in New Zealand can be found in the area (DOC).

#### Landuse

The land-use pattern is characterised by cultivated farmland on the lower sunny slopes, regenerating shrubs and fernland on the shady slopes, and extensive pastoral farming on the high hills. The contrast between shrublands and exotic grasslands creates a distinctive repetitive pattern between hill slopes and gullies. There are some smaller plantation forest areas, such as on the western flank of Mt Walker, at the head of the Waihī River, along the true right and on the hill slopes south of Evans Flat, while the majority of forestry can be found on the downlands that are more accessible.

Much of this Landscape Character Area is accessible for a variety of recreational pursuits including hiking and camping. High-country grazing is also typical on the lower slopes. The Four Peaks Range and Mt Peel Forest is very accessible from Geraldine and a very popular recreation area. State Highway 79 provides the main access route to these areas. The settlements are scattered and located at the base of the hills, such as Blandswood located near Peel Forest.

#### Key Landscape Characteristics

- Four Peaks Ranges and Peel Forest are highly visible and evident from the Low Altitude Plains
- Sharp crested peaks and smooth flat-topped ridge crests.
- Significant pockets of indigenous podocarp and hardwood forest in Peel Forest
- Mosaic of landcover with extensive scree at higher altitudes and greater modification at lower altitudes.
- The majority of lower and mid-altitude areas are extensively grazed
- Tourist and recreation interest in the area with several areas managed by DOC

### 4.6 Landscape Character Area 4: Alpine Ranges and Basins



Photograph 4: View looking into the Havelock River valley within the Upper Rangitata catchment. The impressive peak of D'Archiac dominates the skyline.

The Alpine Ranges and Basins Landscape Character Area extends along the Rangitata River south bank from the gorge inland. Within the basins and valleys, it includes the Havelock River, a major headwater tributary, and the Forbes River at the northern alpine extremity of the Two Thumbs Range. This area contains part of the Main Divide, including mid-Canterbury's highest peak, Mt. D'Archiac – with its prominent summit pyramid that is visible within the majority of the upper Rangitata catchment. The southern boundary of the character area includes the Ben McLeod Range and Sinclair Range on the northern flanks of the Two Thumb Range. The district boundary to Eastern Mackenzie District follows the Tara Haoa Range, making it a narrow corridor near the Rangitata Gorge, but including a wide inland area in the upper catchment.

The complex and heavily glaciated alpine environment near the Main Divide is renowned amongst alpinists and admired by others from beyond. Further east this Landscape Character Area includes the typical 'High Country' with extensively grazed slopes and basins that Te Waipounamu/ the South Island is renowned for. The upper Rangitata valley is an impressive landscape, with long-distance views through to the Alps and the headwaters of major river catchments, parts of which have featured in the Lord of the Rings movie (Erewhon).

Other mountain ranges within this area are the Butler Downs, the northern portion of the Sherwood Range, Brabazon Range and the Black Mountain Range. The true right of the Forbes and Havelock Rivers and the braided upper Rangitata River and its tributaries, such as Forest Creek, Bush Stream and Black Birch Creek are also included in this area. The Two Thumb Range forms the western boundary of this landscape.

Te Kahui Kaupeka Conservation Park, Upper Rangitata Riverbed Conservation Area and Rata Peaks Conservation Area are DOC managed conservation areas that fall within the landscape area.

#### Landform

The large spectacular inland valley of the Rangitata is a significant feature of this landscape area. This region was carved out by huge glaciers during the ice ages which left expansive valleys that extend from the Southern Alps to the plains in the east.

The imprint of glaciation is clearly expressed in the upper Rangitata valley with a diverse range of spectacular glacial and fluvio-glacial landforms, which include lateral moraines, hummock fields, truncated benches and spurs, incised side-streams, outwash plains, and roches moutonnées.

The glacial benching on the Butler and Brabazon Downs is particularly legible and an interesting geomorphic feature.

The Rangitata River flows for more than 100 km from the head waters in the Southern Alps/ Ka Tiritiri o te Moana through gorges and across the outwash gravels before entering the sea in the Canterbury Bight. The wide braided river is an iconic feature of this landscape and the eroding scree slopes and rock outcrops on the ranges create an impressive backdrop to the lower-lying valleys. Extensive fans are visible signs of more recent fluvial processes from the tributaries.

The Alpine Ranges and Basins which surround the Rangitata valley are generally steep to very steep and dissected. The signs of former valley and cirque glaciation are evident and the narrow sharp ridges separate comparatively small permanent snow and ice fields near the divide above 1400 m. On the more eastern ranges extensive scree and bedrock outcrops are visually dominant, especially at higher elevations. The climate of the basin areas is dominated by cold winters and sometimes hot summers, with a distinctive rain fall gradient from the Main Divide eastwards. Strong nor'west winds can be experienced in the open braided river beds.

#### Landcover

These relatively dry basins, valleys and mountains are one of Canterbury's distinctive landscapes with extensive scree slopes and stark contrasts between the less modified ranges and the farmed basins and valleys. Historic buildings at Mesopotamia Station, in combination with clusters of mature trees in the vicinity of the homestead create a very distinctive character in this area.

Within the high country basins, valleys and slopes, substantial areas have little woody vegetation. Alpine areas have extensive scree slopes and basins that support interesting and diverse alpine ecosystems including tall tussocklands, herbfields and specialised scree communities that can withstand the harsh alpine climate. Snow tussock, sub-alpine scrub and alpine and rock field vegetation features above 1100 m, with an induced short tussock grassland, matagouri and manuka scrubland, with remnant beech forest and areas of podocarp on the lower slopes. Small tarns can also be found below the permanent ice and snow.

Farmers on the various large high country stations have cultivated this land for generations. As a result, the indigenous plant communities have been modified by pastoralism and vegetation is now in many lower-lying areas dominated by pasture and tussock grasslands. The low-growing nature of this vegetation found in the basins, along the river terraces and on the slopes of the ranges allows the landforms to dominate the landscape and define the horizons. This accentuates the vastness of these landscapes.

Many of the mountain ranges are within Department of Conservation (DOC) management, where tall tussock grassland and gravel or rock is most prevalent.

#### Landuse

European history is closely associated with high country pastoralism, and evidence of this can be seen in the landscape with the presence of homesteads and associated buildings. Recently, through the tenure review process (Crown Pastoral Land Act 1998) some areas of high country land have been retired from grazing and their management has been transferred to DOC. The remainder have been transferred to freehold land, often resulting in intensification of agricultural land use in these lower-lying areas. There is limited settlement in this landscape, aside from Mesopotamia Station and isolated homesteads of the high-country stations to the east.

Te Kahui Kaupeka Conservation Park, formed from a number of 'retired' high country runs, encompasses spectacular scenery of ice-steepened mountains on the north-eastern slopes along spine of the Two Thumb Range. The park caters for a wide range of recreational activities including tramping, fishing, ski touring, mountaineering, hunting, and mountain biking. Specifically, Bush Stream, located between the Brabazon and Sinclair Ranges, provides popular recreation opportunities such as hiking the Te Araroa Trail and tahr hunting. Small recreational huts can be found throughout the area to provide shelter.

#### Key Landscape Characteristics

- Iconic High Country landscape with tussocklands, herbfields and scree/rock
- Dramatic series of geomorphic features expressing its past formative processes
- Rangitata braided river forms a vast, open basin landscape with impressive views towards the Main Divide
- Agricultural farming use on high country stations, traditionally with extensive grazing
- Tourist and recreation interest in the area (hunting, mountain biking, hiking)
# 5.0 Landscape Evaluation and ONF/ L Identification

# 5.1 Methodology Landscape Evaluation

A fundamental output of this Landscape Study is the identification of any Outstanding Natural Landscapes and or Outstanding Natural Features 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 tangata 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;
- Cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Māori, 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 **Diagram 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.



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

When identifying the potential location of ONF/L 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 (**Diagram 2**) illustrates the different relationships between landscape character areas and ONF/L which may occur:



Diagram 2: Relationship between ONF/L and character areas

The process of determining ONF/L acknowledges that every attribute does not need to score very high to be considered as an ONF/L, 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/L or not. ONF/L 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	The underlying landform or natural		
		recognised geological,	feature are recognised as being		
		hydrological or topographical	important for scientific or educational		
		features	purposes.		
	Biotic	The presence of important	The area of landscape or feature		
		native vegetation	contains important native vegetation		
		communities, wildlife or	communities, wildlife or ecosystems.		
		ecosystems			
Sensory	Legibility	How obviously the feature or	Geomorphological, hydrological,		
		landscape demonstrates its	climate, vegetation, coastal and /or		
		formative processes	cultural processes are actively		
			displayed in the landscape.		
	Naturalness	The perception of the	The landscape appears largely		
		predominance of nature in	uncompromised by modification and		
		the landscape	appears to comprise of natural		
			systems that are functional and		
			healthy.		
	Vividness	How striking or memorable	The landscape is widely recognised		
		an area of landscape is,	across the community with an ability		
		including its role in the	to remain clear in the memory.		
		mental maps of a district or			
		region			
	Coherence	The way in which the visual	The pattern of land cover and land		
		elements or components of	use appears in harmony and is easily		
		any landscape come	understood with no apparent random		
		together	or significant discordant elements of		
			land cover or land use.		
	Transient	The presence of wildlife or	Changing elements, patterns and		
	values	other values at certain times	processes remain clearly apparent		
		of the day or year	through times of the day or year.		
Associative	Shared &	Whether the values are	The area of landscape or natural		
	recognized	shared and recognised	feature is widely recognised in the		
	values		community and commonly referred to		
			in art, literature or tourist maps.		
	Tāngata	Cultural and spiritual values	The area of landscape or natural		
	Whenua	for Tangata Whenua	feature contains cultural sites or		
	values		values which are important to local		
			iwi'.		
	Historic	The presence of known	There are numerous and/or		
	Heritage	historic or heritage	important historic sites identified		
	Associations	associations	within the area of landscape or		
			feature.		

<sup>&</sup>lt;sup>7</sup> It should be noted that no engagement with mana whenua was undertaken as part of this landscape study, as it was outside the brief.

In order to judge the relative value of landscape attributes the seven point scale set out in **Diagram 3** was used alongside a description of the relevant landscape values which are identified:



Diagram 3: Landscape evaluation scale (Very Low through to Very High)

At this stage of the assessment, the identification of ONF/L boundaries was primarily based on broad geomorphological and geographical patterns, see **Diagram 4**. 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 associative values are based on knowledge of the study team and could be further refined through community and lwi engagement.



Diagram 4: 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/L 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.

# 5.2 Summary Outstanding Natural Features/ Landscapes (ONF/L)

Within the Timaru District, seven ONF/Ls have been identified and these are illustrated on **Figure 12**. These are all landscapes in their own right, each containing a range of biophysical, sensory and associative values. Each ONF/L retains sufficient levels of naturalness to be considered a candidate for being outstanding.

A commonality of the ONF/LS is their high degree of naturalness, most notably within the more remote and rugged mountainous interior and parts of the front ranges. Spiritual, cultural and historic values provide an additional component of the areas' associational aspects. It should be noted that no engagement with mana whenua was undertaken as part of this landscape study, as it was outside the brief.

Based on the evaluation undertaken, the following ONF/Ls have been identified and mapped (see **Figures 12 - 19**). Their associated values and characteristics are described in the following sections, along with a description of the appropriate method of mapping each area.

Table 2 – Outstanding Natural Landscapes (ONL) in the Timaru District			
Lan	dscape Area		
1	Upper Rangitata Catchment		
2	Peel Forest & Four Peaks Range		

Table 3 – Outstanding Natural Features (ONF) in the Timaru District			
Landscape Area			
1	Kakahu Bush		
2	Hanging Rock		
3	Limestone Valley escarpment		
4	Mt Horrible escarpment		
5	Dashing Rocks		



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# 5.3 Upper Rangitata Catchment ONL

Outstanding, wild and scenic landscape.



Photograph 5: Long distance views into the Upper Rangitata Catchment with the paddocks associated with the high country station in the area in the foreground.

Upper Rangitata Catchment ONL				
Landscape	Evaluation			
Attributes				
<b>Attributes</b> Biophysical	<ul> <li>Legible series of benches are a geomorphic feature of the moraine lands within this landscape which are clearly evident on the Butler and Brabazon Downs in particular.</li> <li>Ice sculptured valley walls and moraine deposits in the major river valley of the Rangitata and Havelock.</li> <li>Extensive fans from tributaries that cut out steep sided valleys following the gradual retreat of the glaciers, which clearly show the landscape's formative processes.</li> <li>The Rangitata River is protected by a National Water Conservation Order (2006).</li> <li>The extensive river terraces in the river valleys are highly legible features, representative of the powerful erosive processes of the rivers which flow through them including the Rangitata Gorge.</li> <li>Rangitata ice-margin features located on the valley side slope north of Forest Creek, provide a record of ice levels during glaciation and deglaciation intervals in the Rangitata and these features are listed as a</li> </ul>	Very high		
	<ul><li>Geopreservation Site of national importance.</li><li>The beech gap in the upper Rakaia/ Rangitata area is a notable</li></ul>			
	characteristic of central Canterbury, which means that a higher diversity of vegetation is generally found.			
	<ul> <li>Generally, very low weed infestation of the upper catchment and higher-lying slopes. These areas are mostly covered in cohesive tall snow-tussock grasslands which create a distinctive open landscape.</li> </ul>			

	•	Te Kahui Kaupeka Conservation Park provides habitat for the locally	
		endemic Dobson's speargrass/taramea (Aciphylla dobsonii) and Hebe	
		buchananii.	
	•	The invertebrate fauna of the valleys and surrounding mountain ranges	
		reflects the mosaic of habitat types present in the area.	
	•	Notable birds include black stilt/kakī, blue duck/whio (in the tributaries	
		of the upper Rangitata River), New Zealand falcon/kārearea, rock wren/	
		pīwauwau, wrybill/ngutu pare and kea.	
	•	There are eight species of grasshoppers/kōwhitiwhiti in the Two Thumbs	
		Range, including New Zealand's largest grasshopper, the rare Sigaus	
		villosus.	
Sensory	•	The mountainous headwaters of the Rangitata River have a special	Very
		wilderness character, an expansive and vast valley setting and landscape	high
		features that are of a high degree of naturalness.	-
	•	The Upper Rangitata is an exceptional example of a braided river system.	
		Its sinuous patterning is both highly expressive and attractive.	
	•	Exceptional panoramic views of both the surrounding mountains and	
		river outwash plains are experienced within the Upper Rangitata valley.	
		These views are an integral and widely celebrated image of the	
		Canterbury High Country Landscape making it extremely memorable.	
	•	The openness allows for long views across the landscape where the	
		consistency between the valley floor and mountain sides provides for	
		coherent appearance without unnatural lines and man-made structures.	
	•	In the winter months, these dry hills are often snow-covered. This	
		creates an interesting contrast with the smooth basins below.	
Associative	•	The area provides multiple opportunities for recreation, primarily in a	High
		mountain setting providing front-country, backcountry and remote	
		experiences. Recreational activities include ski-touring, climbing,	
		tramping, nunting, mountain biking and fishing.	
	•	me intermontane ranges, vasi river valleys and basins form one of the	
		quintessential landscapes of canterbury.	
	•	writers for generations to express their impressions in paint, poetry and	
		writers for generations to express their impressions in paint, poetry and	
		prose. Pangitata River is a Statutory Acknowledgement Area under the Ngāi	
		Tahu Claims Settlement Act	
		The area is habitat to a significant number of taonga species, which	
		Ngāi Tahu has a special association with. The values contributing to the	
		landscape, including areas of remnant habitat, support populations of	
		species that are taonga to Ngāi Tahu.	
	•	The river is used as a mahinga kai source and a travel and trade route,	
		which gives it special importance in supporting Te Rūnanga o	
		Arowhenua. Travel up to the Upper Rangitata Valley occurred on a	
		seasonal basis to harvest resources, including fish, birds, and plants	
		based on their intimate knowledge of resources. For example, in the	
		opper Rangitata this included large number of Weka and other forest hirds	
	•	As a major trail there are a number of Tauranga waka along the river	
	•	Several of the mauka/mountains that sit on the edges of the ONL are	
		physical manifestations of tīpuna/ancestors.	

•	The intrinsic value of the river as a whole, including its mauri, and the linkage from Kā Tiritiri-o-te-moana to the sea is of significance, even though these values are degraded in places.	
•	The name of the Rangitata River refers to the significance of the river's landforms, referring to the steps (terraces) to the sky or heaven. Large, early high-country runs were established in this area. One of the runs, 'Mesopotamia', was first occupied by Samuel Butler, author of Erewhon. Butler built his original hut at the confluence of Forest and Butler creeks before moving to the site of the present Mesopotamia Station.	
•	A historic cemetery on Mesopotamia Station holds the last resting place of Dr Andrew Sinclair, Colonial Secretary to the New Zealand Government. Sinclair drowned crossing the Rangitata and is buried on the Rangitata Flats.	

#### **Overall landscape value**

OUTSTANDING

#### Mapped Extent:

Refer to **Figure 13**. The Upper Rangitata Catchment has been identified as an Outstanding Natural Feature and Landscape on a regional and district level (both Ashburton and Timaru). The western boundary abuts the ONL identified within eastern Mackenzie on the Two Thumb Range.

This ONL is bound by the east face of the Two Thumbs Range to the west and follows the District boundary along the summit of this range northwards to the Main Divide. The distinctive Mt D'Archiac and Forbes River are the northern boundaries and the Rangitata River (Timaru section) forms the eastern boundary to the gorge. The Ben McLeod and Tara Haoa Ranges form the southern boundary of this ONL which borders the district boundary as well. There the ONL continues to the south with Peel Forest and the Four Peaks Range (see following ONL for description)

## **Evaluation:**

The Upper Rangitata Catchment is considered outstanding as it contains very high biophysical, very high sensory values (including its memorability and naturalness) and high associative landscape values.

The Rangitata River is protected by a National Water Conservation Order which seeks to protect 'the outstanding natural values of the river'. This including the headwaters and their context which have outstanding amenity, intrinsic, wild, scenic and other natural characteristics.

The immense scale of the Rangitata valley and the legibility of its landforms are clearly outstanding. The screes on the surrounding valley-sides are exceptional in scale and their homogeneous appearance. The sense of wilderness and space is remarkable, and the area has a particular place in high country literature.

The dissected mountains that border the upper Rangitata valley contribute to the outstanding basin landscape. This visual relationship of the braided river and the mountains is the key aesthetic quality. As such the natural landform and land cover patterns, uninterrupted skylines, the simplicity of vegetation cover and the subtle colours of the mountainsides are all important characteristics.

Modification includes: Mesopotamia Station including plantation forestry, roads and bridges over streams, shelterbelts, farm tracks and buildings associated with high country farming in the area, fencing and airstrips. The DOC managed land contains a few walking tracks and backcountry small-scale huts.



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# TIMARU DISTRICT COUNCIL LANDSCAPE STUDY ONL 1: Upper Rangitata Catchment

Date: January 2018 | Revision: 0

Figure 13

Plan prepared for Timaru District Council by Boffa Miskell Limited Project Manager: **yvonne.pfluger@boffamiskell.co.nz** | Drawn: BMc | Checked: AAn

# 5.4 Peel Forest & Four Peaks Range ONL



Ancient native forest containing delicate ferns and alpine tussock.

Photograph 6: From the peak of Huatekerekere/Little Mt Peel views across Peel Forest and the Four Peaks Range can be gained.

Peel Forest & Four Peaks Range ONL				
Landscape	Evaluation	Rating		
Attributes				
Biophysical	<ul> <li>Peel Forest has a range of vegetation from mature low-land forest to exposed tussock and herb-field communities.</li> <li>Significant areas of indigenous podocarp, broadleaf rain forest and hardwood forest can be found on the slopes of Tarahaoa/Mt Peel due to its diversity and size.</li> <li>Dennistoun Bush contains 40 hectares of magnificent ancient forest with huge kahikatea, lowland tōtara and matai and expresses a very high level of naturalness. The Scotsburn and Kowhai Stream catchments on the southern flanks of Tarahaoa/Mt Peel, as well as Peel Forest itself provides native forests of particularly high quality.</li> <li>The peaks, ridgelines and spurs of the Four Peaks Range form a coherent mountain landscape with rock, some scree, tussocks, alpine shrublands, and herbfield vegetation cover prevalent. Low producing grassland dominates on the lower spurs with native vegetation in the gullies. More extensive areas can be found in the Station Stream/ Mc Lead Stream catchment, along the Waihī River north bank and in the Hae Hae Te Moana River catchment.</li> <li>Numerous species of ferns are found within Peel Forest.</li> <li>At least ten species of native bird occur in Peel Forest including bellbird/korimako, silvereye/tauhou, tomtit/miromiro, rifleman/tītitipounamu, grey warbler/riroriro, kererū/native wood pigeon, fantail/ pīwakawaka, silvereye/ tauhou, shining cuckoo/ pīpīwharauroa and longtailed cuckoo/koekoeā.</li> </ul>	Very High		

Sensory	٠	Peel Forest Scenic Reserve is a highly valued recreation area wit	th	High
		numerous tracks where the mature forest can be experienced by	ру а	
		wide range of visitors.		
	٠	The Ōrāri Gorge is a highly legible landscape feature with high		
		aesthetic and recreational value. Its steep sides and the high		
		naturalness of the Orāri River distinguish it from some of the ot	:her	
		smaller gorges in the range, such as the Waihī Gorge.		
	٠	A number of waterfalls are found within Peel Forest above		
		Blandswood that provide very high sensory values.		
	٠	The Four Peaks Range is an important landmark of the southerr	ו part	
		of the region, where the front ranges meet the Eastern Macken	ızie	
		District.		
	•	The views enjoyed from Huatekerekere/ Little Mt Peel across the	ıe	
		expanse of the Canterbury Plains and the braids of the Rangitat	a River	
		are particularly impressive.		
	•	The Four Peaks and Tarahaoa/Mt Peel form the Front Ranges the	nat are	
		the backdrop to views from South Canterbury and the Timaru P	'lains.	
Associative	•	Peel Forest and the Four Peaks Range with its river gorges are		High
		accessible recreation areas boasting of recreational opportuniti	es for	
		hiking and camping.		
	•	The Mt Peel area is home to taonga species, which have intrinsi	iC	
		values to mana whenua.		
	•	The Orari River, which forms the south-western boundary of th	e ONL,	
		is a valued mahinga kai resource, forming part of the network of	)t	
		mahinga kai trails and resources. Kokopu was one of the kai spe	ecies	
		gathered in the area.	Barli An	
	•	historic use of the area.	link to	
	•	According to Māori legends, Tarahaoa, Huatekerekere and their	r	
		children who were passengers on the capsized Ārai-te-uru waka	a, were	
		transformed into many of the well-known geographical feature	s of Te	
		Waipounamu. Tarahaoa and Huatekerekere transformed into N	/It Peel	
		and Little Mt Peel (below); their tamariki (children) are the migl	hty	
		tōtara of Peel Forest and their mokopuna (grandchildren) are th	ne Four	
		Peaks (sourced from Peel Forest DOC brochure& Ngāi Tahu atla	ıs).	
	٠	Tarahaoa and Huatekerekere (Mt Peel and Little Mt Peel respec	ctively)	
		link mana whenua to the land, and the mountains are physical		
		representations of tīpuna. Therefore, these mountains are a		
		metaphysical link to the past.		
	•	Several of the totara trees located within the forest are signification	ant as	
		they are additional links to tīpuna.		
	•	Several historic saw pits dating back to the 1840s, are located w	vithin	
		or near Peel Forest.		
Overall land	scap	e value	OUTST	ANDING

## Mapped Extent:

Refer to **Figure 14**. The ONL includes the peaks and some of the upper and lower slopes of the Four Peaks Range. The range forms the boundary to Eastern Mackenzie District, where the equivalent areas have been identified as ONL on the northern slopes. The existing ONL in the Operative District Plan appears to follow a contour line, while the proposed ONL takes landform and land cover into account and therefore includes the less modified spurs below Devils Peak, Fiery Peak and Waihī Peak in the southern part of the ONL, Ben Hope in the central ONL and Tarahaoa/Mt Peel in the northern ONL. The ONL also includes Ōrāri Gorge. The more modified lower- lying parts, in particular those containing forestry, have been identified as visual amenity landscapes (VAL, see following section). Large Parts of the Four Peaks Range and Tarahaoa/Mt Peel have also been identified as ONL within the Canterbury Region.

## **Evaluation:**

Peel Forest and the Four Peaks Range have been identified as an Outstanding Natural Feature and Landscape. This landscape is considered outstanding due to its very high biophysical values, relating in particular to the unmodified podocarp forests, and high sensory and associative values, including the high recreation value the area provides. The landscape qualities of Peel Forest were first recognised in 1911 when it was made a scenic reserve. Since then this extensive indigenous podocarp and hardwood forest has become a valuable recreation area.

It is part of an outstanding landscape that has a relatively unmodified vegetation sequence from the sub-alpine areas around the peak of Mount Peel to the lowland podocarp forest. The Four Peaks Range forms an important landmark when viewed from the southern part of the Canterbury Plains. While the land cover is more modified, it contains a sequence of native vegetation from alpine tussocks to low land forest in gullies and along streams. The Ōrāri Gorge is highly legible and an important landscape feature that is highly valued by the community. The historical development of the Peel Forest area and the visual connections with the plains and Rangitata River all add up to an outstanding landscape.

Modifications include: roads, hiking tracks, farm tracks and fencing. Overall low level of modification. The larger forestry blocks were identified as VAL, with only small areas within the ONL. The small settlement of Blandswood lies outside the ONL.



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# 5.5 Kakahu Bush ONF



Diverse range of geological, botanical and historical features.

Photograph 7: View from Hall Road overlooking the limestone escarpment within Kakahu Bush Scenic Reserve.

Kakahu Bush ONF				
Landscape	Evaluation	Rating		
Attributes				
Biophysical	<ul> <li>The limestone escarpment is one of a number of outcrops in the Timaru District, clearly showing the underlying geology.</li> <li>Kakahu Bush includes interesting geological features such as large limestone boulders, balancing rock formations and large rock pinnacles.</li> <li>The only known marble carboniferous rocks found in New Zealand are contained within Kakahu Bush and identified as a Geopreservation Area.</li> <li>A mosaic of regenerating forest is found within Kakahu Bush Scenic Reserve and adjacent areas, including pockets of older mixed hardwood forests in the gullies and younger kanuka forests on the hillslopes.</li> <li>Limestone areas and native vegetation remnants of high ecological value around Kakahu Bush support the habitat of the endangered pekapeka/long-tailed bat.</li> </ul>	High		
Sensory	<ul> <li>Limestone outcrops are highly legible and form a distinctive natural pattern in the landscape with high aesthetic value.</li> <li>Kakahu Bush retains a high level of naturalness and memorability due to its native vegetation and geology.</li> </ul>	Moderate to High		
Associative	<ul> <li>Kakahu Bush provides an easily accessible walking track through the native bush clad hillside.</li> <li>Numerous cultural rock caves/shelters are located along the limestone escarpment in addition to a midden/oven located on the lower lying flat land.</li> <li>The Māori cultural landscape is also associated with the Kakahu River (Te Kākaho); it was used as a mahinga kai source. Birds were gathered from the bush itself. Therefore, both the bush and river include habitat for taonga species. Additionally, the umu indicates that this area was used for processing of mahinga kai. Therefore.</li> </ul>	High		

Overall lands	scap	e value	OUTST	ANDING
	٠	Diverse fossils are found within the Te Kākaho/Kakahu River.		
		tramway are located either within or near Kakahu Bush.		
	•	Several historic sites including huts, a house and garden, and		
		made of marble and lime which dates back to the 1880s.		
	•	The historic Kakahu lime kiln, identified as a Geopreservation	i Site, is	
		links to mana whenua use and practices of the area.		
		this area is a relatively complete example where physical evid	dence	

## Mapped Extent:

Refer to **Figure 15**. The Kakahu Bush ONF includes the limestone escarpment and associated boulders facing Hall Road. This ONF also includes land within Kakahu Bush Scenic Reserve and the historic Kakahu lime kiln. In general, the ONF is confined to areas of regenerating and mature forest, and historic and geological features.

## **Evaluation:**

Kakahu Bush and the associated limestone escarpment have been identified as an Outstanding Natural Feature due to the high biophysical and associative, and moderate to high sensory values. The limestone areas and forest remnants support the endangered long-tail bat population. The forest and bush within this ONF is ecologically important given the surrounding rural landscape does not contain much remnant native vegetation and consists mostly of plantation forestry and agricultural use.

The limestone outcrop and associated boulders form a memorable natural escarpment with limited modifications. The historic Kakahu lime kiln which dates back to the 1880s has been identified as a Geopreservation Site. Rock caves/ shelters and historic sites of significance to tangata whenua are commonly found in this area.

Modifications include: access tracks and fencing, intensive agricultural land use on the lower-lying flats and slopes. Plantation forestry surrounds the ONF to the north and west with patches of gorse scattered along the ONF boundary.



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Date: January 2018 | Revision: 0

Figure 15

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# 5.6 Hanging Rock ONF

## Unique cultural and ecological heritage



Photograph 8: View of Hanging Rock which is a popular climbing spot, overlooking the Ōpihi River (photo courtesy of Kester Brown).

Hanging Rock ONF			
Landscape	Evaluation	Rating	
Attributes			
Biophysical	<ul> <li>The limestone escarpment is one of a number of outcrops ne Ōpihi River that are typical for the area, clearly showing the underlying geology.</li> <li>Limestone areas and native vegetation remnants of high eco value around Hanging Rock support the only known habitat or endangered pekapeka (long-tailed bat) population in the eas South Island</li> </ul>	ear the High logical of the tern	
Sensory	<ul> <li>Limestone outcrops are highly legible and form a distinctive pattern in the landscape</li> <li>Hanging Rock is widely known in the community due to its st and memorable landscape along the Öpihi River</li> </ul>	natural Moderate to High	
Associative	<ul> <li>Hanging Rock provides excellent recreational opportunities for rock climbers</li> <li>Numerous caves and rock art sites are located in the vicinity of Hanging Rock, including the well-known prehistoric art site of Ōpihi Taniwha rock drawings, a Geopreservation Site which has received wahi tupuna (sacred ancestors) registration under Heritage New Zealand recognising it as a nationally significant Māori ancestral site.</li> <li>The rock shelters were used as resting places, as part of the Ara Towhite that allowed travel from the spect inlord to To Manahuna.</li> </ul>		
Overall lands	scape value	OUTSTANDING	

#### Mapped Extent:

Refer to **Figure 16**. The Hanging Rock ONF includes the limestone escarpment facing the Ohihi River and associated boulders along with the limestone caves that contain Ōpihi Taniwha rock drawings.

#### **Evaluation:**

Hanging Rock and Ōpihi Taniwha rock art caves has been identified as an Outstanding Natural Feature due to its high biophysical, and moderate to high sensory and associative values. The limestone areas and forest remnants support the only known population of the endangered long-tail bat population in the eastern South Island. This location is special given the surrounding rural landscape does not contain much remnant native vegetation.

The feature of Hanging Rock along the Ōpihi River provides a memorable natural limestone outcrop with limited modifications. Both locals and visitors frequent Hanging Rock for excellent rock climbing opportunities.

Māori rock art is commonly found in this area with the well-known prehistoric art site of Ōpihi Taniwha in close proximity to Hanging Rock. This art rock is noted as a Geopreservation Site and the drawing have received wahi tupuna registration which recognises the location as a nationally significant Māori ancestral site.

Modifications include: access tracks and fencing, intensive agricultural land use on the higher-lying flats. Farm buildings in the proximity of the limestone outcrops and caves, but visually separated. Access to the area is through private land.



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# 5.7 Limestone Valley escarpment ONF



## Unique limestone landscape

Photograph 9: View from Limestone Valley Road, overlooking the limestone escarpment which forms the skyline views on the eastern side of the valley.

Limestone Valley escarpment ONF				
Landscape	Evaluation	Rating		
Attributes				
Biophysical	<ul> <li>Distinctive limestone escarpment, showing its underlying geo and erosional processes.</li> <li>Remnant and regenerating native vegetation can be found an the base along the southern part of the escarpment and arou boulders which have high ecological values.</li> <li>A majority of this limestone escarpment is contained within a covenant.</li> </ul>	ology High round und a QEII		
Sensory	<ul> <li>Limestone outcrops are legible landscape features that are h expressive of their formation.</li> <li>High level of openness and naturalness with limited built modification</li> <li>Limestone outcrops create distinctive shadow patterns at van times of the day.</li> <li>The escarpment dominates the views along the valley, which contains largely open, extensive grassland. This creates a distinctive sense of place within this landscape to the east of Hill and impressive views of the limestone outcrops.</li> </ul>	ighly High rious Cave		
Associative	<ul> <li>Impressive views of the innestone outcrops.</li> <li>Impressive views of limestone outcrops.</li> <li>Numerous Māori caves/rock shelters and rock art are found along this limestone escarpment.</li> <li>The wetland at the base of the valley beneath the limestone outcrops is home to taonga species, which are species that have an intrinsic value to Ngāi Tahu.</li> <li>The Ta Ana-a-Wai (Tengawai) River was an important pathway to Te Manahuna (the Mackenzie Basin), and the protection of ancient Māori rock art (tuhituhi o nehera) that developed in the catchment are related to the use of the catchment for trade and travel – tīpuna would have rested in the rock shelters.</li> </ul>			
Overall lands	scape value	OUTSTANDING		

## Mapped Extent:

Refer to **Figure 17**. The Limestone Valley escarpment ONF includes the limestone escarpment and native vegetation in the vicinity.

#### **Evaluation:**

The Limestone Valley escarpment on the eastern side of Cave Hill has been identified as an Outstanding Natural Feature due to its high biophysical and sensory values and moderate associative values. These limestone outcrops, boulders and escarpment are highly legible landforms.

The majority of this limestone escarpment is contained within a QEII covenant which contains Māori caves/ rock shelters and rock art.

Modifications include: Pasture on the lower slopes of the escarpment, in particular on the northern side. Farm buildings, shelterbelts, fencing and farm tracks are found throughout the valley but not in the immediate vicinity of the escarpment. A quarry is located on the northern end of the escarpment, excluded from the ONF delineation.





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## TIMARU DISTRICT COUNCIL LANDSCAPE STUDY ONF 3: Limestone Valley Escarpment

Date: January 2018 | Revision: 0 Figure 17

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# 5.8 Mt Horrible Escarpment ONF

## Extinct volcano



Photograph 10: From Pareora Ford Road good views can be gained of the basalt outcrops along the west facing ridge of Mt Horrible, displaying it volcanic origins.

Mt Horrible ONF				
Landscape	Evaluation	Rating		
Attributes				
Biophysical	<ul> <li>Mt Horrible contains the youngest volcanics in the South Islat consisting of a 25m sequence of olivine basalt lava flows, whi also listed as a Geopreservation Site of regional significance</li> <li>Lava beds from Mt Horrible lie beneath Timaru and extend to coastal cliffs near Dashing Rocks at the north end of Caroline</li> <li>Distinctive native vegetation cover of regenerating bush with ecological value follows along the volcanic escarpment.</li> </ul>	nd High ich is o the Bay. high		
Sensory	<ul> <li>Steep slopes and basalt columns of Mt Horrible are highly leg the surrounding landscape delineating it as an extinct volcand</li> <li>Mt Horrible's visual connection with the Pureora/Pareora Riv valley enhances its memorability values.</li> </ul>	ible in High o. er		
Associative	<ul> <li>Mt Horrible provides recreational opportunities for rock climition quality basalt.</li> <li>Timaru 'bluestone' originates from the volcanic rock of lava fit from the extinct Mt Horrible.</li> <li>Claremont Bush below the escarpment provides a habitat for range of Taonga species, while tī kōuka is present across the escarpment.</li> <li>The Pureora River was a mahinga kai for mana whenua living area. Historic sources specifically associate the river and its catchment with tuna and tī kōuka.</li> <li>Parts of the Pureora River contain Wāhi Tapu sites.</li> <li>Mt Horrible is the source of Te Wharetawhiti, which is a recomahinga kai site.</li> </ul>	bers Moderate lows in the rded		
Overall landscape value OUTSTANDING				

## Mapped Extent:

Refer to **Figure 18**. The Mt Horrible ONF includes the high-lying basalt escarpment along the ridge line of Mt Horrible facing the mid Pareora Valley. The ONF includes the escarpment on the top, as well as the top of the western ridgeline. The native vegetation along the base of the rock outcrops is included as part of the identification.

## **Evaluation:**

Mt Horrible has been identified as an Outstanding Natural Feature due to its high biophysical, sensory and moderate associative values.

Recognised as a Geopreservation Site due to the youngest volcanics in the South Island, Mt Horrible is a highly legible landscape feature. This extinct volcano shaped South Canterbury and more specifically the Timaru landscape into a rolling downlands landscape. Recreational opportunities, such as rock climbing are assessible on Mt Horrible's quality basalt. The lava flows originating from Mt Horrible have provided a commonly used building material known as 'bluestone.'

Modifications include: Fencing, farm tracks, shelterbelts and intensive agricultural land use on the higher-lying flats.







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## TIMARU DISTRICT COUNCIL LANDSCAPE STUDY ONF 4: Mt Horrible Escarpment

Date: January 2018 | Revision: 0

Figure 18

Plan prepared for Timaru District Council by Boffa Miskell Limited Project Manager: yvonne.pfluger@boffamiskell.co.nz | Drawn: BMc | Checked: AAn

# 5.9 Dashing Rock ONF

## Striking and widely recognised coastal geological formation



Photograph 11: The rock pools found at the end of the Dashing Rocks walkway. Both the basalt and loess geological formations are clearly expressive of their formative processes. Boffa Miskell, 2020.

Dashing Rock ONF				
Landscape	Evaluation	Rating		
Attributes				
Biophysical	<ul> <li>Internationally significant loess section and geopreservation site (New Zealand Geopreservation Inventory, 2018) and the only internationally significant geopreservation site in the District.</li> <li>Contrasting composition of black volcanic basalt and yellow/brown loess deposits (GNS Science, 2013)</li> <li>Mixture of exotic and native vegetation found along the Dashing Rocks walkway and the beach below including macrocarpa (<i>Cupressus macrocarpa</i>), toetoe (<i>Austroderia toetoe</i>), mountain flax (Phormium cookianium), cabbage tree (<i>Cordyline australis</i>), harakeke (<i>Phormium tenax</i>) and pittosporum species.</li> <li>Surrounded by a modified landscape including both industrial buildings and residential dwellings.</li> <li>Presence of erosion with drainage measures and barriers</li> <li>Bird species present include variable oystercatchers (<i>Haematopus unicolor</i>), and southern black billed gulls (<i>Larus dominicanus</i>)</li> <li>Seals and penguins have been known to occasionally frequent the bay (Timaru District Council, 2013)</li> </ul>	High		
Sensory	<ul> <li>Highly legible basalt terraces from ancient lava flows and loess cliffs which are expressive of their formative processes</li> <li>Striking rock formations with high aesthetic value</li> <li>Underlying geology remains coherent while vegetation and land use above the cliff face is modified and varied</li> <li>Waves create a dramatic coastline at the base of the rocks with sea spray and erosion occurring, especially during stormy weather.</li> <li>Expansive views of the Timaru coastline, including the Port to the south of Caroline Bay.</li> </ul>	Moderate to High		

Associative	<ul> <li>This part of the Timaru coastline stretching from the Washdy Lagoon to Waimataitai (Caroline Bay) was an important source mahinga kai for Ngãi Tahu. Immediately west of the rock poor there was a small oven or midden found containing remnants fish, seal, moa, smaller bird and kuri (dog) bones (Departmen Conservation, 1995). Being close to the Te Waipounamu East Coastal Trail it is likely that this was a destination when trave along the eastern coastline of the South Island.</li> <li>Known to be a wild part of the Timaru coastline with historic shipwrecks of the Benvenue and City of Perth (New Zealand History, 2011)</li> <li>Widely recognised feature within the Timaru community as a popular recreational destination (e.g. the feature is part of the Hectors' Coastal Track).</li> <li>Swimming, mountain biking and walking are popular activitie many taking the time to explore the rocks.</li> </ul>	ke ce of ls s of ern lling s with	High
Overall failu	scape value	0013	ANDING

## Mapped Extent:

Refer to **Figure 19**. The Dashing Rocks ONF has been mapped using the coastal marine area boundary from the operative Timaru District Plan. While the mapping of this ONF has been limited to the extent of the coastal marine area boundary, the entirety of the feature has been assessed, including the remaining section of basalt and loess to the north. The mapped extent includes the loess cliff face extending from the rock pools to approximately 100 metres from Moore Street. This is due to modification from coastal erosion protection and residential development above.

#### **Evaluation:**

Dashing Rocks have been identified as an Outstanding Natural Feature due to their high biophysical values, particularly in relation to the feature's underlying geology, moderate-high sensory values, and high associative values. Whilst the feature is largely exposed to coastal erosion, it remains an internationally significant geopreservation site of immense historical importance to the international earth science community (New Zealand Geopreservation Inventory, 2018).

Aside from its geological significance, the rocks are a popular recreational feature for the local community as well as a tourist attraction. Sensory values are also heightened at high tide or during storm events due to the feature being within the coastal environment.

Modifications include: Access tracks and walkways, exotic vegetation, grassed areas, drainage and erosion mitigation measures. Within the immediate context of the feature there are also two abattoirs, with the feature also sitting on the residential edge of the town.



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# 5.10 Summary Visual Amenity Landscapes (VAL)

Landscapes and features containing high amenity, environmental or scenic values, but have a noticeably lower rating of other landscape values, have been identified as Visual Amenity Landscapes (VAL) within this report. These landscapes that do not reach the threshold of being identified as an ONF/L. In the Operative District Plan these landscapes are referred to as Significant Amenity Landscapes. These landscapes provide similar values to the VALs identified in this report, which are second tier landscapes below the ONL threshold, but with higher amenity than most other rural landscapes. Natural features and landscapes that do not meet the criteria for being ranked as 'outstanding' can nonetheless be required to be ''maintained and enhanced'' either as ''amenity values'' or part of the wider ''environment'' under Section 7(c) or 7(f).

Under the RMA 1991, amenity is captured within Section 7 (Other matters), and notably within:

- (c) the maintenance and enhancement of amenity values; and
- (f) the maintenance and enhancement of the quality of the environment.

The RMA 1991 defines amenity 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 1991. The amenity and environmental quality focus of these investigations has been visual amenity from a specialist landscape perspective.

The assessment has considered important visual amenity characteristics that occur outside the areas identified as ONF/L. 'Visual Amenity Landscapes' tend to be more culturally modified landscapes, where their aesthetic and scenic values are high. They tend to have high associative values. Through case law VALs are often associated with rural landscapes that have an 'arcadian' character, such as the rural valleys, downlands and foothills of the district with a mix of mature exotic vegetation.

Based on the evaluation, the following Visual Amenity Landscapes (VAL) have been identified and mapped. Maps showing these areas are contained in **Figures 12 and 20 - 23**.

Generally, VALs border the edge of ONF/Ls and are the more culturally modified parts of the district.

Table 4 – Visual Amenity Landscapes (VALs) in the Timaru District		
Landscape Area		
1	Rangitata Flats (between gorge and Peel Forest)	
2	Four Peaks downlands	
3	Geraldine Downs	
4	Cave Hill	

# 5.11 Rangitata Flats (between gorge and Peel Forest) VAL



Photograph 12: The VAL on the Rangitata Flats form the foreground of the view along Rangitata Gorge Road.

#### Landscape Characteristics and Values Summary Rangitata outwash terraces are a highly legible feature of this VAL which are also identified as • a Geopreservation Site. Memorable views of the Upper Rangitata valley, including the braided Rangitata River, are enjoyed by both locals and visitors to the area. These flat, upper plains which border the Rangitata River form the foreground view towards the Front Ranges and impressive peaks within the Alpine Ranges and Basins. Recreational opportunities include fishing, rafting, canoeing and kayaking within the Rangitata River. Established, settled and historic values are found within this VAL, containing historic . homesteads and churches unique to the area. The modification of the flats relates predominantly to the agricultural use, which reflect the higher level of intensification in comparison to the adjacent hill slopes. The pattern of paddocks with associated fencing reflects the use of the land. Native vegetation has given way to high producing exotic grassland with native vegetation mainly restricted to gully landforms, steeper escarpment slopes and adjacent to streams. The Rangitata River is highly significant to mana whenua. VAL **Overall landscape Value** Mapped Extent: Refer to Figure 20. This VAL is contained within the upper part of the Low Altitude Plains which

Refer to **Figure 20**. This VAL is contained within the upper part of the Low Altitude Plains which extend along the Rangitata River on the eastern side of the Peel Forest ONL. These flats along Rangitata Gorge Road extend on terraces above the river as far as the Rangitata Gorge. The mid Rangitata River (true right bank falls within Timaru) between the gorge and Peel Forest is also included in this VAL.



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s of our Client. It is solely for our Clients use in accordance with the agreed scope of work. Any use or reliance by a third party is at that partys own external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by 80ffa Miskell Limited for any errors or omission

Data Sources: Topo maps sourced from LINZ topo 50 map series. Crown copyright reserved TIMARU DISTRICT COUNCIL LANDSCAPE STUDY VAL 1: Rangitata Flats

Date: January 2018 | Revision: 0

Figure 20

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# 5.12 Four Peaks Downlands VAL



Photograph 13a: View from Huatekerekere/Little Mt Peel walkway above Blandswood looking east with small-scale forestry on the hill slopes to the right.



Photograph 13b: Waihī Gorge with DOC campground in the foreground on the south bank of the Waihī River. ONL was identified to the right and including the river, while the southern (left) side of Waihī Gorge Road falls within the VAL with a higher level of modification in relation to forestry.


Photograph 13c: Photo taken from Leishmans Road in the southern part of the Four Peaks Range with the VAL on the left and ONL on right of the image.

### Landscape Characteristics and Values Summary

- The more modified hills and downlands along the Four Peaks Range provide an important sensory separation between the plains and the Front Ranges.
- These steep, rural downlands and slopes of the Front Ranges form the foreground view towards the memorable peaks of the Four Peaks Ranges.
- Slopes of the Front Ranges framing the valleys of the Orāri and Waihī Rivers have high aesthetic landscape values.
- The landcover includes pastoral farming and small-scale forestry.
- The VAL section near the Ōrāri River clearly shows the landscape's formative processes of the river down-cutting through the Front Ranges. Several QEII covenants are located within the downlands in addition to the historic Waikonini Homestead in Scotsburn.

Overall landscape Value	VAL

### Mapped Extent:

Refer to **Figure 21**. This VAL contains a number of smaller sections of the Four Peaks Range where land use modification has led to a reduction of naturalness that means that these areas do not display the same qualities as ONLs. These landscape areas form, however, the context and link between the parts of the ONL. The parts of the range identified as VAL include a portion of the Front Ranges west of the Blandswood settlement (end of Huatekerekere/Little Mt Peel spur), the southern tip of lower two spurs either side of the Örāri River (where it enters the plains), the true right of the Waihī River from its headwaters to the gorge and the downlands between Leishmans Road/ Clayton Pack Track and Te Moana Road. The spur on the true left of the Mowbray River is also a VAL, which mirrors the identification of ONLs and VALs within Eastern Mackenzie.

Modifications within this VAL include Blandswood Village, associated roads, a mosaic of commercial plantations, rural fencing and farm tracks.



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Figure 21

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## 5.13 Geraldine Downs VAL



Photograph 14: View looking towards the Geraldine Downs escarpment from Sercombe Road.

### Landscape Characteristics and Values Summary

- The openness of the Geraldine Downs and cohesive repetition of well-maintained rolling hills of pasture, patches of vegetation following the undulating topography and views of surrounding plains and mountains all add to its aesthetic quality.
- Geraldine Downs volcanic formation is clearly expressed and legible by the topography of radiating flows of a sheet of lava. Exposures of volcanic rock are apparent on cliff faces particularly to the north of the area.
- Talbot Forest is a nationally significant Scenic Reserve with very high ecological value. It is a remnant dryland podocarp forest on the east slopes of the Downs which acts as a forest backdrop to the Geraldine township.
- Threatened long-tailed bats (pekapeka) inhabit Talbot Forest along with indigenous bird species such as rifleman, kereru, and South Island pied tit.
- Transient landscape values important within this landscape are: views of sunrises and sunsets; views of changing weather patterns; the presence and sightings of wildlife such as bats flying over the landscape; hearing bird songs and calls.
- Rural settlement has occurred along some of the roads throughout the area. The attractiveness for living reflects its high amenity value and distinguishes it from other rural areas that are predominantly used for agricultural production.
- Several QEII covenants are located within the Geraldine Downs.

### **Overall landscape Value**

VAL

### Mapped Extent:

Refer to **Figure 22**. The mapped extent of the Geraldine Downs VAL includes the elevated plateau that makes up the downlands, including its distinctive escarpments. The triangular-shaped landform lies between Geraldine Township to the east, Sercombe Road to the north, Pleasant Valley Road to the west.

Modifications within this VAL include the rural lifestyle blocks, associated dwellings, roads and structures that have led to a relatively high level of residential development in the area.



Data Sources: Topo maps sourced from LINZ topo 50 map series. Crown copyright reserved VAL 3: Geraldine Downs VAL 3: Geraldine Downs

> Figure 22 Date: January 2018 | Revision: 0 Plan prepared for Timaru District Council by Boffa Miskell Limited Project Manager: yvonne.pfluger@boffamiskell.co.nz | Drawn: BMc | Checked: AAn

File Ref: C16037\_121\_A4P\_VAL\_GeraldineDowns.mxd

1.6 km

## 5.14 Cave Hill VAL



Photograph 15: View from Pareora Gorge Road, overlooking the western escarpment of Cave Hill that contains large areas of native vegetation.

### Landscape Characteristics and Values Summary

- Cohesive repetition of rolling hills of pasture with native vegetation following the gullies and rounded topography.
- Native shrubs occur predominantly within the gullies and on the western and south-eastern escarpment, while a mix of tussocks and extensively grazed exotic grassland can be found on the slopes.
- Cave Hill's high amenity values are enhanced by its connection with the Pureora/Pareora River.
- Elevated and open pastoral hills provide an important backdrop to the southern part of Timaru District and within the Pureora/Pareora River valley.
- The topographical relief and visual interest provided by Cave Hill contributes to the visual context in the adjacent valleys.
- The steep, dissected slopes of the eastern and western escarpments of the north-south oriented landform contrast with the long spurs on the southern extent, where the eastern-most gully system contains substantial native vegetation.

VAL

### **Overall landscape Value**

### Mapped Extent:

Refer to **Figure 23**. The Cave Hill VAL encompasses the steep slopes/ escarpments of the landform and the high-lying tops. The landform is located to the east of the Pureora/Pareora River, near the western district boundary. Limestone Valley Road and Pareora Gorge Road extend in the valley to the east of Cave Hill, but the lower slopes adjacent to these roads are outside the VAL.

Modifications within this VAL include a trig and transmitter on Cave Hill and fencing, tracks and vegetation modification associated with farming.



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# 6.0 Timaru Coastal Natural Character Study

## 6.1 Introduction Coastal Study

In addition to the assessment of Timaru's landscapes Boffa Miskell (BML) was engaged by Timaru District Council (TDC) to define and map the terrestrial component of the district's Coastal Environment, utilising the elements described within Policy 1 of the New Zealand Coastal Policy Statement (NZCPS) 2010. The NZCPS 2010, also requires local authorities under Policy 13 to map or otherwise identify (at minimum) areas of high natural character within the coastal environment. The NZCPS 2010 also refers to areas of outstanding natural character, necessitating additional evaluation.

Policy 15 of the NZCPS refers to Landscapes and the requirement to "Protect natural features and natural landscapes of the coastal environment".

This Coastal Environment Study therefore encompasses both natural character and landscape considerations, as they relate to Policy 1, 13 and 15 of the NZCPS.

In relation to this BML assisted the Canterbury Regional Council (Environment Canterbury or Ecan) in 2011 and 2012 and again in 2017 to identify and map the extent of the region's Coastal Environment and to assess its natural character. A First Draft report was prepared in 2012, entitled 'Canterbury's Coastal Natural Character: Defining and Mapping the Canterbury Coastal Environment', which identified the inland extent of the coastal environment as well as assessing the natural character of 41 different coastal units within the region. This study was undertaken at a regional scale with the extent of the coastal environment being drawn at a reasonably coarse scale. Further, this study did not assess in detail the parts of each coastal unit that display high or very high natural character. No Outstanding Natural Character analysis was also undertaken. This 2012 regional study focussed predominantly on the terrestrial component of the coastal environment, with little emphasis on the marine component. Since 2012, many other Coastal Studies<sup>8</sup> have been undertaken throughout the country, which have further refined the methodology and understanding of natural character. It is now common practice to assess the marine and terrestrial components separately from a technical perspective, however acknowledging that there are elements, patterns and processes that are inherent between the two. For district councils undertaking this work the marine interface forms their jurisdictional boundary (generally located at Mean High Water Spring/ MHWS), which means that it does not include the marine body of water (which fall within the regional council's jurisdiction).

In 2017, BML updated the 2012 Ecan report, resulting in two separate reports<sup>9</sup>. One report focussed specifically on the marine environment (below MHWS), and the other was an update to the 2012 report, and focussed more on the terrestrial environment (above MHWS). Both

<sup>&</sup>lt;sup>8</sup> Including: Natural Character of the Marlborough Coast [BML 2014]; Natural Character of the Nelson Coastal Environment [2016]; Natural Character Study of the Waikato Coastal Environment [2016].

<sup>&</sup>lt;sup>9</sup> Second Draft: Marine Natural Character Study of the Canterbury Coastal Environment [BML 2017] and Second Draft: Terrestrial Natural Character Study of the Canterbury Coastal Environment [BML 2017].

Ecan reports remain in a draft status as further work is required to complete and ground-truth the studies. It is intended that as each district council within the Canterbury Region prepares their second-generation district plan, the regional *'Draft Terrestrial Study'* will become refined at a district level and the *'Draft Marine Study'* will remain as the main region-wide report for the marine environment below MHWS<sup>10</sup>.

Therefore, the focus of this Timaru coastal environment assessment is to define and map the inland extent of the coastal environment (above MHWS), and to identify areas of high, very high and outstanding natural character. None of the ONFL or VAL that were identified earlier in this report fall within the coastal environment.

## 6.2 Coastal Study Scope

TDC is currently undertaking a series of technical studies which will inform their secondgeneration district plan. Specifically, the District Plan Review (DPR) needs to determine the extent to which the operative District Plan is required to be amended to give effect to both the New Zealand Coastal Policy Statement (NZCPS) and the Canterbury Regional Policy Statement (CRPS).

The operative District Plan contains a Rural 3 Zone that covers those areas of the coastal environment where inappropriate subdivision, use and development would threaten natural character values. These provisions were developed prior to the NZCPS 2010 and CRPS and therefore do not fully give effect the higher order policy in these documents.

Ultimately the purpose of the DPR programme of works associated with the coastal environment is to develop provisions that give effect to the NZCPS and CRPS. To that end this will include work to:

- Identify and map the coastal environment landward of Mean High Water Springs in the Timaru District;
- Provide a planning framework that recognises and protects outstanding natural features and landscapes and areas of natural character within the coastal environment.

## 6.3 Coastal Study Process

As a first step the study team refined the inland extent coastal environment. This task involved using GIS and the original 2012 Ecan alignment. Careful analysis of the inland extent was determined on detailed aerial photographs and this was further refined through site visits to access this proposed boundary where possible to ground-truth it.

Once the inland extent of the coastal environment was determined, the four originally identified coastal area extents were assessed in terms of their natural character based on both

<sup>&</sup>lt;sup>10</sup> Environment Canterbury has indicated to TDC that the work programme for their Canterbury Coastal Environment Plan review will focus on the seaward side of Mean High Water Springs in the coastal environment.

a desktop review of available information and site visit findings. The identification of natural character at a more refined mapping occurred to assess areas of high, very high and outstanding natural character, which is outlined for each coastal character unit. These areas were identified and delineated on a series of maps and their condition and values tabulated. Following this, identification of any areas containing Outstanding Natural Character (ONC) were considered.

# 7.0 Methodology for Coastal Assessment

## 7.1 Defining the Coastal Environment

The RMA does not define 'coastal environment', however its extent needs to be considered in order to respond to Policy 1 of the NZCPS 2010. This recognises that the extent and characteristics of the coastal environment will vary from location to location. It also recognises that the coastal environment may include the following nine characteristics set out in Policy 1(2):

- a. The coastal marine area;
- b. Islands within the coastal marine area;
- c. Areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these; (Study Team emphasis)
- d. Areas at risk from coastal hazards;
- e. Coastal vegetation and the habitat of indigenous coastal species including migratory birds;
- *f.* Elements and features that contribute to the natural character, landscape, visual qualities or amenity values;
- g. Items of cultural and historic heritage in the coastal marine area or on the coast;
- *h. Inter-related coastal marine and terrestrial systems, including the intertidal zone; and*
- *i. Physical resources and built facilities, including infrastructure, that have modified the coastal environment*

The above list of characteristics has assisted in defining what is included within the coastal environment. DOC has also provided guidance material on implementing Policy 1<sup>11</sup>.

Through the development of a methodology to determine the extent of the coastal environment, BML were guided by all of the identified characteristics, although gave particular

<sup>&</sup>lt;sup>11</sup> http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/coastalmanagement/guidance/policy-1.pdf

consideration to item (c) of Policy 1(2) of the NZCPS 2010 'where coastal processes, influences or qualities are significant'. Few components listed under Policy 1 have been excluded, which include historical and archaeological aspects and scientific references to benthic/ bathometry studies.

Although the Timaru coastline is relatively short in comparison to other districts in Canterbury, specific attention needs to be given to more complex areas, including the riparian edge of the Waitarakao/Washdyke Lagoon and the Rangitata, Pareora, Ōrāri and Ōpihi River mouths and their associated lagoons.

As mentioned, this study only refers to the part of the coastal environment that is relevant to the jurisdictional control of the Timaru District, which is related primarily to the terrestrial component of the coastal environment, although acknowledges that there is some overlap with the marine environment, especially around the active coastal interface zone.

Where applicable the inland extent of the coastal environment extends to the first ridgeline inland of the coast (e.g. on downlands), although for flat areas, such as for most of the northern Timaru coast, the boundaries are determined more by landscape character and where coastal elements, patterns and processes are still sufficiently significant.

The two diagrams (below) illustrate the extent of the Coastal Environment and the three zones in two very different types of coastal areas: one a steep coastal area and the second a flat coastal area. The diagrams illustrate that the coastal environment is determined by a variety of factors and changes from one coastal area to another.



COASTAL LANDSCAPE: HILL COUNTRY

## 7.2 Zones of Significance

BML have developed the following model which has been applied to the Timaru Coastal Environment.

The coastal environment has been divided into three areas to aid description (Zones A, B and C). Zones A and B are divided by the mean high-water spring (MHWS) mark, which forms the district boundary. Landward of the coastal environment is a zone labelled the Coastal Context zone (Zone C). A description of each zone is summarised in the table below.

Table 5: Zones of Coa	astal Significance
Zone A	This zone includes the <b>Coastal Marine Area (CMA)</b> . Within the statutory context the CMA means the foreshore, seabed and coastal water and the air above the water to twelve nautical miles (or the territorial sea boundary). Inland, the CMA extends to the mean high-water spring (MHWS), where it meets the coastal interface. The CMA includes the rock, beach, coastal lagoons and lakes below MHWS. The CMA extends approximately 1km upstream of a river or a point that is calculated by multiplying the width of the river mouth by five. This area is described, but not assessed in detail, as <u>Zone A is the focus of</u> <u>a separate study: 'Draft Marine Natural Character Study of the Canterbury</u> <u>Coastal Environment' (BML, 2017).</u>
Zone B (main focus of assessment)	The <b>Coastal Significance Zone</b> includes the <b>Active Coastal Interface</b> (land above MHWS) and generally includes land up to the summit of the first coastal ridge/ crest or escarpment (with the width of this zone varying depending on the topographic environment). The Active Coastal Interface is generally a slender component of the Coastal Significance Zone where the sea is the dominant element and the primary or significant influence on landform, vegetation and perception. This zone is where coastal processes are significant and may include cliffs, settled (or modified) dune lands, farm land, settlements and coastal forests. For this project, this zone is also referred to as the Coastal Terrestrial Zone.
Zone C	<b>Coastal Context</b> . This area is where coastal elements, patterns and processes have an influencing presence on the coastal landscape and would include developed dunes which no longer exhibit significant coastal processes plus coastal plains, and hill-slopes. This zone generally extends inland from Zone B to where coastal influences are diminishing. It is also recognised that some activities occurring within this zone can significantly affect the coastal environment (Zones A and B), either experientially or physically, to varying degrees. The inland extent of Zone C will not be identified, as it falls outside of the Coastal Environment.

## 7.3 Definition of Coastal Natural Character

The environments with the greatest natural character are those with comparatively low levels of human modification. Areas with high natural character are composed of natural elements appearing in natural patterns and underpinned by natural processes.

Natural character is not defined in the RMA or in the NZCPS 2010. Within '*Natural Character* and the NZCPS 2010' [2012, DOC, p19] the following definition was confirmed:

'Natural character is the term used to describe the natural elements of all coastal environments. The degree or level of natural character within an environment depends on:

1. the extent to which the natural elements, patterns and processes  $^{\mbox{\tiny 12}}$  occur; and

2. the nature and extent of modification to the ecosystems and landscape/seascape.

The degree of natural character is highest where there is least modification.

The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community<sup>13</sup>.'

Policy 13 of the NZCPS recognises that natural character is not the same as natural features and landscapes or amenity values and identifies that natural character may include (but is not limited to):

- a. natural elements, processes and patterns;
- b. biophysical, ecological, geological and geomorphological aspects;
- c. natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;
- d. the natural movement of water and sediment;
- e. the natural darkness of the night sky;
- f. places or areas that are wild or scenic;
- g. a range of natural character from pristine to modified;
- *h.* experiential attributes, including the sounds and smell of the sea; and their context or setting.

This is the definition adopted for this study. Essentially, BML understand that natural character is a sub-set or component of landscape. Whereas landscape encompasses

<sup>&</sup>lt;sup>12</sup> For the purposes of interpreting the NZCPS 2010 Policy 13.2, 'elements, patterns and processes' means: biophysical, ecological, geological and geomorphological aspects; natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks; and the natural movement of water and sediment.

<sup>&</sup>lt;sup>13</sup> Department of Conservation Natural Character Workshop Minutes; 2 August 2011(DOCDM-795012)

biophysical, aesthetic and associative components, natural character is primarily concerned with the degree of naturalness associated with the natural elements, patterns and process within the landscape (or coastal environment in this study) and the level or degree of modification to those components.

The term 'naturalness' has been discussed in numerous Environment Court decisions<sup>14</sup>, including Long Bay, which stated the following regarding the term 'natural':

"The absence or compromised presence of one or more of these criteria [below] does not mean that the landscape or coastal environment is non-natural, just that it is less natural. There is a spectrum of naturalness from a pristine natural landscape to a cityscape and a 'cultured nature' landscape may still be an outstanding natural landscape."

A rating of very high to very low, as shown in the graph below, was used in this study based on recommendations in a variety of case law (see **Appendix 3**). **Appendix 3** provides a detailed overview of case law that guided the development of this methodology.



## 7.4 Evaluating Coastal Natural Character (Scale and Attributes)

Natural Character assessments use different scales of reference that steadily decrease from the broad regional scale to the detailed local scale. Natural character is context and scale related, i.e. the coastal area can be perceived as having different levels of natural character at different scales, depending on the level of detail.

At a broad scale, the coastal environment of Timaru is located within the region of Canterbury. At this scale, climate, geomorphological and land uses broadly influence natural character. At the more detailed scale four Coastal Terrestrial Areas within the district are outlined in this report:

- 1. Rangitata Coastal Character Area
- 2. Ōpihi Coastal Character Area
- 3. Timaru Township Coastal Character Area
- 4. Pareora Coastal Character Area

At the most refined scale high, very high and outstanding natural character considered for each one of these four areas. Findings from this assessment are outlined in bullet points in the tables for each character area and the mapping is shown for each one of the areas as part of the descriptions. The assessment concluded that parts of Timaru's coastal environment are considered to be high, but no areas of very high or outstanding natural character were identified along the district's coast due to the relatively high level of modification.

<sup>&</sup>lt;sup>14</sup> Including High Country Rosehip Orchards Limited and Mackenzie Lifestyle Limited and Ors v Mackenzie District Council, Interim Decision No. [2011] NZEnvC387 and Port Gore, Decision No [2012] NZEnvC72 paragraphs 66-67.

When assessing natural character of the coastal environment, several key attributes need to be considered. The list of attributes that natural character may include (NPCS 2010 13 (2) have been grouped into broadly into the categories of biotic, abiotic and experiential attributes to provide a systematic way to consider the different aspects of the natural patterns, processes and elements of the coastal environment and the degree of modification present. **Table 6** below outlines what was assessed under each one of these attributes. Experiential characteristics and values have been determined by the study team.

It is important to recognise that for an area to rate 'high' or 'very high' for experiential aspects of natural character, their intactness of biotic or abiotic factors needs to be high with no or little human modification. This means that, for example, a popular beach near a populated area (eg Caroline Bay), is likely to rate lower in terms of the experiential attributes of natural character due to the lack of wildness and high level of modification, despite the extensive range of available recreation opportunities in the area. The shared and recognised aspects of available recreation infrastructure and activities are generally factored into landscape assessments as a positive contributor, but this is considered a detractor in terms of an assessment of natural character.

Table 6: Attributes assessed for each Coastal Terrestrial Area – Zone B								
Attributes	Descriptors	Spectrum of naturalness*						
Abiotic Systems and Landforms (Abiotic)	<ul> <li>Climatic influences (wind, rain, exposure);</li> <li>Geomorphology and identification of different types of landforms (i.e. peninsulas, cliffs, dunes, wetlands);</li> <li>Terrestrial coastal processes, including erosion, river mouth processes including sedimentation (within the terrestrial zone);</li> <li>Freshwater processes.</li> </ul>	<ul> <li>The evident intactness of the abiotic systems. The degree (very high to very low) to which physical modifications such as built structures, road cuts, earthworks and reclamation works affect this abiotic attribute.</li> </ul>						
Terrestrial Biotic systems and Land Cover/ Land Use (Biotic)	<ul> <li>The margins of estuaries, wetlands and terrestrial areas in Zone B including the intactness of their natural ecological processes, patterns and elements;</li> <li>Extent of freshwater communities;</li> <li>Land cover and associated land use, including the composition, distribution, and condition of land cover, and the presence of indigenous/exotic species;</li> <li>Presence of indigenous fauna.</li> </ul>	<ul> <li>The degree (very high to very low) to which modifications affect this biotic attribute.</li> <li>Influences include the presence of exotic species on native communities, physical structures such as infrastructure, housing, roading, tracking, reclaimed land, stop banks, as well as commercial forestry, agricultural and viticulture land use that reduce the naturalness of the biota;</li> <li>This attribute also includes modifications to freshwater systems, including channelizing watercourses, stop banks, culverts, dams etc. which affect freshwater biota.</li> </ul>						
Perceptual/ Experiential (Experiential)	<ul> <li>The experience in seeing, feeling and perceiving the Coastal Significance and Active Coastal Interface;</li> <li>Aromas, visual and scenic, auditory, sense of wildness, remoteness, isolation, natural darkness of the night sky;</li> </ul>	- The degree (very high to very low) to which physical and biotic modifications affect the naturalness experienced. Influences reducing naturalness include the presence of physical structures including ports, reclaimed land, infrastructure, roading, lighting, industrial noises and non-natural aromas;						

It has only been possible to capture terrestrial data where that data exists. Accordingly, the mapped areas illustrate existing knowledge.

<ul> <li>Ephemeral biotic activity (i.e. seasonality of flora, presence of birds);</li> <li>Ephemeral human activity affecting the naturalness (such as recreation, commercial activities;</li> <li>Note, this attribute does not include heritage elements.</li> </ul>	<ul> <li>Presence of exotic species;</li> <li>Presence of humans, including recreational activities (driving, walking, camping, settlements);</li> <li>Note, different people experience naturalness differently.</li> </ul>
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\* Each Coastal Character Area is measured on the spectrum of naturalness (degree of human modifications) to each attribute from Very High to Very Low, then an overall judgement is made. The degree of physical and experiential naturalness is related to the location's context.

At the most refined assessment scale abiotic, biotic and experiential attributes have been evaluated and described in detail. Either the abiotic or biotic attributes have to score at least 'high' for the component to be identified as having a 'high' level of natural character. Notwithstanding this, the scoring for abiotic, biotic and experiential attributes have been recorded for each component to ensure transparency in this assessment.

## 7.5 Outstanding Natural Character

Areas of Outstanding Natural Character have been identified through a detailed assessment process. Under RMA s6(a) it is necessary to determine the existing attributes and extent of natural. This approach is also required under the NZCPS 2010. However, Policy 13 of the NZCPS 2010 also specifically requires that an evaluation is made as to whether the natural character in the existing coastal environment is at least 'high' – in order to then be able to determine whether Policy 12 (1) (a) or 13 (1)(b) is triggered. Policy 13(1) of the NZCPS states:

*"(1)* To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use and development:

(a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and

(b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment;..."

An area with outstanding natural character may be an area within the coastal environment that is considered to have 'high' or 'very high' levels of natural character. This separation of outstanding natural character from the baseline follows best practice outlined within Environment Court decisions on natural character, where everything in the coastal environment fits on the continuum from very low to very high (or pristine). Under the methodology, an area of outstanding natural character must:

'exhibit a combination of natural elements, patterns and processes that are exceptional in their extent, intactness, integrity and lack of built structures (the 'clutter' factor) and other modifications compared to other areas in the Canterbury Region'. (Boffa Miskell)

This decision to separate out this assessment from the main natural character study stems from Policy interpretation in the NZCPS 2010. Policy 13 (1)(a) requires avoidance of adverse effects of activities on natural character in the coastal environment with outstanding natural

character. For all other areas in the coastal environment, Policy 13(1)(b) requires that significant adverse effects are avoided, remedied or mitigated. The high threshold is outlined within Policy 13(1)(c), where areas with at least 'high' natural character be identified.

# 8.0 Broad Timaru Coastal Terrestrial Environment Description

## 8.1 Introduction to the Timaru District Coastal Environment

The Timaru District coastal environment is located within the southern part of the Canterbury Bight, which is a long, open coast of mixed sand and gravel beaches that extends from Banks Peninsula to Timaru and the South Canterbury coast which is situated between Timaru and the Waitaki River mouth.

The Canterbury Bight is a 135 km stretch of gently curving coastline, slowly eroding from strong ocean currents. The terrestrial component of the coastal environment is inextricably linked to the marine component. The Bight faces southeast, which exposes it to high-energy storm waves from the southern Pacific Ocean. It frequently experiences wave heights of over 2 metres. Beaches are steep mixed gravels and sand and are formed predominantly from alluvial deposits, most notably from the Rakaia River and the more southerly located Rangitata River.

The coastal environment north of Timaru contains a narrow margin between active coastal processes and the farmed hinterlands. Impeded drainage patterns (naturally by dunes, or by the man-made railway berm) have formed fresh and brackish water features particularly near the Ōpihi and Ōrāri River mouths, i.e. oxbows, coastal lagoons and tidal river estuaries with wetlands. The brackish, shallow Waitarakao/Washdyke Lagoon provides important habitat for wetland and coastal birds, including waterfowl and migrant waders. Along the downlands south of Timaru Township, the beaches are backed by eroding cliffs with few public access points, apart from the coastal walkway. Sweeping, uninterrupted and uncluttered views can be gained along this stretch of coastline.

South of Timaru, the coastal environment consists of low alluvial depressions separated by higher rolling country and notable volcanic reefs. Continual shingle ridges separate the shoreline from the coastal hinterland and artificial lagoons are formed by railway embankments near Normanby. Generally, the hinterland is highly modified by intensive farming often extends close to the edge of the backshore or the railway.

## 8.2 Overview of Timaru District's Terrestrial Coastal Environment

The terrestrial component of the coastal environment is, with the exception of the Rangitata, Ōrāri and Ōpihi River mouths, Waitarakao/Washdyke Lagoon and Ōtipua/Saltwater Creek, a slender area of land extending from the MHWS mark to the inland extent of the coastal significance zone. The narrow width of this coastal significance zone is due almost exclusively to land use activities that have modified the environment to almost immediately behind the narrow strip of dunes.

To assist in describing the natural character of the terrestrial component of Timaru's coastal environment (or the land above MHWS mark), the following attributes have been determined.

They have been taken from the 'Draft Terrestrial Natural Character Study of the Canterbury Coastal Environment' [BML 2017].

## 8.3 Active Coastal Interface

Having a close relationship with the work contained within the 'Draft Marine Natural Character Study of the Canterbury Coastal Environment' [BML 2017], the active coastal interface is essentially the strip of land immediately abutting the MHWS mark (being the 'cut' off point between the district's and region's jurisdiction). Since nature does not divide the coastal environment into two clean areas, the active coastal interface is often interpreted and described to include the part where the land is heavily influenced by the sea. As stated, there is often overlap between the marine and the terrestrial area as each influences the other.

The active coastal interface attracts a large number of birds, with river mouths and lakes providing many important habitats. Modification within the active coastal interface, such as waste water outfalls, can have a direct impact on the broader area's level of natural character.

## 8.4 Abiotic Systems and Landforms of the Coastal Terrestrial Area

The landforms found along the coast of Canterbury are diverse, reflecting underlying geology and ongoing erosional processes. The Canterbury shoreline is made up of steep eroding cliffs backing gravel beaches which extend along much of the Canterbury Bight to the south. The constant processes of deposition and erosion with sediments being transported by the rivers and currents of the sea, continue to shape the coastline.

The Rangitata River, a major mountain-fed river enters the ocean at the northern boundary of the district, depositing alluvial material. The numerous smaller river mouths along the Timaru coast have also lead to the formation of lagoons at the coastal interface. The most frequently occurring coastal lagoon is the hapua-type lagoon, where built-up material is shifted along the coast by the waves which offsets the river mouth further along the beach. Coastal lakes, also referred to as Waituna-type lagoons, are less common. Waitarakao/Washdyke Lagoon is the only example in the district. This and other lagoons, provide habitats that are often of regional or national importance, attracting a variety of wetland and coastal species, including waders.

## 8.5 Terrestrial Biotic Systems

Within Canterbury, the ecological processes in the terrestrial part of the coastal environment have been significantly more modified than within the marine area. The habitats for marine mammals, such as dolphins and whales and the land/ sea interface, including seal colonies and intertidal habitats have been covered at a high level in the Coastal Interface section.

Before the arrival of humans, the land within the coastal environment would have been covered by podocarp/hardwood forest and scrub on the steeper slopes and gullies with coastal floodplain forest behind the dunes of the Canterbury Plains. Following European arrival, many meandering low-land streams on the plains were straightened and the surrounding swamps drained to create fertile farm land. While most dunes have been stabilised with exotic marram grass as an erosion control measure, small areas of more natural dunelands remain. Restoration of dunelands with the native sand binding plant pingao has been undertaken in places.

Along the Canterbury Coast few pockets of native vegetation have survived the extensive agricultural modification. Where they do occur, they now serve as important remnant habitats for plants and animals. Many of the river mouths and lagoons are important breeding, feeding and resting places for braided river birds, wading birds and seabirds. The most important bird habitats are found around the Waitarakao/Washdyke and Ōpihi Lagoons. Numerous wetlands occur along the Timaru coastline, which are described in detail in the following section for each of the coastal terrestrial character areas (under abiotic and biotic systems).

While the ecological processes of most of the biotic systems in Canterbury's coastal environment have been extensively modified, there are remnants or regenerating areas of native vegetation. These have been highlighted in each of the four Coastal Character Area descriptions outlined in the next section of this report.

## 8.6 Land Cover and Land Use

This attribute is considered to be a sub-set of Terrestrial Biotic Systems. The land cover of the Canterbury lowlands and the coastal environment has been substantially modified over the past centuries. This was driven by the desire to create pastoral farmland. In particular, 19th century European settlers destroyed much of the native coastal vegetation, through burning and cultivation.

The most accessible and fertile parts of the Canterbury region, as is also evident within the Timaru District, have experienced the highest level of modification. The intensification of farming on the irrigated, fertile Timaru Plains has led to the creation of distinctively unnatural patterns across this part of the district. In many instances within the Timaru District, these extend very close to the coastal edge.

## 8.7 Perceptual and Experiential Factors

There is a clear overlap with this attribute and the descriptions contained within the *Draft Marine Natural Character Study of the Canterbury Coastal Environment* [BML, 2017]. The following description, whilst trying to focus on terrestrial aspects, is clearly very closely tied to that of the marine environment. This artificial division is a way of organising data between two separate studies, prepared for the district and the region.

Ultimately the way people experience the Timaru coastal environment is highly dependent on the accessibility of the area. For the Timaru District, there are sheltered areas (such as parts of Waitarakao/Washdyke Lagoon and parts that are more exposed, such as the open coastline around headlands, such as those south of Timaru. More sheltered waters offer a greater level of recreation to occur, such as bird watching and fishing around and within Waitarakao/Washdyke Lagoon and the Rangitata River mouth. Remoteness and wildness can be experienced along much of the coastal environment outside of Timaru's Township and small settlements, due to the lack of buildings and structures. The darkness of the night sky would also be particularly strong north and south of Timaru, as opposed to other coastal environments in Canterbury. Modification is typically associated with land use practices, typically pastoral grazing and cropping. A small number of settlements are located at Rangitata Huts, on the north and south banks of the Ōpihi River and at Pareora in addition to the township and port of Timaru.

In the Timaru District, opportunities for people to experience the coastal terrestrial area are reasonably limited outside of the city itself, due in part to their relative remoteness from urban centres, and in part to the narrow width of the coastal environment and the relatively exposed nature of the coast. Whilst a number of roads and tracks lead to the coastal environment, many of these are infrequently used, apart from those which are in proximity to Timaru Township.



# 9.0 Evaluation of Coastal Terrestrial Areas

## 9.1 Coastal Terrestrial Area 1: Rangitata

Photograph 16: View overlooking the mouth of the Rangitata Rivermouth. Timaru District includes only the south bank (on the left side of the image).

## Location and Key Characteristics

Timaru District includes the south bank of the Rangitata river mouth, with the identified coastal environment extending almost a kilometre inland. This part of the Rangitata Coastal Area includes islands covered in gorse and broom with some native vegetation, divided by secondary braids and smaller channels. A willow forest covers large part of the margins. A portion of this area is also contained within the Rangitata Riverbed/Rangitata Huts Conservation Area (DOC).

The Rangitata River mouth is close to a kilometre wide with a hapua lagoon, contained by a shingle beach barrier located at its mouth, which extends another kilometre north along the coast (the majority of the lagoon falls within Ashburton District). The Rangitata River is the second biggest river mouth along the Canterbury Bight (after the Rakaia), and provides important habitat for many braided river birds. The river mouth is a very popular place for salmon and trout fishing, as the river is reasonably accessible.

## Coastal Context

The Rangitata River drains from the Southern Alps, flowing southeast for 120 km through intensively farmed land in the Canterbury Plains after traversing the high country basin. Downstream of the Rangitata Gorge there are several water takes for irrigation, the Rangitata Diversion Race being the most significant one. Where it crosses the plains, the river is heavily braided and maintains a reasonably homogenous character as it winds its way to the coast incised between flat farmland with a mostly well-defined terrace edge. Willows and other predominantly exotic species flank its banks and wider floodplain, while the active gravel banks and islands are mostly clear of vegetation. Settlements are sparse and few rural roads access the area, which is divided into a patchwork of irrigated pasture.

## Active Coastal Interface<sup>15</sup>

The Rangitata flows into a coastal hapua lagoon, separated from the sea by a narrow sand and gravel barrier, which has been identified as a geopreservation site. It is described as one of the best examples of a fluvial-dominated spit-lagoon along the Canterbury Plains coastline. Due to the high energy waves and the sediment transport, the river mouth is in a constant state of change. Whilst the shore side of the hapua lagoon is changing, the inland shores have not eroded as severely as other hapua lagoons. The intrinsic values of the river are protected by a Water Conservation Order.

### Abiotic Systems and Landform

The barrier between the sea and the hapua lagoon comprises a mixture of sands and gravel. It is generally narrow, and is formed by the transport of sediment along the shore by wave swash. The dominant sediment transport is to the north, so the barrier forms as a spit with the southern end wider than at the northern outflow. The hapua lagoon is in a long-term net erosional retreat. It is well established that the sequence of lagoon and spit changes is maintained while hapua are progressively displaced landwards by long-term chronic coastal erosion.

### **Terrestrial Biotic Systems**

The Rangitata River is a regionally-significant habitat for native water birds, as it supports a diverse range of protected native bird species, including coromorants, waders, waterfowl, gulls and terns. It is feeding and roosting habitat for threatened wrybill, banded dotterel and black-fronted tern. The hapua is habitat for diverse range of native fish, such as eels, inanga, bullies, smelt, torrentfish, lamprey and black flounder.

Most of the wetland area is un-vegetated shallow water or sand/gravel, as hapua extent and water levels are constantly changing. Due to its highly dynamic nature, the Rangitata River hapua supports little wetland vegetation, with limited areas of freshwater marsh along the margins of the hapua, and an adjoining area of estuarine saltmarsh habitat. The vegetation around the river mouth is predominantly exotic willow, gorse and broom with few areas of native vegetation. Due to the volume of inflows the wetlands are largely freshwater wetlands.

### Land Cover & Land Use

The Rangitata Huts fishing village, with approximately 100 baches is located south of the river mouth. During the summer, the population of this settlement increases for fishing and other recreational purposes. The land cover on the floodplains and south bank of the Rangitata River

<sup>&</sup>lt;sup>15</sup> Refer to *'Draft Marine Natural Character Study of the Canterbury Coastal Environment*" [BML, 2017] for information below MHWS.

is dominated by exotic weeds. The riverbed itself is frequently cleared by floods and contains large areas of bare gravel, which shows the dynamic nature of the braided river. Immediately south of the river, the land is intensively farmed containing numerous shelterbelts, irrigated pasture and local roads. Access to the river mouth is easy, due to direct access from SH1 to the Rangitata Huts community located south of the river mouth.

### Perceptual/ Experiential

The river mouth and associated hapua lagoon of the Rangitata are visually impressive and serve as important places for salmon, trout and whitebait fishing, as well as duck and goose shooting.

Rangitata Huts has a seasonal seaside camping ground, as the Rangitata river mouth attracts locals and visitors alike. The river mouth, and especially the lagoon, provide habitat for a wide range of bird species, and is frequently visited by ornithologists (bird watchers). The Rangitata River has special importance for Ngāi Tahu. This has been recognised by the Crown in the Ngāi Tahu Deed of Settlement and the Ngāi Tahu Claims Settlement Act 1998.

	Coastal T	<b>Ferrestrial</b>	Area 1	-	Rangitata:	<b>Specific</b>	Characteristics
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These are m	napped wi	th referen	ce to Figu	re 25			
		Abiotic	Biotic		Experiential		
Area	Overall Rating	Abiotic Systems & Landforms	Terrestrial Biotic Systems	Land Cover & Land Use	Perceptual/ Experiential	Key Characteristics	Additional Comments
Rangitata River mouth	High	High	Moder High or ba High a hapua and we	ate to a south nk round lagoon etlands	High	<ul> <li>Second biggest river mouth along the Canterbury Bight, identified as one of the best examples in the region (Geopreservation site).</li> <li>Important hapua lagoon on north bank (Ashburton) with predominantly freshwater habitat.</li> <li>The intrinsic values of the river are protected by a Water Conservation Order.</li> <li>Supports a diverse range of native bird species.</li> <li>Vegetation on river bank contains weeds and few areas of native vegetation communities.</li> <li>Visually impressive and serves as an important place for salmon, trout and whitebait fishing</li> <li>Recreational opportunities for bird watchers and fishermen.</li> </ul>	The 'Marine' component retains High levels of natural character, as mapped within the 'Draft Marine' Ecan Study 2017. All of the terrestrial coastal environment in this character area is mapped as high in natural character. Small settlement at Rangitata Huts with lower natural character



## 9.2 Coastal Terrestrial Area 2: **Ōpihi**



Photograph 17: View overlooking the Ōpihi River mouth.

Location and Key Characteristics

The Ōpihi Coastal Area extends from the Rangitata River mouth to Waitarakao/Washdyke Lagoon north of Timaru Township. This coastline stretches in a long, homogenous sweep of gravel beaches along the Canterbury Bight. The Ōrāri and Ōpihi Rivers flow from the foothills of the Southern Alps to the coast. Around these rivers and the mouths of other lowland streams, small lagoons have formed from abandoned meanders and oxbows. The small settlements of Waipopo and Milford Huts are close to the Ōpihi River mouth. The rural landscape is relatively sparsely populated with small clusters of houses and individual farm dwellings. The agricultural land use extends close to the coast, where the paddocks meet a narrow band of dunes or terminate in low eroding cliffs. The gravel beach is rugged and can be accessed from the few gravel roads in the area.

## Coastal Context

The coastal context associated with the wider Ōpihi Character Area is dominated by lowland farming. The predominantly flat landscape is generally intensively farmed, interrupted where sinuous streams traverse through the patchwork of agricultural field boundaries. There is a narrow margin between the coastal interface and the gravel beach and foredune and the farmed hinterland. Rivers and streams, and in particular smaller waterways, are often impeded by gravel beach barriers. In these areas fresh and brackish water features including flood plain meanders, coastal lagoons and tidal river estuaries with saltmarshes have formed.

### Active Coastal Interface<sup>16</sup>

The Timaru Port's breakwater starves the coastline barrier to the north of coarse sediments from the rivers to the south. The sediment input into the ocean from the Ōrāri and Ōpihi Rivers is significantly smaller than from the larger braided rivers, such as the Rangitata immediately to the north of this area. The result is eroding gravel beaches in this coastal area. The inflow from the foothill rivers in this area is comparatively small and during low flows in summer/ autumn these rivers do not breach their beach barriers. The Ōpihi Lagoon and Harakeke Tautoro Island area is a geopreservation site, identified as an excellent example of a mixed sand and gravel barrier island enclosing a rare distinctive type of lagoon.

A combination of long-shore drift and erosional coastal processes has produced a series of lagoons impounded by coastal gravel barriers, including Harakeke Tautoro Island, with the coastline retreating westwards. Similarly, the Ōrāri River mouth oxbow lagoons are geopreservation sites as unusual oxbow remnants now forming coastal lagoons. These remnants of former Ōrāri River meanders, north of the present Ōrāri River mouth, are now exposed to coastal processes due to the westward retreat of the shoreline.

## Abiotic Systems and Landform

Hapua lagoons occur at the mouth of the Ōpihi and Ōrāri Rivers, which are dynamic in terms of size and form, as they are influenced by changing river flows, and coastal-wave energy and direction. The Ōrāri Lagoon has been modified by the installation of stopbanks and weirs to manage the water levels. The Ōpihi River and Orakipaoa Creek form Milford Lagoon, located next to Milford Huts settlement. While Milford Lagoon has been substantially reduced in size over the past century, it is still relatively large with several arms. Rhodes Stream to the north of the Ōrāri River feeds into an old oxbow in close proximity to the beach. Kapunatiki Creek is incised into the cliffs where it enters the coastline. Browns Beach is situated directly east of Temuka and also retains two small lagoon areas behind its beach barrier, one of them being Spider Lagoon which has deep open fresh-brackish water. Theses remnants of coastal lagoons and lowland meanders are of significant natural value.

On Browns Beach, driftwood and other debris is often carried to the top of the beach at high tide, where a stopbank separates the beach from farm paddocks beyond. The southern part of the area has low gravel cliffs and a generally rugged gravel beach. Where the back of the beach is not made of low eroding cliffs or a stopbank, there are narrow dunelands with exotic grasses. Construction of Timaru harbour and the breakwater has stopped the movement of sediment up the coast and accelerated erosion of the coastline north of Waitarakao/Washdyke Lagoon to around half a metre each year.

The Timaru Fossil Forest is an identified geopreservation site located between Aorangi and Beach Road. It is a good example of a late Quaternary fossil forest formed when tree stumps fell in peat and were preserved. They can be observed when the tide recedes at low tide.

<sup>&</sup>lt;sup>16</sup> Refer to 'Draft Marine Natural Character Study of the Canterbury Coastal Environment' [BML, 2017] for information below MHWS.

### **Terrestrial Biotic Systems**

This terrestrial area has a strong inter-relationship between the coast and its hinterland, where coastal vegetation extends along tidal channels of streams for about 1km inland. The Ōpihi River mouth lagoon, and associated Orakipaoa Creek lagoon, has a complex and dynamic hydrology. Sometimes it is largely a freshwater body; at other times it is open to tidal seawater inflows and/or seawater overtopping the beach barrier. It supports a high diversity of wetland habitats including deep and shallow water, beach gravel, meandering channels and mud flats, with extensive areas of native rush, sedge and reedland vegetation on margins. The Opihi River mouth and lagoon contain remnant areas of indigenous vegetation, including oioi rushland, flax, raupo, sedgeland and saltmarsh ribbonwood. The area is also of importance to migratory and resident birds and traditional mahinga kai species, such as flounder, whitebait, lamprey and eel. The Öpihi River mouth is a nationally significant habitat for wetland birds. It supports a wide diversity species – waterfowl, waders, gulls and terns, cormorants and swamp birds. It is important habitat for white-winged black tern and black-fronted dotterel as well as threatened banded dotterel and black-fronted tern. Other rare/threatened species recorded here include black stilt, bittern and black-billed gull. Prattley Road Lagoon is an isolated section of the Öpihi River lagoon to the north that has lost connection due to river engineering works.

A number of the bird species listed above also occur at the Ōrāri River mouth, which is also a nationally significant habitat for native birds and an important area in the life cycle of migratory fish. The wetland vegetation within the lagoon is comprised of native dominated wīwī and lake clubrush rushland and toetoe tussockland and exotic tall fescue grassland and willow treeland and shrubland. An estimated 50-75% of this wetland's original extent has been lost due to river confinement, drainage, pasture development and dune encroachment.

Spider Lagoon is a brackish, non-tidal coastal lagoon north-east of Browns Beach that supports native vegetation of Caldwells clubrush reedland and raupo reedland as well as exotic willow forest and tall fescue grassland. It is a regionally significant habitat for wetland and coastal birds. Bittern, marsh crake, black-fronted dotterel and white-winged black tern have been recorded here. A number of other lagoons, wetlands and oxbows are also lined with native wetland vegetation of varying value and modification.

The Seaforth Coast between Waitarakao/Washdyke Lagoon and the Ōpihi River mouth contains a sequence of coastal wetland habitats including swale, dune slacks and spring-fed coastal lagoons. The wetlands in this area are mostly artificial and have been formed by construction of the coastal stopbank. However, a large part of the original wetland extent has been lost due to drainage and pasture development. The remaining wetland vegetation is mostly estuarine and supports a large area of native glasswort herbfields as well as areas of exotic grassland and willow treeland. The area continues to provide important habitat for birds and native fish species including banded kokopu.

### Land Cover & Land Use

The rural area has an extensive history of pastoral farming since 1851. During the late 19th century John Hayhurst, a prominent local landowner promoted the Milford Lagoon as an alternative location for South Canterbury's main port. The area is now largely used for

intensive pastoral farming and cropping. There are small communities of baches and permanent residents on the north bank of the Ōpihi River at Milford Huts and on the south bank of the Ōpihi River at Waipopo Huts. Shelterbelts and small-scale forest plantations are scattered across the farmland along the coast.

### Perceptual/ Experiential

This part of the South Canterbury coastline has a remote feel and is not frequently accessed, apart from some of the river mouths. The rugged coast strewn with driftwood provides an impressive wild scenery. Browns Beach is popular with locals and is used for fishing. The Ōpihi River and its tributaries contain trout fisheries, which are best at higher flows, and salmon fishing occurs at the Ōrāri and Ōpihi mouths. Whitebaiting, and duck and goose shooting are also popular at the mouth in season.

Many of the lagoons and wetlands are mahinga kai sites for tangata whenua and archaeological finds have revealed a number of ovens confirming early Māori occupation of these areas. The Orakipaoa wetland has been identified as a Ngāi Tahu statutory acknowledgement area.

These are mapped with reference to Figure 26								
	•	Abiotic	Biotic		Ехр			
Area	Overall Rating	Abiotic Systems & Landforms	Terrestrial Biotic Systems	Land Cover & Land Use	Perceptual/ Experiential	Key Characteristics	Additional Comments	
Coastal strip between Rangitata Mouth and Waitarakao /Washdyke Lagoon, including Ōrāri and Ōpihi River mouths	High	Moder ate to High		gh	High	<ul> <li>Variety of coastal processes and features such as flood plain meanders, coastal lagoons and tidal river estuaries with saltmarshes.</li> <li>Strong inter-relationship between coast and hinterland with wetland vegetation extending along tidal channels of streams for about 1 km inland.</li> <li>Öpihi River mouth and lagoon is a wetland of national importance and represents important habitat for spawning and rearing of fish.</li> <li>The Öpihi and Örāri mouths and associated oxbows/ meanders are geopreservation sites.</li> <li>Several coastal wetlands are nationally significant habitat for wetland and coastal birds.</li> </ul>	The 'Marine' component retains High levels of natural character, as mapped within the 'Draft Marine' Ecan Study 2017. The beach and dunes, as well as river mouths, lagoons and wetlands within the terrestrial coastal environment in this character area are mapped as High in natural character. Extensive modification to land use in hinterland with paddocks on inland side of stopbank/ dunes.	



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## 9.3 Coastal Terrestrial Area 3: Timaru Township



Photograph 168: View overlooking Waitarakao/Washdyke Lagoon in the foreground, Caroline Bay in the midground and Timaru in the background.

## Location and Key Characteristics

The Timaru coastline is a unique section along the Canterbury Bight as this coastline is predominantly urban, forming the eastern edge of Timaru City. The city is positioned between Waitarakao/Washdyke Lagoon to the north and Ōtipua/Saltwater Creek to the south, which form the character area boundaries. Waitarakao/Washdyke Lagoon, where a barrier beach contains a waituna-type lagoon, marks the end of the Canterbury Plains and the start of the South Canterbury downlands.

Further south Smithfield Reef, Dashing Rocks and Benvenue Cliffs are notable volcanic features which are a backdrop to the sandy sheltered waters of Caroline Bay. The reclaimed port of Timaru, east of Caroline Bay is at the centre of Timaru Township. The commercial port is reasonably sheltered from the southerly swell by Patiti Point and its associated rocky reefs.

## Coastal Context

The town of Timaru provides an urban context to the coastal environment of this coastal terrestrial area. The urban development extends from the coast, west over the undulating coastal hills. Timaru's coastline has outfalls for wastewater and stormwater discharges in addition to several abattoirs. The commercial Timaru Port is built on reclaimed land which now contains cargo ships, commercial fishing boats, seawalls and wharves. The access to this area is provided through multi-lane roads and the railway line, which define the extent of the coastal environment in this area. The entire reclaimed area of the port falls within the coastal environment, with the hinterland rising steeply behind Caroline Bay, visually separating the town centre from the beach and park area.

### Active Coastal Interface<sup>17</sup>

Longshore drift and erosion are two key processes at work along Timaru's Coast. The construction of the Timaru Port and its 700m long breakwater has modified the natural processes in this area which has assisted in the growth of the sandy beach at Caroline Bay to the northwest. Due to this sheltering effect, north-bound gravel and sands accumulate behind the breakwater at south beach. Before harbour works began in the 19th century, Caroline Bay was moderately deep, with a narrow mixed sand and gravel beach and a rocky sea floor. Since construction of the Port of Timaru started in 1878, the sand accumulating in the shelter of Caroline Bay causing the shoreline to advance seaward by more than 650 m. Caroline Bay represents the only sand beach along the 240 km long Canterbury Bight shoreline, which is dominated by gravel beaches. As a result of this build-up, the Waitarakao/Washdyke coastline to the north of the port is deprived of sediment which affects the size of the barrier beach enclosing Waitarakao/Washdyke Lagoon.

## Abiotic Systems and Landform

The narrow coastal plains of Timaru are backed by loess mantled soft rock hills and downlands on which the city is located. Patches of hard volcanic lava can also be found, for example at Smithfield, Dashing Rocks and Patiti Point, which originate from lava that erupted from Mt Horrible some 2-2.5 million years ago.

Waitarakao/Washdyke Lagoon occurs in a depression between the southern margin of the Ōpihi fan complex and the start of the South Canterbury downlands. It is separated from the sea by a 3 km long bar formed by the longshore drift of sand and gravel. The lagoon is fed by fresh water from the mouth of the Washdyke Creek. Stopbanks, drains and occasional artificial openings of the outlet and floodgates modify the water table in the lagoon. Lagoons of this type are created by high energy coastlines, forming steep beaches, however Waitarakao/Washdyke is in danger of inundation from the sea due to the lack of sediment supply reaching the barrier due to the reclamation of the port. As a result of these processes, the coastline north of Timaru is now much further inland than at pre-European times.

At Caroline Bay, flat sandy and sheltered shores lie below the rolling hills of Timaru. Below a small cliff, the bay provides coastal grasslands where many recreational facilities and events are located. Dashing Rocks are particularly notable as they contain a layer of dark, rough basalt topped with light, smooth loess material.

## **Terrestrial Biotic Systems**

The City of Timaru covers the majority of the terrestrial coastal environment, which has affected the terrestrial biotic systems of this area. There are however two areas of ecological interest, Waitarakao/Washdyke Lagoon and Caroline Bay.

<sup>&</sup>lt;sup>17</sup> Refer to *'Draft Marine Natural Character Study of the Canterbury Coastal Environment'* [BML, 2017] for information below MHWS.

Waitarakao/Washdyke Lagoon is a brackish, shallow coastal lagoon behind a gravel beach barrier. The wider wetland area is subdivided by stopbanks, with saltmarsh seaward of the stopbanks and freshwater wetlands on the landward side. The wetland around the margins of the lagoon is a mix of native and exotic vegetation. Native vegetation communities are mixed saltmarsh herbfields, Oioi rushland with marsh ribbonwood and sea rush, Lilaeopsis novaezelandiae herbfield, Caldwells clubrush reedland and three-square reedland. The lagoon is recognised as having nationally significant bird habitat and supports waders, waterfowl, gulls and tern species such as bittern, pied stilt, banded dotterel, grey teal, New Zealand shoveler, black-fronted tern and Caspian tern. Part of the area is a Wildlife Management Reserve.

The nearby Smithfield Rocks and Reef attract oystercatchers and turnstones.

At Caroline Bay, a newly established dune system supports a wide range of re-introduced native plants, including spinifiex, shore spurge and pingao, with a range of other native plants further inland. Little blue penguins have now established a colony in and around Caroline Bay (including Timaru Port and rock areas).

### Land Cover & Land Use

With the exception of Waitarakao/Washdyke Lagoon and Caroline Bay, the majority of land use in the coastal environment is urban and industrial, comprising roads, rail, port structures, residential and recreational facilities.

## Perceptual/ Experiential

The Timaru coastline is modified by urban development and the port, which reduces the perceived natural character of the built-up area. Caroline Bay is an integral part of Timaru's history. The popular recreation area has been a focal point of the town since the 19th century. An annual, two-week long, summer carnival is held at Caroline Bay which has been running for 100 years, attracting thousands of people to the bay. From the 1920's, trains from Christchurch and Dunedin bought people to Timaru to enjoy the safe waters of Caroline Bay. Today many events, markets and recreational facilities take place at the bay.

At Patiti Point and Dashing Rocks are archaeological sites including pre-European occupation sites with ovens. Remnants of a historic whaling station and settlement are also found on this headland. At Benvenue Cliffs, Blackett's Lighthouse is one of the coastal landmarks within Timaru. Waitarakao/Washdyke Lagoon's barrier beach is a popular location for fishing and whitebaiting. Smithfield and Patiti Point are known reliable offshore surfbreaks in this character area.

These are mapped with reference to Figure 27								
		Abiotic	Biotic		Ехр			
Area	Overall Rating	Abiotic Systems & Landforms	Terrestrial Biotic Systems	Land Cover & Land Use	Perceptual/ Experiential	Key Characteristics	Additional Comments	
Coastal strip including Ōrāri and Ōpihi River mouths	Low	Low	Very in urba pc Mode Carolin dun Hi, Waita Wash Lag	Low n area/ ort erate ne Bay nes gh rakao/ ndyke oon	Low	<ul> <li>Timaru Township forms the coastal hinterland and the majority of the coastal environment, including the reclaimed port land.</li> <li>While most of area is dominated by buildings, roads and other urban modification Caroline Bay retains natural values.</li> <li>Waitarakao/Washdyke Lagoon is a brackish, shallow lagoon contained by a long bar built-up of sand and gravel, formed by longshore drift of sediments with particularly high value as bird habitat. It has high natural character despite being highly modified.</li> <li>Caroline Bay has formed from sand that accumulated in the lee of the port reclamation area. The dunes have been replanted with native vegetation and penguins frequent the area.</li> <li>Reefs of volcanic rock can be found north and south of the port.</li> <li>Parts of the area are highly valued for its recreation opportunities, in particular the beach at Caroline Bay.</li> </ul>	The 'Marine' component at Timaru Township has low levels of natural character due to dredging, outfalls and reclamation areas, as mapped within the 'Draft Marine' Ecan Study 2017. Extensive urban/ industrial modification leads to an overall low rating with some areas of moderate to high natural character (Waitarakao/ Washdyke Lagoon and dunes of Caroline Bay). The coastal processes have been substantially modified through construction of the port and town.	
File Ref: C16037\_204\_A4P\_CNC\_Timaru.mxd



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#### 9.4 Coastal Terrestrial Area 4: Pareora



Photograph 19: View overlooking eroding coastal cliffs from Ellis Road.

#### Location and Key Characteristics

This coastal character area extends south from Patiti Point, south of Timaru, to the Pureora/Pareora River. The coastal environment is confined to a narrow coastal plain by the rolling downlands of South Canterbury. This coastal area includes several notable features along an otherwise homogenous sand and gravel coastline at the base of eroding seacliffs.

The northernmost section is characterised by the rocky reef outcrops of Te Motumotu/Mutu Mutu Point, Tuhawaiki/Jacks Point and Ōtipua Wetlands along Ōtipua/Saltwater Creek. Several coastal lagoons occur further south. The main south railway line extends alongside the boundary of this rolling coastal area, often skirting the western edge of the coastal environment.

#### Coastal Context

Lowland farming dominates land use in the coastal context. The rolling coastal downlands characterise the immediate hinterland of the coast south of Timaru. The smooth, rolling landscape has a scenic, rural character where views of the coast and hinterland can be experienced from small access roads. SH1 extends through this coastal context servicing the rural settlements of Normanby and Pareora, approximately 1-1.5 km from the coast. Views to the coastline from the highway are generally obscured, while the railway is in close proximity (100-500 m). Pareora is most noted for its freezing works near the coast which have been in operation since 1904, forming a significant node of modification in the coastal environment.

#### Active Coastal Interface<sup>18</sup>

The beaches of this coastline are comprised of the sand and gravel fan of the Pureora/Pareora River, alongside windblown loess material deposited during the last glaciations period. Beaches are short and steep with low storm berms and loess cliffs occur intermittently from Te Motumotu/Mutu Mutu Point south to Pureora/Pareora River.

The sand and gravel sediments of the river fans are exposed to high energy southerly swells resulting in erosion, although the erosion rate is not as high as within other parts of the Canterbury Bight. The steep beaches of this coastal area give way to a nearshore bed, part of the almost flat, low gradient, sandy continental shelf which extends up to 800km east of Canterbury.

The Pareora hapua lagoon north of the river mouth is contained by a gravel bar which opens to the sea during high river flows and high energy storm events.

#### Abiotic Systems and Landform

Low alluvial depressions are separated by the higher rolling country and continual shingle ridges separate the shoreline from the coastal hinterland. The rocky reefs at Te Motumotu/Mutu Mutu Point and Tuhawaiki /Jacks Point are some of the only rocky reefs in southern Canterbury. The reefs comprise a basalt flow, originating from Mt Horrible, 16km inland.

The dunes on the inland side of the gravel beaches have been substantially modified in a number of areas through the construction of the railway in close proximity to the coast. Railway line embankment and groynes have raised and stabilised the beach barrier at Normanby Lagoon where the occasional artificial opening of the outlet influences the water depth. Te Wharetawhiti/Pig Hunting Creek is a smaller brackish coastal lagoon with saltmarsh vegetation on the margin that is also artificially opened to the sea on occasions.

#### **Terrestrial Biotic Systems**

Ōtipua Wetland is located adjacent to SH1, immediately south of Timaru. It surrounds Ōtipua/Saltwater Creek and was once a 60-70 ha entrapped lagoon. Today the wetland extends inland for approximately 1km and forms a vegetated corridor on both banks of Ōtipua/Saltwater Creek. The wider wetland is mostly freshwater wetland, but the small coastal lagoon north of the Ōtipua/Saltwater Creek mouth is brackish. The main vegetation communities are flaxland, reedland and saltmarsh vegetation, including oioi and areas of exotic species. Artificial opening of the outlet and weirs modify the water table in the remaining wetland. Vegetation restoration efforts have transformed the wetland into an

<sup>&</sup>lt;sup>18</sup> Refer to 'Draft Marine Natural Character Study of the Canterbury Coastal Environment' [BML, 2017] for information below MHWS.

important habitat for birds and lizards. The area supports waders, breeding waterfowl, gulls and cormorants, and marsh crake have been recorded in the past. With restoration efforts the habitat value will improve.

South of Tuhawaiki Point a small dune slack wetland contains native Caldwells clubrush reedland, glasswort herbfield and three-square reedland where a small stream extends towards the coast. Some of the wetland extent has been lost due to pasture development. Culverts and the railway embankment, vegetation clearance and water abstraction reduce both upstream and downstream connectivity for this wetland.

Normanby Lagoon, located north-east of the small township of Normanby, is a shallow slightly brackish coastal lagoon that provides moderate habitat for small numbers of typical waterfowl, waders and pukeko. The relative extent of lagoon water and vegetated herbfield margins varies and increases in the extent of the lagoon improve the habitat for these bird species. The main vegetation communities around the margins of the lagoon are native saltmarsh herbfields (with bachelors button, native musk, Lilaeopsis novae-zelandiae and glasswort) and Caldwells clubrush reedland.

Along the Pareora Coast (between Te Wharetawhiti/Pig Hunting Creek and the freezing works) are several small wetlands that have been modified by the railway embankment, culverts and drains. The change to their water table has been minimal, but some of the wetland areas are grazed and weeds are encroaching. However, there are areas of glasswort herbfield in the lower parts of some of the smaller streams along the Pareora coast, including Te Wharetawhiti/Pig Hunting Creek.

Stopbanks, willows and other weeds at the Pureora/Pareora river mouth line the river bank and obstruct the majority of views out of the river bed. The lagoon at the mouth currently extends to the south without breaching the beach barrier most of the time. Freshwater wetlands with willow forest, raupo reedland and flax extend north as far as the freezing works. The area provides regionally important habitat for wetland bird species, including bittern, marsh crake and grey teal.

#### Land Cover & Land Use

Land use within this narrow coastal area is dominated by mixed use farming operations on the rolling downlands and low-lying depressions, including dairy, sheep and beef farming as well as cropping. Farmland extends from the hinterland often close to the cliff edge or dunes/ railway stopbank along the gravel beaches. Generally, the farmland in the coastal context is high producing with some irrigation. Long stretches along this coastline are covered in lupin, rough grass and gorse, with wetlands associated with the lagoons and streams that support some native vegetation. A large coastal outfall is located at the Pareora abattoir, which creates a plume of discoloured discharge into the sea.

#### Perceptual/ Experiential

Tuhawaiki/Jacks Point is a popular spot for reef fishing and good surfing opportunities are provided by southerly waves (both at Jacks Point and Lighthouse Reef). Game birds are hunted

adjacent to the Ōtipua Wetland on freehold land. Coastal walk and cycleways extend through Ōtipua/Saltwater Creek Wetland, and connect Patiti Point with the Tuhawiki Point Lighthouse providing excellent long-distance views along the coast line from elevated viewpoints. The lower Pureora/Pareora River has high recreational use including four-wheel driving, fishing, swimming and picnicking.

This coastal area also has a number of historical sites of significance, including the lighthouses at Jacks Point. At Tuhawaiki/Jacks Point, Te Motumotu/Mutu Mutu Point, Te Wharetawhiti/Pig Hunting Creek and Normanby Lagoon, there are a number of archaeological sites including pre-European occupation sites, moa bones and ovens. The Lighthouse is also of historic interest.

These are ma	ped with	n reference	e to <b>Figur</b>	e 28			
		Abiotic	Biotic		Ехр		
Area	Overall Rating	Abiotic Systems & Landforms	Terrestrial Biotic Systems	Land Cover & Land Use	Perceptual/ Experiential	Key Characteristics	Additional Comments
Coastal strip including Ōtipua/Salt water Creek, Jack's Point, Normanby Lagoon and Pureora/Par eora River mouth	High	High	Mode	erate	High	<ul> <li>Te Motumotu/Mutu Mutu Point and Tuhawaiki/Jacks Point are some of the only rocky reefs in South Canterbury</li> <li>Sweeping shingle beaches and ridges contrast sharply with the adjoining sea cliffs</li> <li>Contains strong horizontal lines, especially the shingle beaches</li> <li>Presence of bird life and waterfowl around the fringes of the lagoons and estuaries.</li> <li>Important wetland habitat with a range of native plant communities.</li> <li>Recreational opportunities include surfing and fishing, as well as walking and cycle ways along the coast and wetlands.</li> </ul>	The 'Marine' component retains High levels of natural character, as mapped within the 'Draft Marine' Ecan Study 2017. The beach, sea cliffs and dunes, as well as lagoons and wetlands within the terrestrial coastal environment in this character area are mapped as high in natural character. Modification to land use on the undulating downlands has led to lower

**Coastal Terrestrial Area 4- Pareora: Specific Characteristics** 

	<ul> <li>Railway line often within, or in close proximity to, the coastal environment</li> </ul>	natural character in these binterland
	environment.	areas.



### 10.0 Pressures and Threats to Timaru's Landscapes

The Timaru District Landscape Study 2017 has identified a number of Outstanding Natural Features and Landscapes (ONF/L) as required by the RMA Section 6b. These areas contain a range of landscape values that are considered to be 'outstanding' at a district scale.

As part of the study there has been identification of potential pressures and threats, which may adversely affect these landscapes and their values. All of the outstanding natural landscapes and features identified are highly sensitive to change and should be carefully managed through rules in the District Plan, in order to protect the 'outstanding' landscape values. This section of the report links the landscape sensitivities and threats to particular areas in table format, following a discussion of the landscape effect that can be expected from common activities. The development of planning mechanisms, also undertaken by BML as part of the District Plan Review, will be informed by this analysis.

The Upper Rangitata Catchment, Peel Forest, Four Peaks Range and various limestone/basalt escarpment landscapes are subject to differing pressures, which are outlined and addressed below. At a generic level, landscape change is often, but not always, brought about by economic drivers. For example, traditional pastoral farming activities and the relatively recent large-scale conversions to dairy farming have strongly influenced and shaped Timaru's plains landscapes and will continue to lead to changes in the rural environment. Forestry is another important industry for the district with large commercial plantation forests on parts of the downlands and foothills, in particular Kakahu Forest in the western part of Timaru.

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;
- housing is developed in locations that detract from open and natural characteristics or in more intensive clusters that contrast with the mosaic pattern or open coastal character that currently exists; rural lifestyle developments can alter the rural landscape characteristics and productive land use potential, in particular on the plains;
- planting, including shelterbelts and forestry, and/or structures obscure or alter the outline of natural landforms;
- 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.

#### 10.1 Earthworks

Earthworks can leave exposed and cut surfaces which often contrast with surrounding vegetation and natural contours. In particular, if earthworks are carried out on slopes, such as for tracking purposes, the scarring can be visually prominent with an adverse effect on the surrounding 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 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.

Large scale earthworks can include but is not limited to quarrying, land development and roading. Quarrying within ONF/Ls should generally be avoided as the land, buildings, plant for the purpose of extracting natural materials, storage and transportation could lead to significant visual and physical effects that causes degradation of landscape values.

#### 10.2 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 and intensification 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 with the associated introduction of structures and change of land cover (eg dairy conversion), subdivision, or from incremental development over time, such as sprawl or 'creep' of development 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 between natural features and elements could be affected. The proliferation of structures in a landscape can lead to 'visual clutter' that detracts from its underlying character, leading to a dominance of man-made elements over the natural patterns.

It is unlikely that some parts of the identified ONF/Ls in the district would be intensively developed for residential use due to their remoteness and often difficult access.

Ridgelines are particularly sensitive to the location 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, backcountry huts, ski fields or other tourism developments and associated infrastructure, etc. Utilities can include hydro dams, irrigation canals/ irrigation structures, telecommunication towers, electricity pylons, wind turbines, masts and solar panels.

When considering the effects of buildings and structures within an ONF/L, 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 ONF/L, with specific consideration of ridgelines;
- 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, limestone 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 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;

#### 10.3 Removal of Indigenous Vegetation and Vegetation Change

In some landscapes, it is the vegetation that contributes strongly to the area's landscape values. This can include exotic planting where it is of a smaller scale and has been planted in harmony with the topography and land cover features present in the landscape. In most cases, it is however the presence of indigenous vegetation which contributes to the landscape values. The loss of this vegetation may have significant landscape and visual effects and could diminish the intactness of an ONF/L. Although plantation forest, and dense stands of wilding pines, can devalue a landscape or feature, the areas can (in combination with other attributes of the landscape), collectively meet the threshold of being 'outstanding' if the natural elements dominate. This could apply to the impressive Rangitata Basin or to the higher elevation areas of the Front Ranges that continue to have particularly high landscape values relating to the legibility of the mountainous landform, although measures to avoid or remove such detractors may also be explored.

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/L, including species composition
- The overall natural character of an area, including its natural elements, patterns and processes;
- Indigenous ecosystem integrity and function, and habitat value;
- Cultural values;
- Natural character associated with the coast, a water body or wetland.

# Planting and Vegetation (including plantation forestry, viticulture, woodlots, shelterbelts and amenity planting)

Planting 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, which generally contain a variety of plants of different age, size, colour and texture, which follow the natural terrain with more natural edges and transitions.

The landscape effects of the larger scale, commercial plantation forests can also include the creation of access tracks and visual scaring of the landform during harvesting, especially in steep terrain. 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. It is accepted that amenity planting and indigenous re-vegetation tends to avoid a large scale and uniform layout.

While small-scale woodlots, shelterbelts and erosion control planting may be widely accepted in sensitive landscapes, large scale commercial forestry could lead to significant visual and physical effects that cause degradation of landscape values. The creation of unnatural lines could have effects on the naturalness and legibility of outstanding landscapes, including viticulture. While there may be appropriate locations for smaller scale vineyards, it is recommended to control establishment of new vineyards within ONF/Ls- even though this may not be a viable land use within Timaru District.

Location, visibility and encroachment (physical and visual), are important considerations on outstanding natural landscapes which would result in the visual obscuring of these landscapes. Sky-lining (plantings appearing on the skyline when sited on ridgelines) may also present an unnatural contrast which is inappropriate in outstanding landscapes. Consideration of cumulative effects when assessing the scale of planting may also assist in avoiding physical encroachment of trees in outstanding natural landscapes.

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, treatment of edges and pattern;
- The extent to which the planting follows the natural vegetation patterns;
- Relationship to other areas of forestry and the potential for cumulative effects on landscape values;
- Potential to obscure or encroach upon important landforms;
- Location and visibility of tracks (covered by earthworks matters); and
- The purpose of the planting and harvest cycles.

#### 10.4 Threats to Visual Amenity Landscapes

While visual amenity landscapes (VALs) do not reach the threshold of being identified as ONF/Ls, they hold high amenity and environmental values. Therefore, protection from certain activities based on visual change is still required.

Often, these effects are 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. While VALs may contain a higher level of modification than ONF/Ls they often provide a sense of openness with a strong visual connection to adjacent ONF/Ls (eg Rangitata Flats) and at times provide a link or buffer near/ between ONF/Ls, as is the case for the VALs in the Four Peak Range of Timaru.

Consideration should be given to the following values to retain the visual amenity:

- Keep visual coherence, perceived naturalness and overall openness;
- Avoid large buildings/structures and avoid clutter from man-made elements in the landscape;
- Limit subdivision as this leads to expectations of buildings and carving up of the land with "visual divisions" occurring;
- Limit earthworks and quarrying;
- Avoid intensification or change of farming use;
- Limit shelterbelts and forestry due to the linear form and interruption of important viewshafts e.g. to nearby ONF/Ls.

Outstanding	Key Sensitivities	Potential adverse	Comments
Natural Feature	relating to	effects of activities	
and Landscape	Identified values	on identified values	
Upper Rangitata Catchment ONL	Visual sensitivity of the openness and vastness of the ONL	<ul> <li>Earthworks (of a significant scale);</li> <li>Quarrying;</li> <li>Buildings and structures;</li> <li>Subdivision;</li> <li>Utilities;</li> <li>Forestry and shelterbelts;</li> <li>Encroachment of weeds (including wilding pines);</li> <li>Change and intensification in farming practices (i.e. overgrazing and dairying), especially on open grassland areas on stream 'fans', including irrigation infrastructure</li> <li>Native vegetation clearance.</li> </ul>	<ul> <li>Development may adversely affect the landscape values.</li> <li>Small scale buildings and structures may be appropriate and consideration of these should include location, size, colour, scale and access.</li> <li>Character of buildings to be considered (eg farm buildings).</li> <li>Clustering around existing structures may be appropriate.</li> <li>All new land uses that lead to a visual difference in the landscape should be assessed in relation to their adverse landscape effects.</li> <li>Specifically, the following should be controlled:</li> <li>Land use intensification which 'greens' the landscape creates unnatural lines and contrast; visual clutter and interruption of open views through irrigation structures</li> <li>New earthworks of a significant scale or quarrying are likely to lead to adverse visual effects and modification of the natural landform;</li> <li>New plantation forestry, shelterbelts or wilding pines lead to a loss of openness and creation of unnatural lines.</li> <li>Ridges, peaks and elevated slopes are particularly sensitive and should be protected from adverse effects of structures.</li> <li>All existing indigenous vegetation should be protected and opportunities for</li> </ul>

#### Table 7– Specific sensitivities to certain Outstanding Natural Features & Landscapes

Outstanding Natural Feature	Key Sensitivities relating to	Potential adverse effects of activities	Comments
and Landscape	identified values	on identified values	
			enhancement and restoration pursued.
	Native vegetation (Te Kahui Kaupeka Conservation Park, Rata Peaks Conservation Area)	<ul> <li>Native vegetation clearance.</li> <li>Earthworks (of a significant scale);</li> <li>Quarrying;</li> <li>Buildings and structures;</li> <li>Utilities;</li> <li>Forestry;</li> <li>Biodiversity through exotic flora/ fauna invasion</li> </ul>	All existing indigenous vegetation should continue to be protected and opportunities for enhancement and restoration pursued. Intensification of farming and forestry in areas that currently contain open characteristics through landform and land cover should be avoided. Introduction of weeds and wilding pines onto the braided river bed and on open slopes poses a risk for native vegetation and wildlife; Encroachment of human modifications can adversely affect sensory values and can add visual 'clutter' to the landscape which affects visual coherence and the perceived naturalness of the area.
Peel Forest and	Visual sensitivity of	• Earthworks (of a	Development may adversely
Four Peaks Range ONL	the ONL	<ul> <li>significant scale);</li> <li>Quarrying;</li> <li>Buildings and structures;</li> <li>Subdivision;</li> <li>Utilities;</li> <li>Forestry and shelterbelts;</li> <li>Wilding Pines;</li> <li>Structures (incl dams) on rivers with headwater in range;</li> <li>Clearance of open native vegetation.</li> </ul>	affect the landscape values. Tracking in areas that are visually sensitive should be avoided. Small scale buildings and structures may be appropriate and consideration of these should include location, size, colour, scale and access. Ridgelines of mountain range are visible from long distances and particularly sensitive to visual effects from structures (skylines). All new land uses that lead to a visual difference in the

Outstanding Natural Feature and Landscape	Key Sensitivities relating to identified values	Potential adverse effects of activities on identified values	Comments
and Landscape	identified values	on identified values	<ul> <li>relation to their adverse landscape effects.</li> <li>Specifically, the following should be controlled: <ul> <li>Land use intensification which 'greens' the landscape creates unnatural lines and contrast; visual clutter and interruption of open views through irrigation structures</li> </ul> </li> <li>New earthworks of a significant scale or quarrying are likely to lead to adverse visual effects and modification of the natural landform;</li> <li>New plantation forestry, shelterbelts or wilding pines lead to a loss of openness and creation of unnatural lines.</li> </ul> Ridges, peaks and elevated slopes are particularly sensitive and should be protected from modification. All existing indigenous vegetation should be protected and opportunities for
			enhancement and restoration pursued.
	Native vegetation (Mt Peel/Waikari Hills Conservation Area)	<ul> <li>Native vegetation clearance.</li> <li>Earthworks (of a significant scale);</li> <li>Quarrying;</li> <li>Buildings and structures;</li> <li>Utilities;</li> <li>Forestry;</li> </ul>	All existing indigenous vegetation should continue to be protected and opportunities for enhancement and restoration pursued. Mt Peel Forest and other forest/ bush remnants in this character area are of particularly high value;
Dashing Rocks ONF	Coastal cliffs and Dashing Rocks coastal platform	<ul> <li>Coastal erosion and associated</li> </ul>	Any coastal erosion mitigation measures should be considered in the context of the feature

Outstanding Natural Feature and Landscape	Key Sensitivities relating to identified values	Potential adverse effects of activities on identified values	Comments
		mitigation measures	and perceptual/natural/sensory values associated with it.
	Dashing rocks loess and basalt coastal platform and walkway	<ul> <li>Recreational access, facilities and development</li> </ul>	Any recreational activities associated with Dashing Rocks cliffs, including the beach and coastal platform should consider the implications of human modifications. Encroachment of human modifications adversely affect biophysical and sensory values, including the perceived naturalness of the area.
All ONFs, including Kakahu Bush, Hanging Rock, Limestone Valley escarpment, Mt Horrible escarpment and Dashing Rocks ONF	Visual sensitivity of the ONF	<ul> <li>Earthworks (of any scale including tracking);</li> <li>Quarrying;</li> <li>Buildings and structures;</li> <li>Utilities;</li> <li>Forestry;</li> <li>Indigenous vegetation clearance</li> </ul>	Development may adversely affect the landscape values. Earthworks/ quarrying are direct biophysical effects that may affect the values of the landform, habitat and vegetation. Location of structures/ buildings on or near the ONF is likely to have adverse visual effects and on integrity of the landform. Forestry may reduce the legibility of the escarpment landforms and introduction of unnatural lines. Tracking may introduce unnatural lines that detract from the coherence of natural landforms. All new land uses that lead to a visual and biophysical difference in the landscape should be controlled to avoid adverse landscape effects.

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### Appendix 2: 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 Timaru, with land areas encompassing major parts of the Southern Alps, including Te Kahui Kaupeka Conservation Park and Peel Forest.

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 Māori 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

## Appendix 3: Natural Character Concepts and Evaluation Matrix

#### A. Case Law Guidance on "Naturalness"

Recognising a lack of guidance, BML, with the assistance of ecologists and landscape architects determined that ecologists' and landscape architects' views of 'natural' and 'naturalness' are complementary yet sufficiently different to warrant further clarification. Ecologists interpret natural character in terms of indigenous attributes and take a broader view that can encompass both indigenous and exotic natural attributes. Accordingly, the thresholds of naturalness differ and a refined definition of 'naturalness' was agreed as being:

"A measure of the degree of human modification of a landscape/ seascape or ecosystem expressed in terms of:

- i) ecological naturalness (indigenous nature); and
- ii) landscape naturalness (perceptions of nature)."

The naturalness concept was discussed within the Mackenzie District Plan Change 13 Appeal Decision<sup>19</sup>, where the court restated the principle that perceptions of naturalness under the RMA are a "cultural construct" and "vary with the beholder". Whilst natural science factors are important in underpinning the term, they should not be given undue weight at the expense of experiential and associative (i.e. recreational) factors.

This construct was also reiterated within the Port Gore mussel farm decision<sup>20</sup>. Here the Judge considered that naturalness *"is an anthropomorphic concept*". The Court noted that "a scale of naturalness of habitats is not the same as a scale of naturalness of landscapes or natural character of the coastal environment".

For the purposes of this report, the term 'natural' is interpreted slightly differently for use in the terms 'natural' character and 'natural' landscapes. Natural as in 'natural character' is inferring a bias towards the natural science attributes with some experiential aspects, whilst natural as in 'natural landscapes' is referring more to the visual or aesthetic aspects of naturalness (i.e. it looks natural) rather than ecological intactness.

#### B. NZCPS and Pertinent Court Decisions

Since the inception of the NZCPS in December 2010, there have been numerous court decisions that have attempted to provide further clarity around Policy 13 (Natural Character).

Of the many, the most pertinent is a Supreme Court decision (NZSC38) in April 2014 on two appeals in relation to salmon farms in the Marlborough Sounds focussed the attention on the

<sup>&</sup>lt;sup>19</sup> High Country Rosehip Orchards Limited and Mackenzie Lifestyle Limited and Ors v Mackenzie District Council. Decision No. [2011] NZEnvC 387

<sup>&</sup>lt;sup>20</sup> Decision No (2012) NZEnvC 72. 26th April 2012 (paragraphs 66 – 67)

underlying policies (in this case the NZCPS), particularly in relation to directive policies that require the avoidance of effects. The essence of the decision clearly provides strong direction to avoid adverse effects on Outstanding Natural Character and Outstanding Natural Landscapes in the Coastal Environment. The decision states that where policy direction states 'avoid' certain effects, essentially this is what should occur. The implications of this decision have yet to be fully determined and further guidance on this will develop over time.

#### C. Evaluation Matrix for Natural Character

An evaluation matrix was developed for the marine areas to provide clarity and consistency for the assessment of the level of natural character for each attribute. Refer to **Table 7** below:

Table 7: Coas	Table 7: Coastal Terrestrial Areas – Area B Evaluation Matrix								
Degree of	Very High	High	Moderate -	Moderate	Moderate -	Low	Very Low		
Natural			High		Low				
Character	Dana	Manyanall	Cruellesele	Madavata	Franciscot		Marri		
ADIOTIC	- Kare modification /	- very small levels of	- Small scale	- Moderate	- Frequent	- Large areas	- very		
aeomornholoav	structures	modification	limited	modification/	/several	modification/	modification		
Hydrology	- Dynamic	/ isolated	structures	several	structures	structures	/ large		
Climatic	processes	structures	- Dynamic	structures	- Some natural	and or	reclamation		
influences.)	virtually	- Dynamic	processes	- Dynamic	processes	reclamation	- Few or no		
	Intact.	processes	generally	processes still	capable of	- Some key	natural		
		largely	intact with	apparent	recovery	natural	elements,		
		intact	some	- Freshwater	- Freshwater	processes	patterns,		
		- Freshwater	interference	quality	quality	are no longer	processes		
		quality very	- Freshwater	moderately	markedly	able to	remain		
		slightly	quality	modified	modified	operate	- Freshwater		
		modified	modified			- Freshwater	quality		
			mounieu			modified	modified		
Biotic	- Exotic biota	- Exotic biota	- Exotic biota	- Exotic and	- Exotic and	- Exotic and	- Exotic and		
(Land cover	may occur	may occur and	common	invasive biota	invasive biota	invasive	invasive biota		
, (indigenous /	but virtually	invasive biota	with few	regularly	common	biota	dominate		
exotic species)	no invasive	rare	invasive	present	-Many	very	-Expected		
Indigenous	species	-Virtually all	species	-Some	expected	common	species		
biota	- Virtually all	expected	- Virtually all	expected	species	-Most	virtually		
Estuaries,	expected	species	expected	species	absent with	expected	absent		
freshwater	species	present and	species	absent with	marked	species	-Only the		
Communities	present and	population structure is	present with	moderate modification to	to population	absent with	most nardy or		
	nonulation	largely	modification	nonulation	structure	nonulation			
	structure	unmodified	to population	structure	-Species and	structure	-Original		
	virtually	-Very likely to	structure	-A few species	habitats of	highly	ecosystem		
	unmodified	contain	-Some	and habitats	high	modified	functions rare		
	- Contains	species and	species and	of high	conservation	-Species and	or absent		
	species and	habitats of high	habitats of	conservation	value rare	habitats of			
	habitats of	conservation	high	value	-Most	high			
	high	value	conservation	-Some	ecosystem	conservation			
	conservation	- Almost all	Value	functions	functions	Value absent			
		functions intact	- IVIUSL	varving		-rew original			
	functions	Tunctions intact	functions	varying	natural	functions			
	virtually		intact		range	remain			
	intact								
Experiential	-	- Predominantly	- Frequent	- Opportunities	- Limited	- Rare sense	- No sense of		
(Views, sounds	Overwhelming	wild and	sense of	to experience	sense of	of wildness	wildness,		
and smells of	sense of	remote	wildness and	Wildness and	wildness or	or intact	remoteness		
the sea; Sense	wildness and	- Limited	remoteness	remoteness	remoteness	ecosystems	or intact		
of wildness and	remoteness -	numan	- Some	- Ubvious	- Strong	- Built	ecosystem		
intactness	influence	interrerence	interference	influenco	influenco	clearly	- BUIIT		
mucinessy	mildence		interrerence	indence	innuence	apparent	dominates		

When determining the overall natural character evaluation at the area scale, the methodology that has been developed uses a greater weighting given to natural science attributes, which encompass abiotic and biotic values, compared with experiential values. This recognises that natural character is a condition rather than a quality or value; it exits regardless of experiential attributes.

The priority ascribed to natural science attributes in the NZCPS 2010 recognises that natural character is primarily based on a condition that can be described with natural scientific

methods. Experiential attributes are important contributing factors to a natural character assessment. However, they are more subjective and can be perceived differently by different people and over different timescales. Therefore, it is appropriate to base assessments of natural character primarily on natural science methods which may be more enduring and also more transparent.

### Appendix 4: Geopreservation Site Index Table

New Zealand has a unique and extremely diverse natural landform, geology and soil heritage, due to its location and formative processes. The Geological Society of New Zealand (Hayward, B.W; Kenny, J.A (1998) Inventory and Maps of Important Geological Sites and Landforms in the Canterbury Region, including the Chatham Islands (Geological Society of New Zealand Miscellaneous Publication 98) has identified and listed information regarding the internationally, nationally and many of the regionally important earth science sites throughout the country, irrespective of their current protected status.

Within the Timaru District there are 21 recognised sites of geological importance, ranging from geological faults, volcanics, fossils and Māori rock drawings. Whilst the majority of these sites/ landscapes have been mapped by hand by the Society in their reference books, they have been indicated by locator spots for this study on **Figure 3**.

Each Site is listed for its Importance and Significance.

For Importance, the Inventory categorises the Sites into three levels (A-C):

- A: International: Site of International Scientific Importance;
- B: National Site of National Scientific, Educational or Aesthetic Importance;
- C: Regional: Site of Regional Scientific, Educational or Aesthetic Importance;

For Vulnerability, each Site has been classified (1-5) depending on its perceived vulnerability to human activities:

- 1. Highly vulnerable to complete destruction or major modification by humans;
- 2. Moderately vulnerable to modifications by humans;
- 3. Unlikely to be damaged by humans;
- 4. Could be improved by humans activity;
- 5. Site already destroyed (not necessarily by human activity).

Tab	Table 8: Geopreservation Sites within Timaru District								
₽	Name	Significance	Description	Locality	Importance	Vulnerability			
1	Dashing Rocks loess, Timaru	Internationally famous loess section - the site where John Hardcastle observed and was 75 years ahead of anyone else in the world in describing loess stratigraphy and recognising the sequence as a record of past climates. Here he also was the internation	Proposed as the type section for the New Zealand loess - the reference section to represent loess in New Zealand (Raeside, 1964). Thick loess overlies columnar jointed Timaru Basalt forming the foreshore.	Dashing Rock coastal cliffs at north end of Caroline Bay, Timaru.	A	2			
2	Carneys Creek Triassic Torlesse macrofossils	Rich Torlesse macrofauna.		Tributary of Carneys Creek, Havelock Branch of Rangitata Valley.	В	3			
3	Evans Crossing Eocene macrofossils	Diverse mid Eocene macrofauna in New Zealand, in glauconitic sandstone.		Pareora River, downstream from Evans Crossing.	В	2			
4	Haehae Te Moana Permian fossils	Richest Permian fauna in Torlesse rocks.		Near Geraldine, on small ridge crest above Haehae Te Moana River.	В	3			
5	Kakahu Marble Carboniferous locality	Only known Carboniferous sedimentary rocks in New Zealand. Dated by conodonts.	Pale grey crystalline (marble) limestone with conodonts. Allochthonous within Torlesse.	Quarry near Kakahu, south coast, 40 km northwest of Timaru.	В	3			
6	Kakahu River Eocene molluscan fossils	Diverse Bortonian molluscan fauna.		Junction of Bush Creek flowing into Kakahu River.	В	1			
7	Ōpihi Lagoon and Harakeke Tautoro Island	An excellent example of a mixed sand and gravel barrier island enclosing a rare distinctive type of lagoon.	A combination of long-shore drift and erosional coastal processes has produced a series of lagoons impounded by coastal gravel barriers, including Harakeke Tautoro Island. The coastline is retreating westwards so that the curved barrier-dammed lagoons no	Ōpihi River mouth, Milford Lagoon and other lagoons to the north impounded by Harakeke Tautoro barrier island, 15 km up the coast from Timaru.	B	2			
8	Ōpihi taniwha rock drawing	Well known prehistoric art site in South Canterbury.	Drawn in charcoal onto the ceiling of a rock shelter. Composition is 5 m long.	Ōpihi River. Grid reference is for track	В	2			

				entrance from Gould Boad		
9	Ōrāri River mouth oxbow lagoons	Curious and unusual oxbow remnants now forming coastal lagoons.	Remnants of former Ōrāri River meanders, north of the present Ōrāri River mouth, are now exposed to coastal processes due to the retreat westwards of the shoreline. Erosion and long-shore drift have formed hapua features adjacent to the coastline that in	From Ōrāri River mouth northeastwards for 2.5 kilometres.	В	2
10	Pareora River Miocene molluscan fossils	Diverse well-preserved molluscan fauna.		At foot of Mt Horrible. In soft siltstone.	В	3
11	Rangitata ice- margin features	A complete sequence of glacial features on valley side slope providing a record of ice levels during glaciation and deglaciation intervals in the Rangitata.		North side of Forest Creek tributary of Rangitata River (J36/366195- 446257).	В	3
12	Sutherlands Miocene molluscan fossils	Diverse well-preserved Altonian molluscan fauna.		Succession of shell beds about 100 m long, lower Tengawai Valley. Outcrop in face of old terrace, well above river level.	В	3
13	Crooked Spur moraines	Large latero-terminal moraines of a Pleistocene valley glacier, best preserved example in the Two Thumb Range on the south side of the Rangitata River.		Crooked Spur, Bush Stream, Rangitata River.	С	3
14	Kakahu Bush lime kiln	Well preserved example of 1880s lime kiln.	Five lime kilns originally, one survives. Built in 1881, from local limestone.	Hall Road, off State Highway 79, Geraldine.	С	2
15	Mt Horrible volcanics	The youngest volcanics in the South Island.	A 25 m sequence of olivine basalt lava flows at the easternmost limit of the Timaru Basalt.	Around Mt Horrible, 15 km west of Timaru.	С	3
16	Pareora Gorge pillow lava and banded chert	Excellent example of pillowed metabasalt and associated banded chert and argillite with rare manganaxinite disseminations.	Epidotised and chloritic pillows with variolitic margins surrounding a lensoidal body of metadolerite. Unit includes banded chert and argillite.	In lower Pareora Gorge around sharp U bend, 2 km east of Motukaika.	C	2
17	Rangitata outwash terraces	Excellent example of outwash river terracing (up to 7 in places)		Rangitata River, downstream from Rangitata Gorge for at least 10 km.	C	3

18	Rangitata River mouth hapua	One of the best examples of a fluvial-dominated spit- lagoon (hapua) along the Canterbury Plains coastline.	Hapua are coast-parallel, predominantly fresh water wetland-lagoon systems impounded by a long, narrow spit of coarse sediments formed by long-shore drift offsetting the river mouth. The Rangitata River mouth demonstrates fluvial-induced barrier breaches	On the coast 40 km southwest of Ashburton and 18 km northeast of Temuka.	C	2
19	St Anne's Church, Pleasant Valley	Rare, if not unique example of cob construction in a church in New Zealand.	The oldest church in South Canterbury, constructed of timber and cob in 1863.	Pleasant Valley, South Canterbury.	С	2
20	St Mary's Church, Timaru	Most prominent building made of Timaru Basalt.	Built in 1910. Walls of Timaru Basalt, facings of Oamaru Stone.	Corner of Sophia and Church Streets, Timaru.	С	2
21	Timaru fossil forest	Good example of a late Quaternary fossil forest.	Stumps in situ and fallen trunks in peat. Exhumed at low tide.	At low tide on coast, 3km north of Aorangi Rd and 2.5 km south of Beach Rd.	C	2

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