



Hurunui District

Coastal Study

LANDSCAPE ADVICE FOR DISTRICT PLAN REVIEW

FINAL REPORT FOLLOWING CONSULTATION | JANUARY 2015

Hurunui District Coastal Study

PREPARED FOR HURUNUI DISTRICT COUNCIL (HDC)
BY BOFFA MISKELL LIMITED
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Introduction

Hurunui District Council (HDC) has engaged Boffa Miskell (BML) landscape planners in 2013 to provide advice on landscape related aspects of their District Plan review. This report has been prepared by BML Landscape Planner Yvonne Pfluger to assist with identification of coastal landscapes under sections 6(a) of the RMA for the proposed Hurunui District Plan.

HDC was seeking advice on natural character and landscape issues in its coastal environment to fulfil the requirements under the New Zealand Coastal Policy Statement (NZCPS, 2010). This includes the identification of the coastal environment and an assessment of its natural character values in order to identify the coastal areas that may be considered as having high or outstanding natural character under the NZCPS 2010. The areas in the coastal environment identified as outstanding in terms of their natural character are referred to as “Outstanding Natural Character Areas” (ONCs).

In addition, BML has also been tasked with a review of the Outstanding Natural Landscapes (ONLs under RMA s6(b)) currently identified in the Hurunui District Plan as part of a separate stage of work. The review of Outstanding Natural Features and Landscape (ONF/L) boundaries within the District has informed a separate report, which has also been provided to council in its final draft version in January 2015 (see Appendix 2 for map). The findings in the study “Landscapes of the Hurunui District” prepared by Lucas Associates (1995) formed the basis for ONL identification in the current Hurunui District Plan with boundary adjustments for some areas as part of submission/appeal processes for the Operative Plan.

As part of the current district plan review, extensive pre-notification consultation with land owners has been undertaken on the proposed ONLs as well as on the extent of the coastal environment. The consultation with land owners has been undertaken by council in 2013-2014 with site visits to a total of 30 properties. The consultation process enabled council staff and the BML study team to discuss initial desktop findings on the extent of the coastal environment and the assessment of natural character with affected land owners. This provided an invaluable opportunity to undertake on-site assessments of the landscape in otherwise inaccessible areas. In some instances the site visits and land owner consultation provided input into the coastal study and the ONL review at the same time, if the proposed ONLs were located in or near the coastal environment. The amended outlines for ONLs and the Coastal Environment shown in the two reports (Coastal Study and ONL Review) are based on on-site findings, where site visits were requested.

The landscape as we see it today is a product of both natural processes and several centuries of human occupation. Ongoing land use change and constantly evolving agricultural practices reflect economic efficiency and human needs at the time. Landscapes are dynamic and will continue to evolve, while both natural and cultural features remain as evidence of past processes. While it is difficult to anticipate future land use development and pressures for change in the landscape, it is considered essential to provide for human needs as well as sustainably manage the existing landscape values. This report helps to identify the natural character values of the Hurunui coastal landscape that require a level of protection from inappropriate subdivision, use and development (Objective 2, NZCPS 2010). While this does not mean that landscape change in general may be inappropriate in these areas, it is likely that the coastal landscapes with particularly high natural character identified in this report are generally more vulnerable to extensive human intervention and have lower ability to absorb change than other rural landscapes.

Large-scale land use change, such as development of subdivisions, forestry plantations, substantial earthworks and native vegetation removal, have an impact on the landscape that extends beyond the immediate surroundings. The introduction of man-made elements in the form of structures and the creation of unnatural patterns and lines can lead to degradation of the existing visual quality and landscape/ natural character values, such as intactness of legible landforms and native vegetation cover. The district plan aims to manage these irreversible impacts on the landscape and natural character values within its special landscapes, including ONLs and Coastal Landscapes with outstanding natural character, in a sensitive manner. The findings of this report in relation to landscape and natural character sensitivities will inform the review of the relevant rules in the district plan, which provide guidance for potential landscape change.

Statutory Context and Landscape Management

All landscapes arguably merit some management consideration under the ‘sustainable management’ purpose of the RMA and the requirement to avoid, remedy or mitigate adverse effects of activities on the environment. From a technical landscape perspective, the purpose of management may be characterised as:

- a) avoiding the inappropriate erosion of the intrinsic characteristics and qualities that have built up in the landscape over time through the interplay of natural and cultural processes; and*
- b) enabling development and change to occur that avoids the loss of landscape coherence, diversity and cultural identity and meaning.*

This landscape perspective is packaged within the RMA under a number of matters of national importance (RMA Section 6) and other matters to which the Council is required to have particular regard (Section 7). The key sections of the RMA that relate to landscape are:

- the ‘natural character of the coastal environment, wetlands, and lakes and rivers and their margins’ (6(a)),
- ‘outstanding natural features and landscapes’ (6(b)),
- ‘historic heritage’ (6(f)) and
- ‘landscapes which contribute to visual amenity and/or environmental quality’ (7(c) and (f)).

‘Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna’ (Section 6(c)) and ‘the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other taonga (Section 6(e)) are also clearly linked to a broad understanding and valuing of landscape.

Natural features and landscapes that do not meet the criteria for being ranked as “outstanding” can nonetheless qualify for protection under other clauses in S.6 or be required to be “maintained and enhanced” either as “amenity values” or part of the wider “environment” under S.7(c) or S.7(f). Thus, for example, coastal landscapes or rivers or lakes that were not “outstanding landscapes” would still be required to have their “natural character” preserved under S.6(a), or areas of indigenous vegetation or habitats of indigenous fauna that were not considered “outstanding natural features” under S.6(b) will require protection under S.6(c).

As part of the District Plan Review, it is recommended that the objectives, policies and rules for the coastal environment be reviewed to ensure that an adequate level of protection is provided for the District’s important landscapes. The highest level of protection would be warranted for those areas that are identified as “outstanding” under sections 6(a) and 6(b) of the RMA, in other words the ONF/Ls and ONCs within the District. It is our understanding that HDC is not considering the introduction of a second tier landscape protection under S.7(c) at this time. However, we would recommend specific landscape management mechanisms be developed for the Coastal Environment within the district, to meet the requirements of the NZCPS, even though this landscape is generally more modified than the ONCs.

Coastal Environment and Natural Character

Background

BML was involved in a region-wide coastal assessment project commissioned by Environment Canterbury (ECan) in 2011. The ECan project was completed to a first draft stage, which included delineation of the coastal environment (peer reviewed) and the natural character descriptions (not- peer reviewed). While the region-wide study has not been finalised and publicly released, ECan has made the work to date available to HDC internally for their district plan review. ECan provided the existing desktop information from the project, including an extensive record of oblique aerial photographs and data, for further analysis on a district-wide level.

The tasks involved in the Coastal Natural Character Assessment for HDC were the identification and delineation of the coastal environment, an assessment of the natural character of the coastal environment and identification of Areas of Outstanding Natural Character (ONC, see Policy 13a of the NZCPS). These tasks resulted in an evaluative report and accompanying GIS maps (see following section) that identify areas of high, very high and outstanding natural character. The ONCs identified in this report are a result of both (1) the extent of the coastal environment and (2) the degree of natural character.

We would recommend that the evaluative part of the coastal natural character assessment for HDC, including the outlines of areas of Outstanding Natural Character, is reviewed by an external peer reviewer prior to this report being made public.

New Zealand Coastal Policy Statement

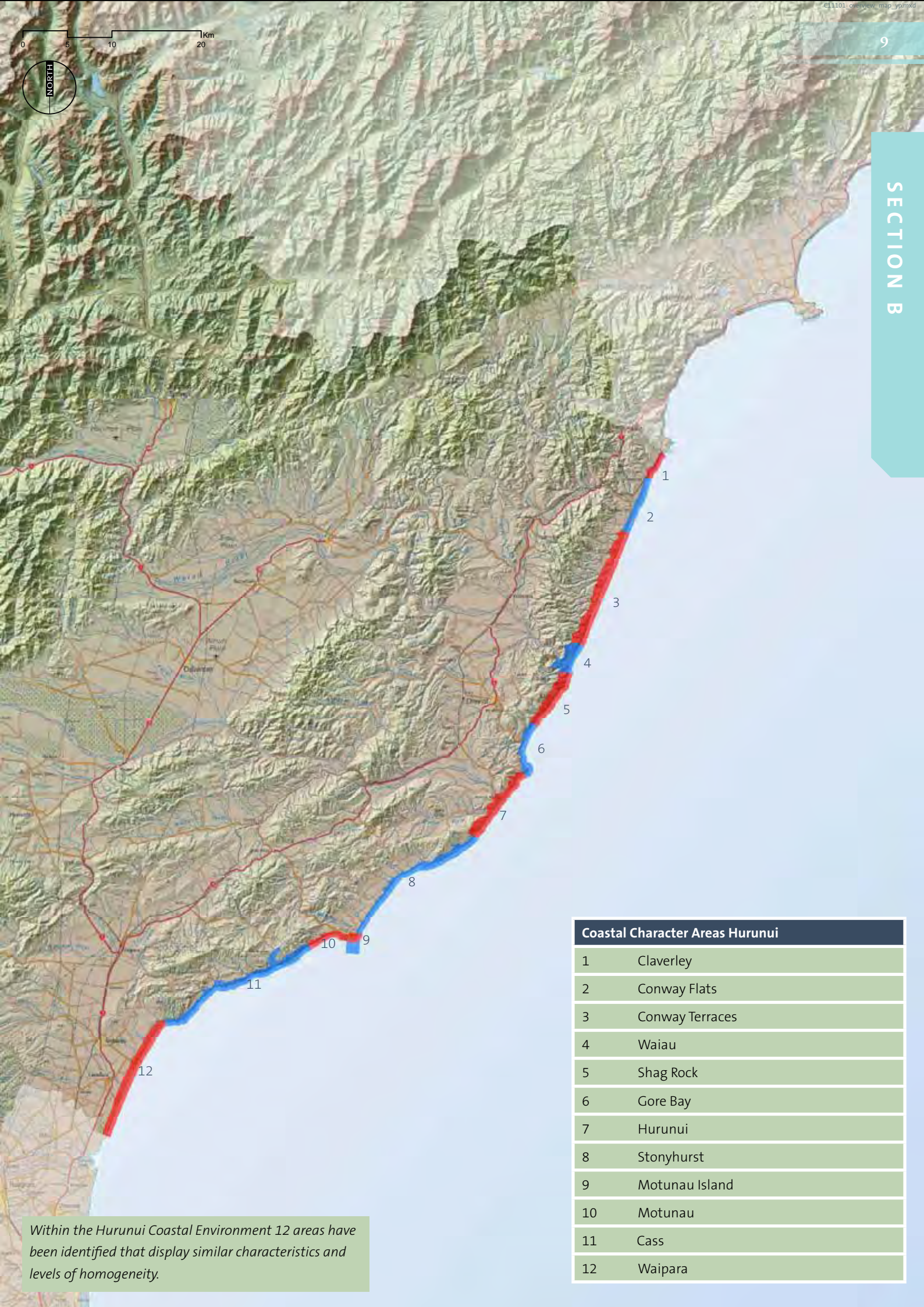
The recent release of the new Coastal Policy Statement (NZCPS 2010) has highlighted the need for identification and mapping of special landscapes occurring within the coastal environment. Policies 13 and 14 of the NZCPS (2010) have been dedicated to the preservation and restoration of natural character. This includes the identification and protection of coastal landscapes with high, very high or outstanding natural character. While outstanding natural landscape areas have been addressed in the operative Hurunui District Plan, areas of high natural character have not been specifically identified or provided for.

The NZCPS 2010 requires councils to assess the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character (Policy 13- 1(c)).

Therefore, following the release of the NZCPS, an assessment of natural character along the Hurunui Coastline and identification of areas with high and outstanding natural character was required. It was considered appropriate to (1) determine the inland extent of the coastal environment, (2) determine the degree of coastal natural character present and (3) identify the spatial extent of any specific preservation or protection 'zones' necessary.

The Coastal Policy Statement also covers the protection of historic heritage in the coastal environment and highlights the need for integrated management not only of historic sites, but also their context. It requires councils to initiate assessment and management of historic heritage in the context of historic landscapes. This matter is dealt with separately within the District Plan review.

SECTION B



Coastal Character Areas Hurunui	
1	Claverley
2	Conway Flats
3	Conway Terraces
4	Waiau
5	Shag Rock
6	Gore Bay
7	Hurunui
8	Stonyhurst
9	Motunau Island
10	Motunau
11	Cass
12	Waipara

Within the Hurunui Coastal Environment 12 areas have been identified that display similar characteristics and levels of homogeneity.

Protection of Coastal Natural Character

Some landscapes that fall within the coastal environment will have natural character that may justify additional protection beyond that afforded to other rural landscapes (this will also apply to rivers, wetlands, lakes and their margins). The RMA in s6(a) does not specify a level of quality.

Policy 13 of the NZCPS outlines the requirements in relation to the preservation of natural character as follows:

- (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;

This highlights that the need for protection from inappropriate subdivision use and development may apply to all landscapes within the coastal environment but this will also relate strongly to the degree of natural character present. The ONCs provide values that make them “stand out” from the remainder of the coastal environment in terms of their natural character, and a higher level of protection is therefore warranted.

Methodology Coastal Natural Character Study

Defining the Coastal Environment

The RMA 1991 does not define ‘coastal environment’. However, to respond to Policy 1 of the NZCPS 2010: ‘Extent and Characteristics of the Coastal Environment’ it was necessary to adopt a definition. Policy 1 recognises that the extent and characteristics of the coastal environment will vary from location to location and identifies nine characteristics which may be included in the coastal environment:

- 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, salt marshes, 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 is a helpful reminder in establishing what is included within the coastal environment; however, the list does not provide an answer in how to define this environment.

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 consideration to item (c) of Policy 1(2) of the NZCPS 2010 ‘where coastal processes, influences or qualities are significant’. This, along with the relationship to the accompanying natural character study provided helpful guidance. All other characteristics of the coastal environment were also addressed in the methodology.

The term ‘significant’ is not defined in the NZCPS 2010. Within the context of the RMA 1991 the word is used to address Section 6(c) matters. In the context of Policy 1(2)(c) of the NZCPS 2010, the study team have interpreted the term ‘significant’ to mean ‘sufficiently great or important to be worthy of attention; noteworthy’, as outlined within the Oxford English Dictionary.

The seaward extent of the coastal environment extends 12 nautical miles from MHWS and is administered by Environment Canterbury. However, whilst Motunau Island is situated in Environment Canterbury's jurisdiction (seaward of the MHWS) it is part of the Hurunui District's responsibility. Although the Hurunui coastline is, for the majority of its length, generally uniform, specific attention needs to be given to more complex areas, including Gore Bay, river mouths and areas of bays and beaches.

A general rule of thumb is that the inland extent of the coastal environment extends to the first [proximate] significant ridgeline inland of the coast, although for flat areas, the boundaries are determined more by landscape character and where coastal elements, patterns and processes are still sufficiently significant. The 'first ridge' concept has recently been discussed in the Mt. Cass Environment Court decision regarding a wind farm proposal:

"[320] The Hurunui Commissioners, referring to case law, were persuaded that the coastal environment boundary should be at the dominant landward ridge, which they identified as Mt Cass. We accept that Mt Cass is a dominant ridge and that glimpses of it can be seen from some parts of the Hurunui coastline. In other cases before the Environment Court a landward ridge has been adopted as a boundary to a coastal environment. However, where a dominant ridge may be a useful means to identify a coastal environment boundary, such a boundary should be relevant to the coastline and coastal environment. There is no necessity to identify a dominant ridge in each case, particularly one that may be kilometres away from the coast. In any event we are satisfied that the effects on natural character and landscape would not extend to that area which could properly be considered to be coastal environment of Hurunui.

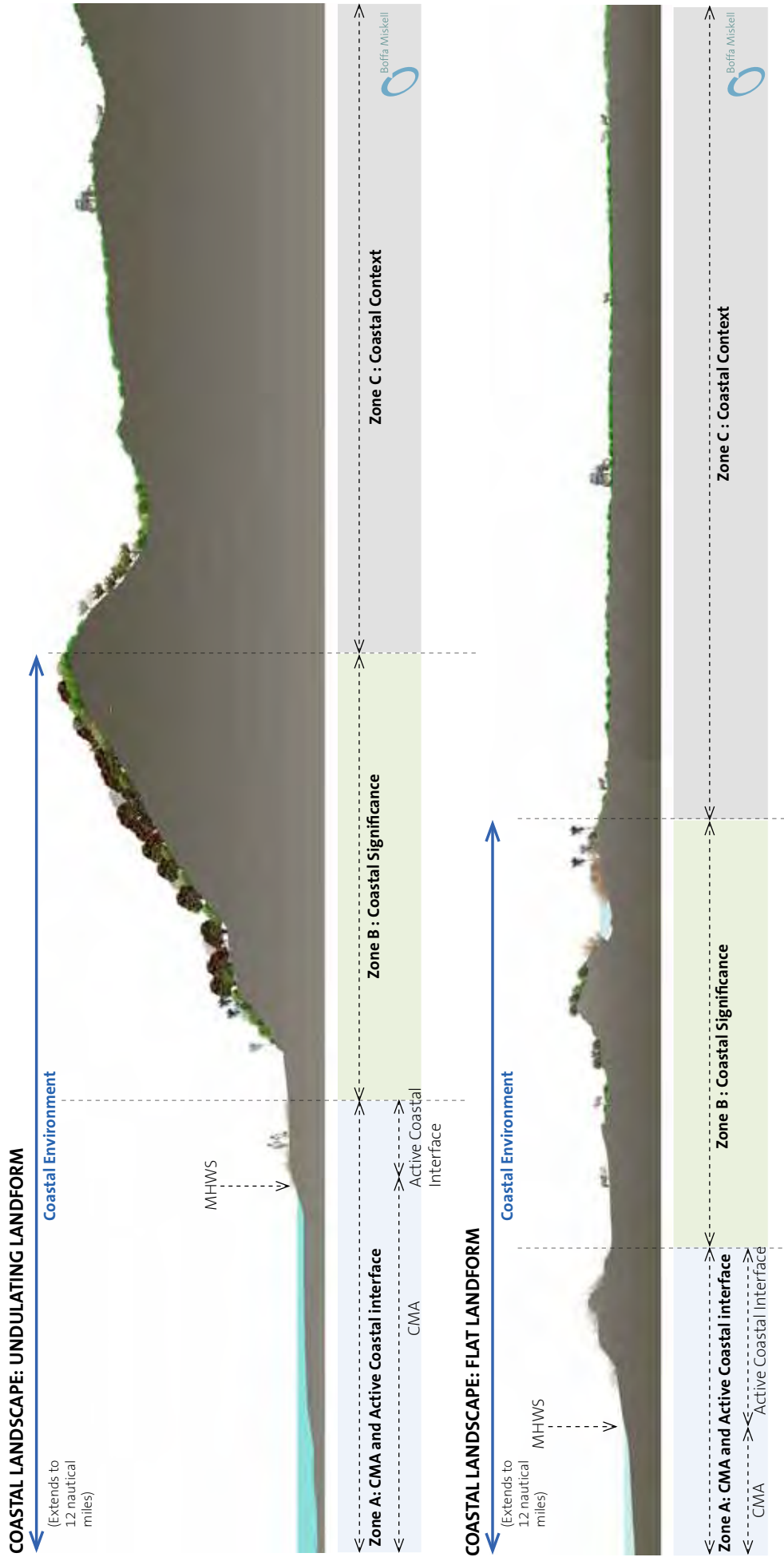
[321] We find that Mt Cass ridge and the dip slope landward of the ridge is not within the coastal environment and neither is any part of the wind farm. By contending that the coastal environment has an extreme reach, we are concerned that attention could be drawn from the importance of the coastline and derogate from the focus of section 6(a)."

Fundamental to this assessment of the Coastal Environment is the relevant and accessible data available to inform judgements. This is listed in the Mapping Information section. The use of professional knowledge of the study team in relation to the elements outlined within Policy 1 of the NZCPS 2010 was also an essential source of information. Few components listed under Policy 1 have been excluded, which include cultural and historical aspects and benthic/bathymetry studies, since limited information was available. The mapping and assessment scale for this task is 'for the district'.

Mapping Information

The scale of the natural character study is critical to the validity of the end results. As outlined earlier, natural character assessment is scale related and determined by the study brief and to varying extents by the mapping scale of the information used to determine the outcomes of the project. For this project, the scale is the region, although as described earlier, mapping is at a district level.

The assessment was primarily based on a desktop study and an aerial survey with limited ground-truthing. GIS has been used to systematically map the extent of the Coastal Environment and to map coastal areas. The mapping scale undertaken for this project is 1:50,000. It is acknowledged that the majority of the data used for this study is at scales greater than 1:50,000. The mapping has been undertaken on high resolution aerial images, although presented in this report on 1:50,000 topographical maps. Where more intricate sections of the coastline exist, these have been mapped at a finer scale. At these finer scales, GIS allows the viewer to zoom in and assess the exact location of the coastal environment. However, extent of the coastal environment and coastal area boundaries in this study were mapped within the context of the Canterbury region as a whole and with reference to surrounding broad geographical features, not paddock by paddock. This broader context should be borne in mind. For a list of GIS information refer to Appendix 4.



The Coastal Environment – Zones of Significance

BML has developed the following model which has been applied to the Hurunui coastline in order to determine the Coastal Environment, as interpreted under Policy 1 of the NZCPS 2010. Essentially the Coastal Environment contains two zones of significance:

The Coastal Environment and the Coastal Context Zone can collectively be referred to as The Coastal Landscape. The two diagrams (opposite) 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.

Zone A	This zone includes the CMA and the Active Coastal Interface Zone. The CMA includes the sea, rocks and part of the beach up to the mean high water spring (MHWS) mark and extends out to sea for twelve nautical miles*. The Active Coastal Interface is where the sea is the dominant element, and the primary or significant influence on landform, vegetation, and perception. The Active Coastal Interface varies in width, but generally extends inland of the MHWS mark and comprises the inter-tidal area above MHWS, beaches, lagoons, estuaries and their margins, rocky peninsulas and coastal cliffs.
Zone B	The Coastal Significance Zone generally includes the land up to the first coastal ridge or escarpment (with the width of this zone varying depending on the topography environment. This zone is where coastal processes are significant and may include inland cliffs, settled (or modified) dune lands, farm land, settlements and coastal forests. Both zones contain and exhibit coastal processes, influences and qualities that are significant.

Inland, beyond the Coastal Environment, is a third area, where coastal processes, influences and qualities are not significant but form part of the coastal landscape:

Zone C	The Coastal Context is where coastal processes inland of the Coastal Environment have an influence on the landscape and would include developed back-dunes which no longer exhibit significant coastal processes, coastal plains, and containing hill-slopes. This zone generally extends inland from Zone B to where coastal influences have sufficiently diminished. It is also recognised that some activities occurring within this zone can significantly affect the coastal environment (Zones A and B) either perceptually or physically to varying degrees. The inland extent of Zone C has not been mapped, as it falls outside of the Coastal Environment.
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**The seaward extent of the coastal environment extends 12 nautical miles from MHWS and is administered by Environment Canterbury. However, whilst Motunau Island is situated in Environment Canterbury's jurisdiction (seaward of the MHWS) it is part of the Hurunui District's responsibility.*

Coastal Natural Character

Environments with the greatest natural character are those devoid or virtually devoid of human modification and are therefore 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. There are various working definitions of the concept which are broadly similar and have been used in a number of Environment Court cases. In light of the NZCPS 2010, the definition was also discussed at the first of two workshops convened by DOC in August 2011 to discuss potential guidance material in relation to Policy 13 and 14 of the NZCPS. This workshop, attended by landscape architects, DOC and local authority personnel and other environmental practitioners discussed and debated the term and its origins. Building on a previous definition from the Ministry for the Environment (MfE), the workshop confirmed acceptance of the following definition, which is both useful and workable:

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 occur;
2. The nature and extent of modification to the ecosystems and landscape/seascape;
3. The degree of natural character is highest where there is least modification;
4. The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community'

This interpretation is referenced to varying degrees in Policy 13 of the NZCPS 2010.

Within the 'Long Bay' Environment Court decision, the court built upon the 'Outstanding Natural Features and Landscape' definition of naturalness outlined within the 'Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council'. Although specifically relating to 'natural' under Section 6b (of outstanding natural landscapes), paragraph 135 of the Long Bay decision states the following definition of 'natural': 'The absence or compromised presence of one or more of these criteria 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 city scape, and a 'cultured nature' landscape may still be an outstanding natural landscape.'

- *'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.'*

Since the development of the MfE definition, and the 'Long Bay' decision, the NZCPS 2010 has come into effect which states (Policy 13) that natural character may include:

- (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; and*
- (h) *experiential attributes, including the sounds and smell of the sea; and their context or setting.*

Recognising a lack of guidance for the implementation/interpretation of the NZCPS 2010, BML held a two-day in-house workshop in early 2011 to develop a consistent approach to natural character assessment and interpretation of NZCPS 2010 terms. At the BML 2011 workshop, it was evident 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, whereas landscape architects take a broader view that can encompass both indigenous and exotic natural attributes. Accordingly, the thresholds 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).'*

Through the BML 2011 workshop, participants were able to develop a consistent company-wide assessment approach that incorporates both landscape and ecological expertise as well as taking into consideration the 'MfE definition', case law (including the 'Long Bay' decision), and those definitions developed in the NZILA Best Practice Note 2010. The assessment approach is based upon an agreed interpretation of key terminology, and includes a method for determining the inland extent of the Coastal Environment (refer to the Coastal Environment discussion above) as well as an assessment matrix and evaluation methodology for identifying 'high' and 'outstanding' natural character (as required by Policy 13 of the NZCPS 2010). Importantly, the BML methodology can be adapted to suit different types and scales of coastal landscapes.

For the purposes of this project, the following key points are noted:

- Limited input on ecological values was provided by BML ecologists. Marine ecology information was provided through Department of Conservation publications.
- That natural character assessment is context and scale related, so that the coastal environment can be perceived as having different levels of natural character at different scales, because the level of detail that can be discerned and the dominant attributes that are displayed vary according to the scale at which they are considered. Similarly, a proposal can have different effects on natural character when the surrounding environment is considered at different scales. For the purposes of this assessment, the scale assessed is at the District level;
- That natural character occurs on a modification continuum and describes the expression of natural elements, patterns and processes (or the 'naturalness') in a landscape where the degree of 'naturalness' depends on:
 - The extent to which natural elements, patterns and processes occur and are legible;
 - The nature and extent of human (or cultural) modifications to the landscape, seascape and ecosystems;
 - The fact that the highest degree of natural character (greatest naturalness) occurs where there is least modification/ uncluttered by obvious human influence; and
 - The fact that the degree of natural character is fluid and can change over time.



Significant rocky reefs occur around the limestone outcrops at Napenape where impressive rock platforms protrude in parallel bands for over 100m from the shore.

Natural Character Assessment and Key Indicators

The degree or level of natural character has been, for the purposes of this study, ranked on a seven-point scale: Very High (lowest amount of modification), High, Moderate to High, Moderate, Moderate to Low, Low and Very Low (greatest amount of modification). In accordance with the requirement outlined within Policy 13 of the NZCPS 2010, at least areas of high natural character have been mapped. For completeness, all coastal areas have been mapped according to their degree of natural character (i.e. very low through to very high). The rateable 'degree' of natural character for each coastal area were obtained by amalgamating the 'values' assigned to each of the five attributes assessed as listed in the table below. The ratings for each coastal area were considered in a district context, therefore an area holding high natural character holds that rating value at a district scale, not at a regional or national scale.

As part of this study, the Hurunui coastline has been divided into 12 coastal areas that share a similar character and are broadly homogenous. Coastal areas range in length and overall size, depending on type of coastline and variation of landscape character. Some coastal areas may contain smaller 'highlights' such as headlands or river mouths, but are an integral component of the broader coastal area.

Coastal Areas and the Coastal Environment Assessment Matrix

It is acknowledged that there are a number of key attributes that need to be considered when assessing the natural character of the coastal environment. Through BML's experience and the interpretation of the NZCPS 2010, the following attributes have been identified which consider/ reference the different aspects of the natural patterns, processes and elements of the coastal environment and the degree of modification present. All aspects are covered within Policy 1 of the NZCPS 2010 and some further refinement of the list may be required:

Water	[Zone A]. Includes the water body of the CMA (including surf breaks) and landforms within the Active Coastal Interface and below MHWS (e.g. rocks, reefs, stacks, channels). Also includes habitats, biota and natural processes within Zone A. This excludes water-bodies above MHWS (or those contained within Zone B). Considers the degree of modification such as changed water courses, earthworks, presence of built structures, (moorings, jetties, marine farms, and navigation structures), and dredging.
Abiotic Systems and Landforms	[Zones A & B.] Abiotic systems, including the degree of activeness of the tide, waves and currents as well as wind, landform and terrestrial coastal formation, erosion, river mouth processes including sedimentation. Geomorphology, identification of different types of landforms and landforming processes (e.g. dunes, wetlands) and the physical modifications to these natural landforms such as built structures, road cuts, earthworks and reclamation works are also an important component of this attribute.
Perceptual & experiential	[[Zones A & B]. Natural attributes regarding the experience in seeing/feeling/ and perceiving the coastal environment. This includes aromas, aesthetics, auditory, sense of wildness, remoteness, isolation. Includes ephemeral human activity (such as recreation and commercial activities: including ports, marinas and aquaculture).
Terrestrial & aquatic (Biotic Systems)	[Zone B]. This attribute applies to estuaries, wetlands and terrestrial areas in Zone B and is ecologically and processes based. Intactness and expression/appearance of natural ecological processes ranging has been considered from dominant to non-existent. Diversity of species, communities and habitat form part of this attribute.
Land Cover & Land Use	[Zone B]. Land Cover and associated land use, including the composition, distribution, and condition of land cover including presence of indigenous/exotic species. Biotic systems are outlined above. This attribute also includes settlements, roads and other built forms.

Degree of Natural Character	Natural Character Attributes					Zone C The Coastal Context Zone
	Zone A	Zones A & B		Zone B		
	Water	Abiotic Systems & Landforms	Perceptual/experiential	Terrestrial Biotic Systems	Land Cover & Land Use	
<i>Very High</i>		✓				Descriptive text around elements that still may contain 'significant' aspects of the Coastal Environment but fall within the Coastal Context (Zone C).
<i>High</i>	✓		✓	✓		
<i>Moderate to High</i>					✓	
<i>Moderate</i>						
<i>Moderate to Low</i>						
<i>Low</i>						
<i>Very Low</i>						
Overall Natural Character Rating for Coastal Area			High			

The above attributes have been assessed for each coastal area and considered as part of a matrix. The attribute table has been developed to avoid double-counting and to ensure that the indicators for each attribute are mutually exclusive. There are, however, overlaps between some attributes, which is reflected in the descriptions for each coastal area. Each attribute has been considered equally, with no weighting applied.

The degree of natural character for each coastal area was then assessed, based on an aggregation of the values. The study team acknowledge that not all attributes within each coastal area need to score 'high' to hold an overall rating of high. In some instances a coastal area which rates highly overall, may only have a few attributes holding high or very high ratings. While the study team tried to maintain a high level of objectivity throughout this process, professional judgment was involved in the determination of the thresholds. This was based on a rigorous analysis of the data available and a carefully crafted methodology. Whilst in some instances the overall natural character rating for a coastal area was obvious (i.e. it fell at either end of the continuum), particular consideration arose around areas those areas holding 'moderate' ratings.

Furthermore, Zone C has also been considered, as it is acknowledged that elements within this zone can also affect the natural character of the coastal environment. No value system has been ascribed to Zone C, only a description.

Outstanding Natural Character

Under RMA s6(a) it is necessary to determine the existing attributes and extent of natural character and assess how these will be affected by a specific proposal. 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 outstanding or not (in order to determine whether Policy 13(1)(a) or 13(1)(b) is triggered). Policy 13(1) of the NZCPS 2010 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, although it is important to note that the high or very high ratings do not equate in themselves to 'outstanding'.

The following definitions were established and agreed at the BML 2011 internal workshop:

'Outstanding' is a comparative evaluative term meaning; to stand out, exceptional, pre-eminent, clearly superior to others in the same study context.

'Outstanding Natural Character': The coastal environment may be outstanding where it has high or very high levels of natural character.

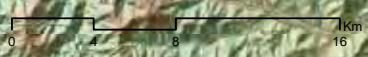
It was determined by the study team that outstanding natural character should be assessed separately. An assessment to establish whether all or parts of a coastal area contains outstanding natural character is undertaken only when all of the attributes, when assessed at an adequate scale and using adequate data, is assessed as containing 'high' or 'very high' levels of natural character.

Of the attributes within a coastal area having 'high' or 'very high' levels of natural character to be considered 'outstanding', they 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 Hurunui District.

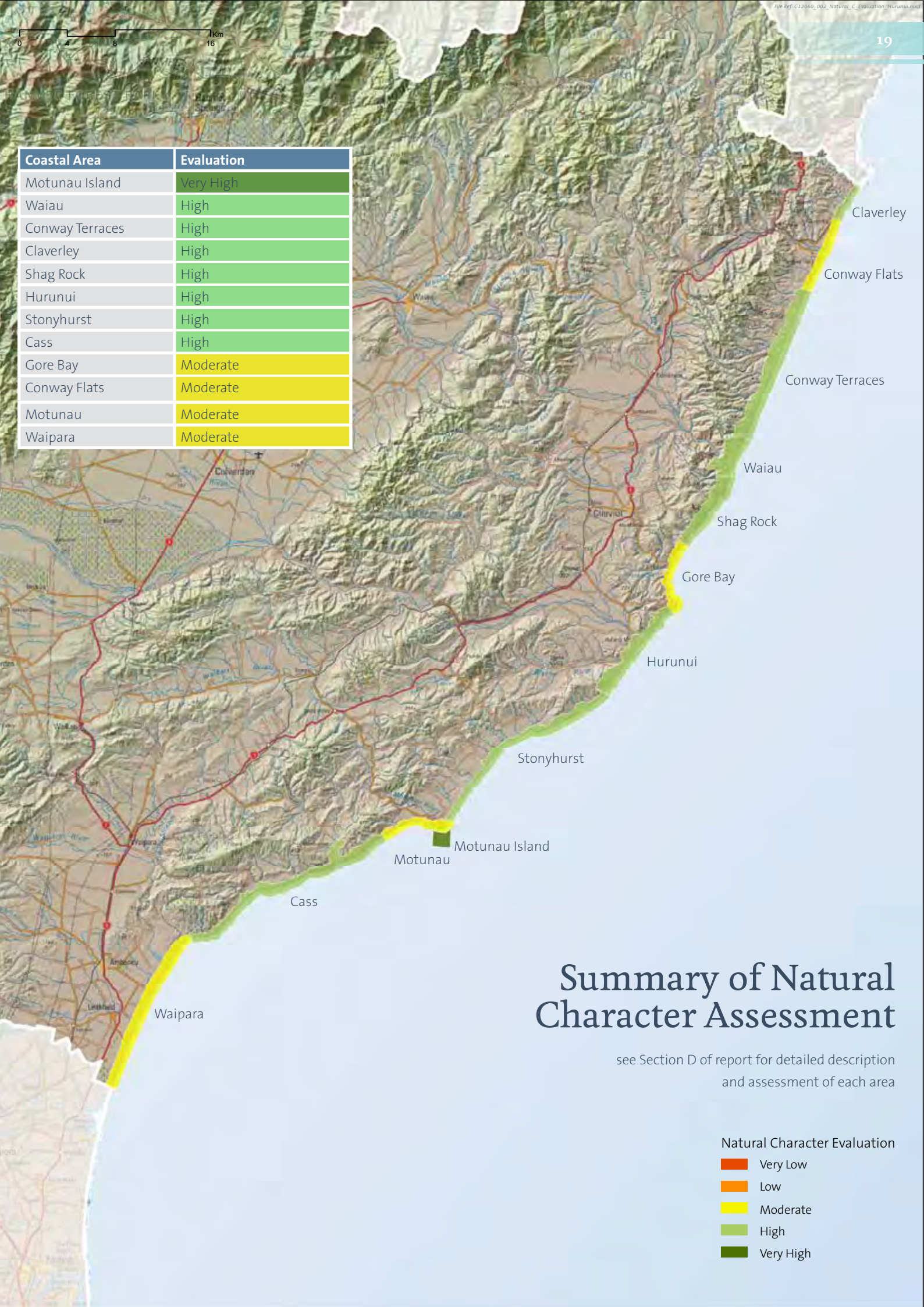
Areas of Outstanding Natural Character have been mapped and identified by their extent.



The isolated Waiau River Mouth (above) is separated from inland basins by a range of coastal hills in private ownership.

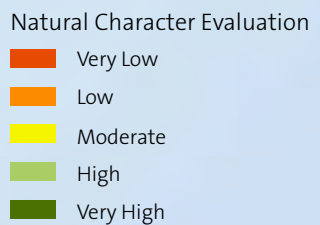


Coastal Area	Evaluation
Motunau Island	Very High
Waiau	High
Conway Terraces	High
Claverley	High
Shag Rock	High
Hurunui	High
Stonyhurst	High
Cass	High
Gore Bay	Moderate
Conway Flats	Moderate
Motunau	Moderate
Waipara	Moderate



Summary of Natural Character Assessment

see Section D of report for detailed description and assessment of each area



Hurunui Coastal Areas

Based on the methodology in outlined in Section B of this report 12 coastal areas with homogenous landscape character were identified. The following section provides a description and assessment of the natural character values of each area.

Coastal Area 1 : Claverley

The northernmost coastal area of the district is broadly defined by the Okarahia Stream, which enters the sea immediately south of the Haumuri Bluffs, which are part of the Kaikoura District. The coastline is accessible in parts, via the Claverley Road, which terminates at Claverley. The main north railway line extends close to the coast along this stretch of the district. There are several watercourses that drain the inland hills in this rural coastal area, including Claverley Creek and Waitotaranui where deep incised, bush-clad gullies divide the grassy paddocks.

Coastal Context

The hinterland of this coastal area contains the eastern part of the undulating Hundalee Hills, which are dissected by SH1. Generally the land cover of the foothills is modified by pastoral use, with some remnants of native vegetation in the gullies and stream, such as the kanuka and broadleaf vegetation in the Okarahia Stream and Old Claverley Creek catchments.





Rocky outcrops and terraces are particularly well developed around the Haumuri Bluffs where mudstone and folded limestone platforms slope gently for more than 100m seaward.



Spy Glass Point (pictured, Haumuri Cliffs in background) is one of the key landmarks on the Canterbury coast line, marking the transition between the rocky Kaikoura coast and marine terraces and sea cliffs of the Conway area.



Representative coastal diagram of Claverley.

Coastal Area 1 : Claverley

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓		
Moderate to High				✓	✓
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area				High	

Water

Hector's dolphins and whales are often encountered around Haumuri Bluffs and along this coastal part of northern Hurunui. The sub tidal marine ecosystems on the rocky shore are an important attribute of this area, similarly to other shore platforms along the Kaikoura coast to the north.

Abiotic Systems and Landform

The coastline comprises narrow gravel beaches backed by eroding escarpments. These sea cliffs form the seaward extent of the uplifted marine terraces of the Conway Coast, which occur between Dawn Creek and Haumuri Bluffs. The raised coastal plains consist of loess, gravel and tertiary rock.

A tertiary hillscape forms the hinterland with colluvial/alluvial slopes and fans between the raised coastal plains and hills. Offshore, the seafloor steepens rapidly.

Perceptual

Although Claverley Road extends along part of this coastline, the road terminates south of the Claverley farmstead and does not attract any through-traffic.

The main north railway line extends along this entire coastline, where passengers would experience close-up sea views. Otherwise this part of the coast is reasonably remote.



South of Haumuri Bluffs the Hurunui Coastline changes from cliffs and rocky offshore platforms to narrow gravel beaches backed by eroding escarpments.

Terrestrial Biotic System

The principal terrestrial biotic values are held within the incised gully systems which harbour a mosaic of indigenous vegetation. These gullies are separated from each other by broad, flat topped high producing grass paddocks, which are often lightly grazed.

Land Cover and Land Use

The railway line and Claverley Road, which extend along the coast line represents the most significant human intervention in this area. The general land use is predominantly farming, but native vegetation is regenerating on the steep slopes and incised stream catchments in the northern part of this coastal area.



Claverley Road extends along part of this coastline, the road terminates south of the Claverley farmstead and does not attract any through-traffic.



The general land use is predominantly farming, but native vegetation is regenerating on the steep slopes and incised stream catchments in the northern part of this coastal area. Views from Claverley Beach northwards to Haumuri Bluffs are particularly spectacular.

Coastal Area 2 : Conway Flats

The coast between the settlement at Claverley to the north and Sawpit Creek to the south, features the Conway River mouth and lagoon. This area south of the impressive Haumuri Bluffs and headland of Spy Glass Point comprises modified lowland farms backing high-energy gravel beaches. This coastal area is predominantly intensively farmed flats which contrast with the natural patterns around the centrally located Conway River mouth.

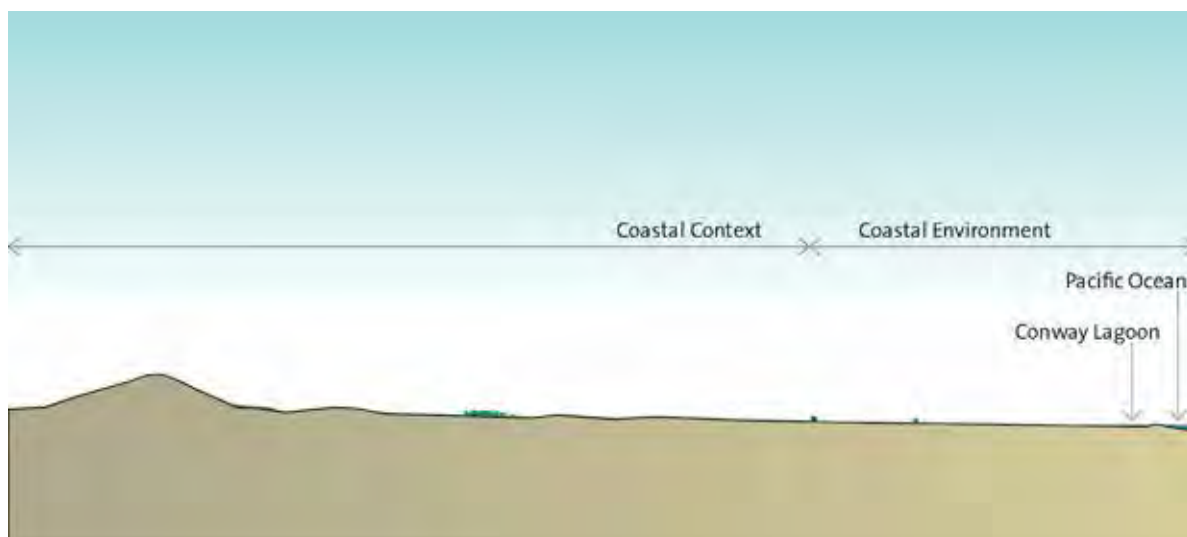
Coastal Context

The Conway Flats are intensively farmed with a patchwork of improved pastures. The backdrop of the Conway Flats is dominated by the Hundalee Hills, where the Conway River emerges between Mt Guardian to the north and Skull Peak to the south. The Derek and Limestone Stream catchments on the northern slopes contain large areas of regenerating scrub, such as kanuka, while the southern hills are generally covered in extensive pastures. Remnants of native vegetation can be found in the gullies of the incised Waitotaranui Creek catchment and above the Conway River. A Geopreservation Site is situated at the Lower Conway railway cutting, which displays a good section of ice age deposits.





The Conway River emerges from the foothills approximately 3km upstream of its mouth. In its lower section it forms a small braided river delta.



Representative coastal diagram of Conway Flats.

Coastal Area 2 : Conway Flats

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓				
High		✓			
Moderate to High					
Moderate			✓	✓	
Moderate to Low					✓
Low					
Very Low					
Overall Natural Character Rating for Coastal Area			Moderate		

Water

The continental shelf edge is relatively close, immediately offshore in the vicinity of the Conway River mouth, resulting in a steeply sloping sea floor off the coast. Sediment input from the Conway River is small compared to other rivers in Canterbury and coastal erosion dominates.

Abiotic Systems and Landform

The Conway River emerges from the foothills approximately 3km upstream of its mouth. In its lower section it forms a small braided river delta. The river mouth is deflected to the north of the river channel by drifting beach sediments. This has led to the development of a hapua-type coastal lagoon where the beach barrier is only intermittently breached. Alluvial flats surround the lower Conway, backed by the Hundalee foothills and raised marine terraces to the north and south.



The river mouth is deflected to the north of the river channel by drifting beach sediments.

Perceptual

While this coastal area is generally not highly frequented by visitors, the coastal strip is accessible from the Conway River and Claverley via a dead-end road. The railway line extends east along the Conway Valley, where it descends from the Hundalee hills down to the coast. From the Conway River north it runs in close proximity to the coast, while SH1 joins the coast line at Oaro. This settled farming landscape is framed by the hills behind and dissected by the Conway River with exotic deciduous trees lining the banks.

Overall the area lacks the impressive attributes of the adjacent Haumuri bluffs.

Terrestrial Biotic Systems

The Conway lagoon is a significant wetland, providing habitat for birds such as black-fronted terns, banded dotterels, and black-backed gulls, which breed around the mouth and use the site for wintering-

over. Elephant seals sometimes come ashore in the vicinity of the Conway River mouth. New Zealand fur seal use this area for breeding and hauling out, as far south as Motunau Island. The lagoon at the Conway River mouth is notable for its unusual salt marsh community, including a native sedge and raupo, which fringes parts of the landward margins of the lagoon. A small area of conservation land is designated along the Conway River mouth with the remainder of the coastal plains in pastoral farming uses. The trees lining the lower Conway and river mouth are predominantly exotic, in particular willows and wattles form dense floodplain forests along some sections of the banks.

Land Cover and Land Use

The gravel beach and Conway River mouth/ lagoon are free of human modification and structures, however the coastal plains are dominated by agricultural land uses apart from the native vegetation occurring around the river mouth. The majority of the coastal plains contain paddocks, separated by coniferous shelterbelts. Settlement in the coastal environment is very limited. There are few individual houses near the northern and southern extent of the area in proximity to the coast.



Alluvial flats surround the lower Conway, backed by the Hundalee foothills and raised marine terraces to the north and south.

Coastal Area 3 : Conway Terraces

South of the Conway River a series of raised marine terraces extends to the mouth of the Waiau River. These terraces are dissected by numerous ephemeral streams which drain the steeply rising hill slopes of the Hawkswood Range to the west. The native vegetation contained in these deeply incised gullies is notable and contrasts with the improved paddocks on the flat elevated terraces. Steep sea cliffs and a narrow gravel beach form the rugged coastline.

Coastal Context

The Hawkswood Range, which rises to almost 700 metres in height, separates the Conway coast from the inland Parnassus Basin. Various terrace levels can be distinguished on the eastern slopes of the range between Haumuri Bluffs in the north and Waiau River in the south. While the terraces are flat or gently sloping, the hill slopes rise relatively steeply to the west. The large areas of regenerating forest, predominantly containing kanuka, interspersed with broadleaf bush in the gullies are notable on the upper slopes of the Hawkswood Range.





Three ice-age cycles of marine cliffing, marine aggradation, regression of the sea, followed by erosion and fan accumulation can be recognised on the Conway Coast. Most recent erosional processes have created impressive steep sea cliffs immediately adjacent to the gravel beaches on the foreshore evident above.



Representative coastal diagram of the Conway Terraces.

Coastal Area 3 : Conway Terraces

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓	✓	
Moderate to High					✓
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area				High	

Water

The foreshore of this coastal area is formed by narrow, high energy gravel beaches. Coastal erosion dominates in this area. The Waiau River to the south is an important coastal sediment supplier. Bushett Shoal, which contains rocky off-shore bars, lies some 7 km off the coast, approximately half way between the mouths of the Conway and Waiau Rivers. Bushett Shoal can generally be spotted from the turbulence around the sunken rocks. These rocky sea-mounts rise from 40 metres to just a few metres below the surface of the water. On their seaward side is the very deep water of the southern end of the Kaikoura Canyon.



The elevated tops of the terraces are farmed and devoid of native vegetation, while bush remnants are confined to the incised gully systems.

erosion and fan accumulation can be recognised on the Conway Coast. In the last glacial phase extensive alluvial fans developed, which have been

further covered by loess. Following the rapid uplift of the Hawkswood Range, distinctive drainage patterns of deeply incised streams developed on the slopes and along the terraces. The marine terraces form a large identified Geopreservation Site, and are particularly legible. A fossil forest and marine fossil traces, which are located at the back

of the gravel beach near Ploughman Creek, have also been identified as such sites. The most recent erosional processes have created impressive steep sea cliffs immediately adjacent to the gravel beaches on the foreshore.

Abiotic Systems and Landform

Three ice-age cycles of marine cliffing, marine aggradation, regression of the sea, followed by

Perceptual

This impressive coastal area is in private ownership and difficult to access, as the Conway Flat Road ends in a dead-end farm track to the south of Conway Flat settlement. The narrow beach strip is backed by steep eroding cliffs, which form a visual separation between the foreshore and the high-lying terraces. The farmed tops of the terraces contrast with the densely bush-clad gullies that create a distinctive drainage pattern across the elevated flats and slopes. The Bushett Shoal sunken reef system attracts many keen boat fishermen in search of trumpeter and blue cod.

Terrestrial Biotic Systems

The New Zealand fur seal breeds in this area between the Conway River mouth and Motunau Island. The gullies, created by eroding streams, contain dense bush

and forest remnants and provide a connection to the coastal strip, while the seas cliffs separate the higher terraces from the shoreline. Some of the gullies contain QE II covenants. Big Bush Gully and Ploughman's Stream contain broadleaf indigenous hardwoods, while most of the other gullies are covered in regenerating bush, predominantly kanuka.

Land Cover and Land Use

The elevated tops of the terraces are farmed and devoid of native vegetation, while bush remnants are confined to the incised gully systems. Overall the indigenous landcover in this area is of significance given the rarity of native bush along the coastline to the south. Man-made structures and landform modifications are minimal, but agricultural land use modifications dominate the flat terraces.



The native vegetation contained in these deeply incised gullies is notable and contrasts with the improved paddocks on the flat elevated terraces.

Coastal Area 4 : Waiau

This relatively short coastal area contains the Waiau River mouth, which is the largest river in the northern part of the Canterbury Coast. The river mouth is inaccessible, as a coastal hill range separates the coast from the inland Parnassus Basin, which contains the township of Cheviot and other settlements. The braided river meanders through steep coastal mountain ranges and terminates in a large lagoon, which extends for over 2 km along the coast.

Coastal Context

Podocarp forest remnants can be found inland of the coastal environment, such as within Settlers Bush on the slopes above the true left bank of the lower Waiau. Dead Mans Hill to the north and Mt Eleanor to the south form a strong boundary to the coast. Access and the visual connection to the coast from the inland basin, which is considerably more modified, is limited.

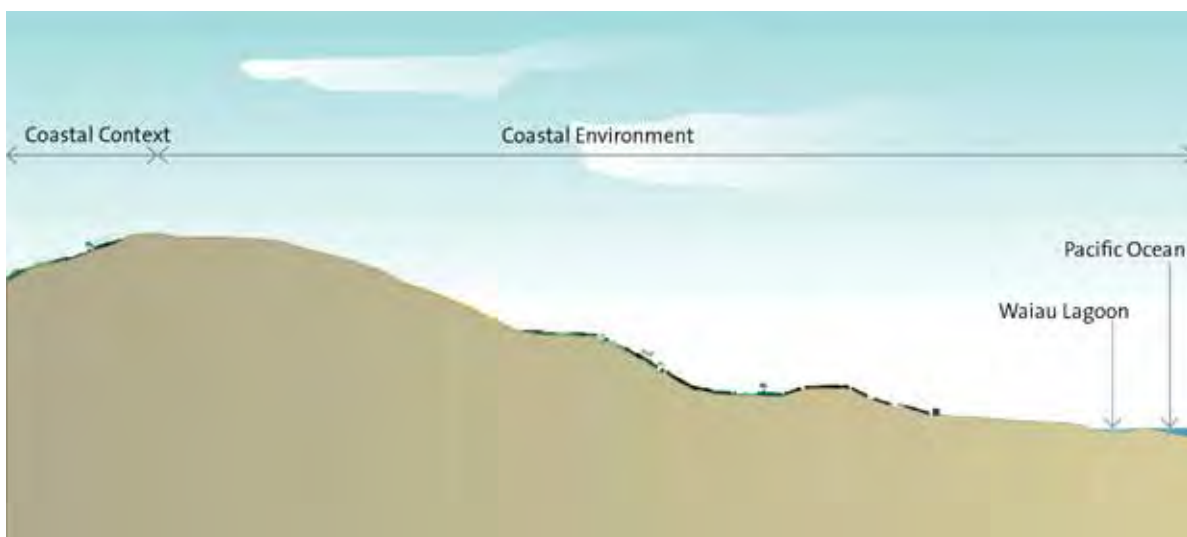




The Waiou River mouth, similar to other rivers in northern Canterbury, terminates in a hapua-type lagoon, created by sediment drift that builds up a beach barrier.



The shoreline around the Waiou mouth is made up of low-resistant marine sandstone and siltstone overlaying harder greywacke which contrasts with the harder more resistant greywacke shores to the north.



Representative coastal diagram of Waiou.

Coastal Area 4 : Waiau

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓	✓	✓
Moderate to High					
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area				High	

Water

The Waiau River is the dominant coastal sediment supplier in North Canterbury, as it delivers five times the amount of sediment from the Hurunui River to the south. The marine environment is unmodified.

Abiotic Systems and Landform

The Waiau River mouth, similar to other rivers in northern Canterbury, terminates in a hapua-type lagoon, created by sediment drift that builds up a beach barrier. The shoreline around the Waiau mouth is made up of low-resistant marine sandstone and siltstone overlaying harder greywacke which contrasts with the harder more resistant greywacke shores to the north. Only a small fan delta has developed between the eroding cliffs surrounding the river mouth and extending along its lower reaches. The north bank serves as a good example of Hurunui soils under lowland forest.



The Waiau River is the dominant coastal sediment supplier in North Canterbury, as it delivers five times the amount of sediment as the Hurunui River to the south.

Perceptual

This inaccessible part of the northern Canterbury coast can only be experienced by jet-boat from the river or

by boat from the coast, as surrounding land is in private ownership. Visually the river mouth is separated from the inland basins by a range of coastal hills. Archaeological sites in the reserve near the mouth tell the story of early Maori occupation.

Terrestrial Biotic Systems

The Waiau River mouth and lagoon represent an important site for

birds, including a small pied cormorant colony and a black-fronted tern wintering site. A large DOC managed scenic reserve is located on the northern banks above the Waiau River mouth, referred to as Faraway Reserve. Within the reserve, an isolated lowland podocarp-broadleaved forest is situated on steep terrain, fringed with kanuka forest. Scattered podocarps can also be found on hill slopes elsewhere in this coastal area, as

well as on the northern river terrace and valley floor. Kanuka forest and mixed shrubland is common on the forest margin. The remainder of the hill slopes is covered with silver tussock and introduced pasture grassland. Dalziels Gully on the southern bank contains indigenous hardwoods and remnant lowland podocarp forest which is of high ecological value. However, overall native vegetation is more limited than to the north of the river mouth.

Land Cover and Land Use

The hill slopes on the south bank are predominantly covered in extensively grazed pastoral farmland, but the DOC managed scenic reserve on the north bank contains a significant area of native podocarp/ broadleaved forest. There is no significant human intervention in the form of man-made structures or landform modifications in this coastal area. Access is exclusively by boat or farm track.



There is no significant human intervention in the form of man-made structures or landform modifications in this coastal area.



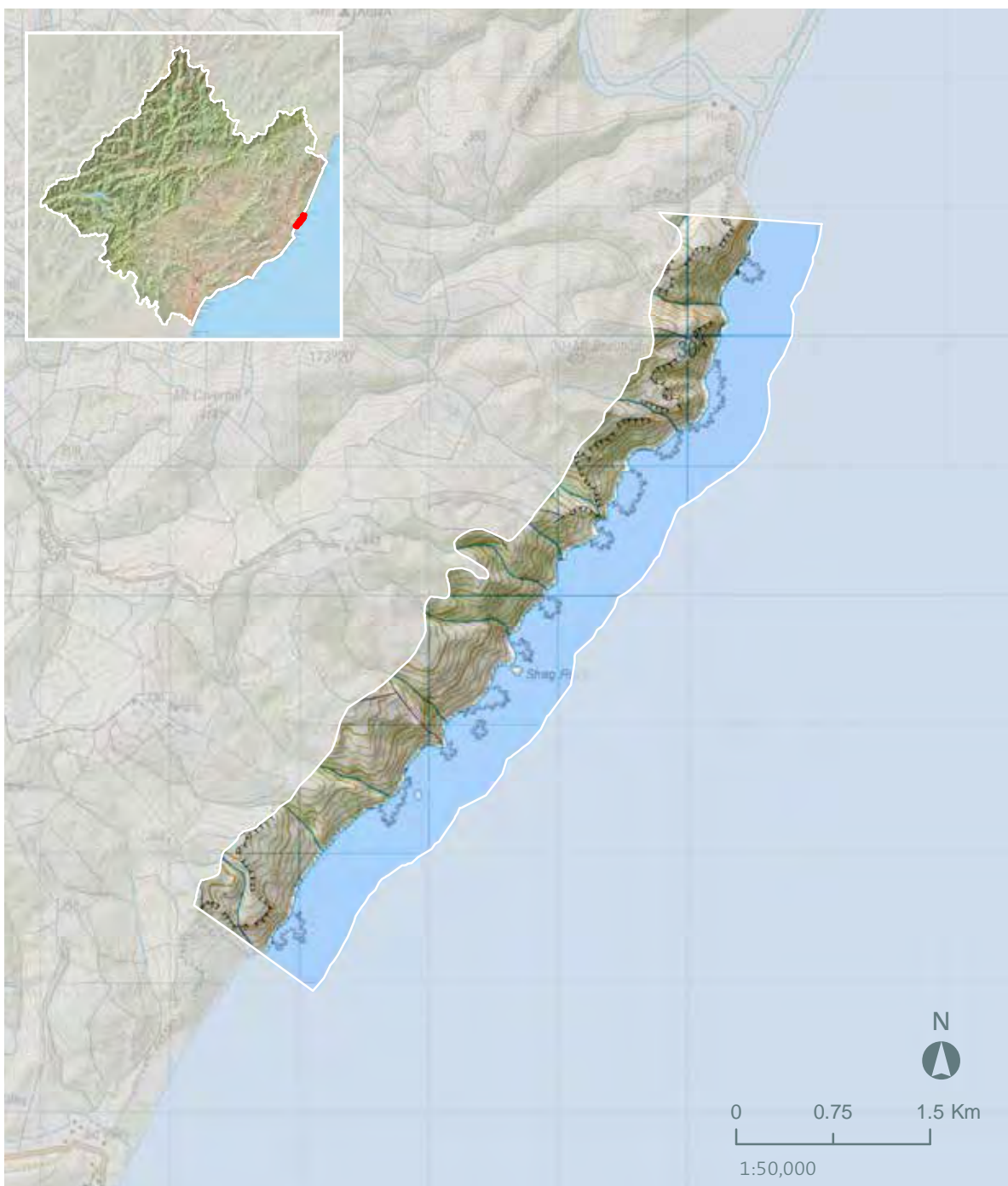
A large DOC managed scenic reserve is located on the northern banks above the Waiau River mouth, referred to as Faraway Reserve.

Coastal Area 5 : Shag Rock

The Waiau River mouth forms the northern boundary of this coastal area, which extends to the northern end of Gore Bay. This stretch of coast is distinctive due to its intricate shoreline with protruding rock platforms and offshore rock stacks. Shag Rock is the most prominent of these coastal features. The upper slopes and spurs in this coastal area are generally extensively grazed, while the lower steep slopes contain more native vegetation. The steeply rising hinterland confines the coastal catchment and separates it from the inland basin around Cheviot.

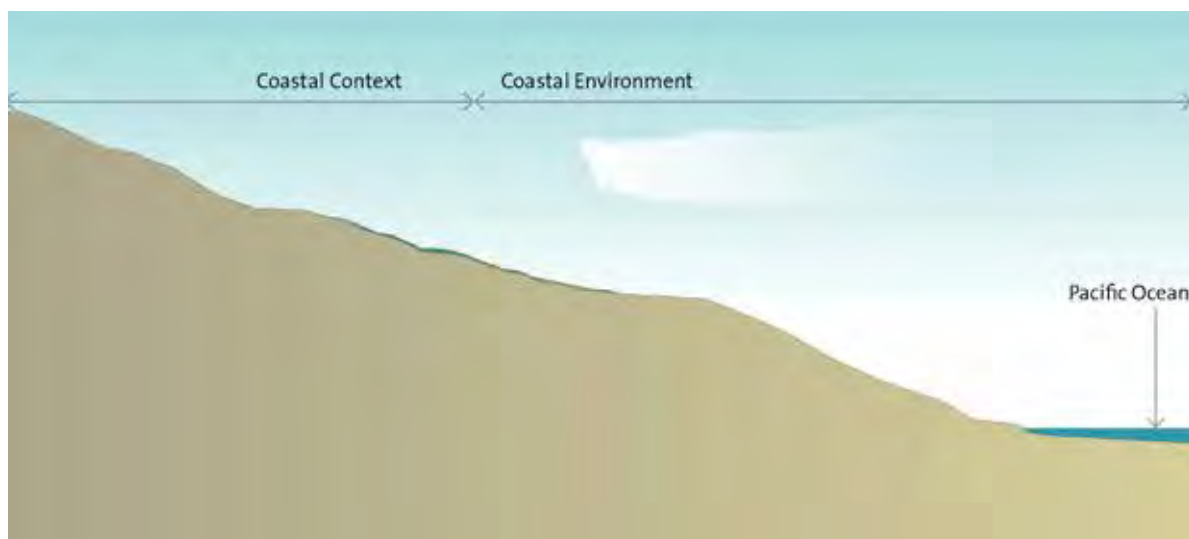
Coastal Context

The coastal foothills between Mt Maccoinnich, Mt Caverhill and Mt Beautiful, which are around 400 metres in height, separate the narrow coastal strip from the Parnassus Basin inland. While most streams have a very short and steep catchment, Cadman Stream extends over 3km inland and contains significant areas of native bush remnants. St Anne's Lagoon near Cheviot is outside the coastal context, but serves as an important habitat for waterfowl.





This stretch of coast is distinctive due to its intricate shoreline with protruding rock platforms and offshore rock stacks. Shag Rock is the most prominent of these coastal features.



Representative coastal diagram of Shag Rock.

Coastal Area 5 : Shag Rock

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓	✓	
Moderate to High					✓
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area				High	

Water

The offshore rock stacks of Shag Rock create a marine habitat that is distinctively different to the sweeping coastline of Gore Bay to the south. These significant rocky reefs protrude in some cases for a couple of hundred metres off shore.

Abiotic Systems and Landform

A narrow strip of boulder/ gravel beach is backed by steeply rising eroding slopes. The drainage pattern of the western hills has created dissected spurs, which abruptly drop to the coastline. Scree slopes provide evidence of recent erosional processes. Shag Rock, a former headland relic just offshore, is a remarkable landscape feature. At Shag Rock, a Geopreservation Site has been identified around an occurrence of pillow lava, which is a good example of large pillows with radial jointing.



Shag Rock Scenic Reserve contains coastal forest with a notable podocarp component, situated on remote steep gullies, ridges and hill slopes extending from sea level to 250m.

Perceptual

This inaccessible part of coastline would best be experienced by boat, since most slopes terminate in eroding sea cliffs which limits access from the west. Only a few private farm tracks cross the coastal hills between the coastline and the Parnassus Basin. Offshore rock stacks, in particular around headlands, provide visual interest, Shag Rock is the largest, most prominent formation.

Terrestrial Biotic Systems

The spurs high above the protruding headlands are generally grazed and devoid of native bush. However, on the steep coastal slopes, in particular north of Shag Rock and below Mt Beautiful, broadleaved indigenous hardwoods form a relatively coherent cover. Shag Rock Scenic Reserve contains coastal forest with a notable podocarp component, situated on remote steep gullies, ridges and hill slopes extending from sea level to 250m.

Apart from hardwoods, the forest also contains manuka and kanuka forest, surrounded by bracken fernland and silver tussock on farmland margins. The coastline beside the reserve supports a large and expanding fur seal colony. Shag Rock supports breeding gulls and shags and there are occasional nesting colonies of white-fronted terns along this coastline.

Land Cover and Land Use

While the majority of the hills are covered in modified grassland, which is extensively grazed, there are confined areas in the northern part of this coastal area

that contain coastal broadleaved hardwood forest with podocarp tree species. The pattern of vegetation with forest contained in gullies on steeper slopes, reflects land use limitations. The scenic reserve was gazetted in 1993 and shows significant regeneration. No man-made structures and very limited tracks are present in this area.



North of Shag Rock and below Mt Beautiful (pictured), broadleaved indigenous hardwoods form a relatively coherent cover.

Coastal Area 6 : Gore Bay

The long sweep of Gore Bay covers a distance of over 5 kilometres between the rocky shoreline to the north and the distinctive headland of Point Gibson. The area is characterised by eroding cliffs projecting offshore at Port Robinson, with sections of rocky shorelines, shore platforms, steep, composite beaches, mixed sand and gravel beaches, and sandy beaches. There are no significant coastal plains.

Coastal Context

Gore Bay Scenic Reserve with its walking tracks extends beyond the identified coastal environment. While the Cathedrals are the key feature of the reserve, the forest and shrubland on steep slopes of gullies and badlands are also distinctive for the hinterland. The access road to the inland basin follows the Jed River. The Jed River and Buxton Creek with their tributaries contain native vegetation, while the remainder of hills in the hinterland are covered in extensive pasture.





Port Robinson (north), Point Gibson (centre) and Manuka Bay (south). A Geopreservation Site has been identified around the prominent Cathedrals Rock Pillars (north of Port Robinson).



The Jed River in the northern part of this area has created a beach and narrow coastal plain, while the sea cliffs rise steeply from the coast around Point Gibson in the south. Gore Bay (left) and Jed Valley and River (right).



Representative coastal diagram of Gore Bay.

Coastal Area 6 : Gore Bay

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓				
High		✓	✓		
Moderate to High				✓	
Moderate					
Moderate to Low					✓
Low					
Very Low					
Overall Natural Character Rating for Coastal Area			Moderate		

Water

The coast of Gore Bay is characterised by a composite, rather than mixed sand and gravel beach types. This means that the upper foreshore is composed of variable mixtures of sand and gravel, while the adjacent foreshores and swash zones are sandy. The sand is therefore only exposed at low tide. A narrow lagoon has formed to the south of the Jed River mouth, which is generally blocked by the beach barrier.



Broadleaved indigenous hardwoods in the incised gully of Buxton Stream channel, directly west of Gore Bay settlement.

Abiotic Systems and Landform

The Jed River in the northern part of this area has created a beach and narrow coastal plain, while the sea cliffs rise steeply from the coast around Point Gibson in the south. North of Tweedies Gully, the tidal foreshore is contained by a backshore beach with limited sand and dune deposits. The steep to very steep sea cliffs to the west are formed by erosional hill slopes comprising loess mantled soft rock. The hinterland transitions into

rolling spurs and gully systems. Around Point Gibson the backshore is absent and sea cliffs with earth flows, land sliding and badlands have been formed by erosion adjacent to the coast. Tunnel gullying and sheet/ rill

erosion zones can be found around this stretch of coast with easy rolling remnant coastal terraces and plains in the hinterland. A Geopreservation Site has been identified around the prominent Cathedrals Rock Pillars, which are one of the best examples in New Zealand of large-scale badlands

erosion with deeply dissected and fluted gravel cliffs and pinnacles, measuring 12-16 metres in height.

Perceptual

While the coastline to the north and south of Gore Bay is sparsely populated, the small settlements located at Port Robinson and Gore Bay are popular holiday destinations. Manukau Bluff separates the coastline between the two settlements, with Gore Bay adjacent

to the beach and Port Robinson on an elevated terrace near the headland of Point Gibson. Visitors come to experience the beach at Gore Bay, the Port Robinson coastal walkway, Tweedies/ Cathedral Gully track and popular surfbreaks. While Gore Bay settlement is located in a sheltered bay, Point Gibson is a wind-swept headland that allows for long distance views along the coast. Several archaeological sites are located near the shore around Gore Bay and Jed Vale, as a sign of early Maori occupation.

Terrestrial Biotic Systems

Gore Bay Scenic Reserve contains a coastal broadleaved forest with manuka (rather than the more common kanuka) on steeper gully slopes, with scattered shrublands mixed within calcareous siltstone badlands. This reserve

protects an example of Medina intergrade soils and it is one of only a few reserves where yellow and grey-yellow brown earths occur under coastal native vegetation.

Land Cover and Land Use

The land cover of this coastal area is varied, where pastoral farming is located on spurs and gentler slopes, and native vegetation generally thriving in the incised gullies and near stream beds. The most significant areas of coastal bush occur within the Gore Bay Scenic Reserve around Tweedies and Cathedral Gully and in steep coastal gullies around Manukau Bluff.

Gore Bay and Port Robinson settlements contain the most significant nodes of development along this otherwise sparsely populated coast.



Rocky shore, Gore Bay.



Cathedral Rock Pillars.



Manuka Bluff (centre) separates the coastline between Gore Bay and Port Robinson, with Gore Bay adjacent to the beach and Port Robinson on an elevated terrace near the headland of Point Gibson.

Coastal Area 7 : Hurunui

The Hurunui River mouth is the key feature of the coastal section between Point Gibson and Napenape. Manuka Bay in the northern part of this coastal area is separated by a rocky headland below Mt Seddon. Further south is the Hurunui River mouth and associated Hurunui Lagoon. The tiny settlement of Napenape forms the end of a long gravel road accessing the coast from inland Greta Valley, while a bridge across the Lower Hurunui connects the area to the north.

Coastal Context

The Blythe River valley and the lower reaches of the Hurunui River connect this part of the coast with the inland basins to the west. The braided Hurunui flows through a constricted passage above the mouth as it passes through the coastal foothills that confine the coastal area to the west.





Manuka Bay (pictured) in the northern part of this coastal area is separated by a rocky headland below Mt Seddon. Further south is the Hurunui River mouth and associated Hurunui Lagoon.



The Hurunui River forms a small river delta surrounded by coastal cliffs and the mouth terminates in a hapua –type lagoon, which is a coast-parallel water body.



Representative coastal diagram of Hurunui.

Coastal Area 7 : Hurunui

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓	✓	
Moderate to High					✓
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area				High	

Water

Rock stacks around Point Gibson assist in confining Manuka Bay, which contains a sweeping black sand/ pebble beach. A small headland provides a natural barrier for the Hurunui Lagoon extending north from the mouth. Around the Hurunui mouth and to the south at Napenape a relatively wide shingle beach has formed with a distinctive foreshore and backshore.

Abiotic Systems and Landform

Unlike Point Gibson and the shoreline to the north of Gore Bay, the beach in this area is wide enough to contain a homogenous foreshore and a backshore with fans and badlands. These backshore areas with scattered driftwood are backed by gullies and erosion zones that have developed in the gravel with easy rolling remnant coastal terraces plains in hinterland.



Important areas of native vegetation can be found in and around the DOC reserves and in gullies, such as those below Mt Seddon. Otherwise the rural landscape is dominated by improved pastures for farming.

The Hurunui River forms a small river delta surrounded by coastal cliffs and the mouth terminates in a hapua –type lagoon, which is a coast-parallel water

body. The lagoon predominantly contains fresh water, impounded by a long, narrow spit formed of coarse sediments by longshore drift. The beach barrier offsets the river mouth over a kilometre to the north unless the river is breaching this during floods.

The lagoon receives some salt by spray and washover. A striking amphitheatre-shaped

slumped area occurs near the southern boundary of this coastal area. Unusual and varied limestone landforms in this area, located within the Napenape Scenic Reserve, include colluvial hill slopes, limestone bedrock cliffs and outcrops, scree, sinkholes and blockfields.

Near the Hurunui River mouth a good example of sandstone intrusions, which have been forced into overlying rocks, can be found. This formation that represents a recording of the geological episode of deformation, is identified as a Geopreservation Site.

Perceptual

The coastal area can be accessed via a gravel road from the southwest or on a shorter sealed from the settlement of Domett. The Port Robinson walkway runs along this coastal strip, passing through spectacular scenery and forested scenic reserves. Near the southern end of this coastal area, good views are gained of the Hurunui River mouth and lagoon. Two scenic reserves, in Manuka Bay and at Napenape, provide public access. The naturalness of the bush-sea interface and limestone cliffs in the Napenape amphitheatre are particularly impressive. A popular camp ground is located near the Hurunui River mouth, an area that is frequented for fishing. Several archaeological sites with middens, fire areas and artefacts have been recorded at the Hurunui River mouth and Napenape.

Terrestrial Biotic Systems

The land administered by DOC in Manuka Bay and Napenape Scenic Reserves contains coastal bush of

ngaio, akeake, golden akeake, shining broadleaf and kowhai. Within the Napenape Scenic Reserve, dry native coastal forest occurs on limestone substrate, which is uncommon in New Zealand. The rare grass *Astrostes littoralis* is found on coastal margin of the reserve, within the splash zone.

The Hurunui River mouth and lagoon are important sites for birds. On the Hurunui River mouth spit, variable oystercatchers and banded dotterels nest. It is also an important black-fronted tern wintering site and an occasional nesting area of white-fronted terns.

Land Cover and Land Use

Small settlements can be found in this coastal area where road access exists, such as at the Hurunui Mouth. The bridge across the Hurunui is located approximately one kilometre inland of the coast. A camp ground and other man-made structures are clustered inland of the mouth, in particular on the north bank. Exotic deciduous hardwoods line the Hurunui River and small-scale exotic conifer plantations have been planted on some steep coastal slopes for erosion control. However, important areas of native vegetation can be found in and around the DOC reserves and in gullies, such as those below Mt Seddon. Otherwise the rural landscape is dominated by improved pastures for farming.



Hurunui Mouth is a small batch settlement close to the river confluence with the ocean.

Coastal Area 8 : Stonyhurst

South of Napenape the coastal strip narrows to steep seacliffs, which dominate the shoreline as far as Motunau. In the northern part of this coastal area the steep slopes rise from rocky shore platforms and sea cliffs. South of Stonyhurst extends a long and relatively homogenous coastline with a narrow beach backed by sea cliffs and intensively farmed paddocks on elevated terraces. The incised gullies and coastal erosion features contrast with these flat, modified terraces.

Coastal Context

In Boundary Creek Scenic Reserve lowland forest remnants can be found in the gullied upper and middle reaches of Boundary Creek. In this area dry unstable slopes have developed in the gullies cutting down into the tertiary sandstones. The greywacke hill slopes to the west rise up to 200 meters in elevation, separating the coast from Greta Valley inland. Some small-scale pine forest plantations occur on upper hill slopes.

Cranky Tom Scenic Reserve and two QEII covenants are also present in this coastal context zone.





South of Stonyhurst extends a long and relatively homogenous coastline with a narrow beach backed by seacliffs and intensively farmed paddocks on elevated terraces.



The incised gullies and coastal erosion features contrast with the flat, modified terraces.



Representative coastal diagram of Stonyhurst.

Coastal Area 8 : Stonyhurst

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓		
Moderate to High				✓	✓
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area			High		

Water

Significant rocky reefs occur around the limestone outcrops south at Napenape where impressive rock platforms protrude in parallel bands for over 100m from the shore. South of Black Birch Creek the coastline consists of a sand and gravel beach which is up to two hundred metres wide.

Abiotic Systems and Landform

The northern part of the coastline is dominated by limestone outcrops south of Napenape, which form steep impressive sea cliffs. The more homogenous coast between Black Birch Stream and Motunau is backed by eroding sandstone cliffs. The eroding gullies and streams, which have incised their paths into the elevated flat terraces form a distinctive pattern.



The limestone outcrops south of Napenape beach are remote and inaccessible by public road.

Perceptual

Visitor concentrations are found to the south of this coastal area in Motunau and to the north in Gore Bay.

The limestone coast between Napenape and Stonyhurst is very inaccessible and remote, while the Napenape offshore reef is a popular surfing spot. Happy Valley Road connects the inland area to Motunau and Stonyhurst. The narrow beach below the eroding sea cliffs is difficult to access apart from low tide. The homogeneity of the farmed coastal terraces adds to the visual contrast with the steep gullies and sea cliffs, which gives this area a characteristic appearance.

Terrestrial Biotic Systems

The patchwork of modified, intensively farmed pastures on the terrace tops contrasts with the predominantly native vegetation in the deeply incised gullies and streams. These gullies lead from higher elevations to erosional coastal features where a gradation of several lowland forest types can be found. Some mixed black beech and kanuka forest occurs on higher spurs and ridges and slopes while shrubland and broadleaved forest with a podocarp component covers the incised gullies. The largest streams in this area with widely branching catchments are Black Birch Creek and Boundary Creek. At Boundary Creek Lagoon a small pied cormorant colony can be found.

Land Cover and Land Use

The eroding cliffs sea between Black Birch Stream and Motunau are backed by farmland, but gully systems contain largely native vegetation. The unnatural pattern of the farmed paddocks contrasts with the sinuous shape of the incised streams. The eroding coastal areas are partly covered in native vegetation with some pine plantations around Manuka Creek.



Napenape Scenic Reserve contains a large area of indigenous hardwoods.

Coastal Area 9 : Motunau Island

Motunau Island, with its distinctive flat top, lies 1.2 kilometres off the Hurunui coast, near the Motunau Beach settlement. It is the only major offshore island located on the wider Canterbury Coast. The island is approximately 200 metre wide, formed of eroding cliffs and represents the most important seabird breeding area between the Marlborough Sounds and Foveaux Strait, as well as being an important habitat for many other species. The island is a designated Nature Reserve and uninhabited.





Motunau Island, with its distinctive flat top, lies 1.2 kilometres off the North Canterbury coast, near the Motunau Beach settlement.



Motunau Island is the only significant nearshore island in the region. The island has steep sides, rocky beaches and numerous offshore reefs.



Representative coastal diagram of Motunau Island.

Coastal Area 9 : Motunau Island

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓	✓	✓	
High					✓
Moderate to High					
Moderate					
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area				Very High	

Water

Motunau Island is the only significant nearshore island in the district. The island has steep sides, rocky beaches and numerous offshore reefs.

Abiotic Systems and Landform

This small flat-topped island is contained by eroding cliffs, which are made up of tertiary rock, capped with loess and gravels. The friable soils are burrowed extensively by breeding seabirds. The island is surrounded by wave-cut reefs.

Perceptual

Motunau Island has attractive sharp cliffs and a distinctive flat top. The richness of wildlife found on this island provides transient values, which can only be experienced in a few places in New Zealand. Since the island is a nature reserve managed by DOC, entry is per permit only. The island, which once was a whaling station is also an archaeological site.



This small flat-topped island is contained by eroding cliffs, which are made up of tertiary rock, capped with loess and gravels.

Terrestrial Biotic Systems

Motunau Island is an internationally important breeding colony for seabirds, including the fairy prion and the endemic white flippered penguin (breeding colony of 5000 birds). In addition, sooty shearwater and white-faced storm petrel (around 50% of the world's breeding population) nest in burrows on the island and uncommon lizards inhabit the island. Following a pest eradication programme, the island is free of introduced mammals. The rocky shore platforms are used as a haul-out area for fur seals.

Land Cover and Land Use

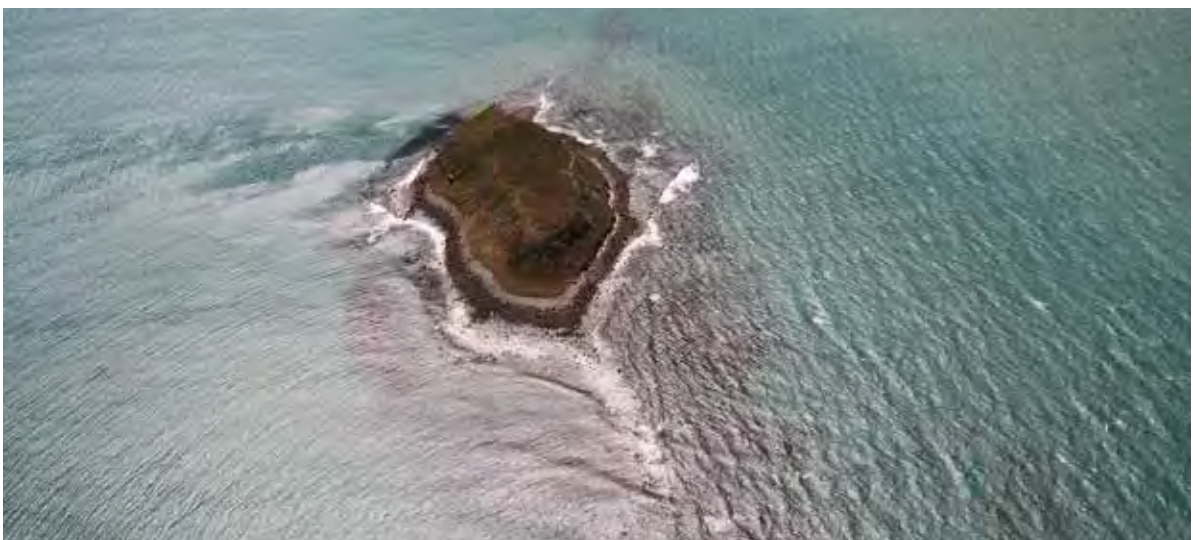
Introduced grassland covers the raised platform/ plateau of the island, while some native grassland and herbfields are found on cliffs and scarps. The mixed shrubland patches consist mainly of introduced species. The rocky shore provides important reef habitat.



Motunau Island is situated offshore from the coastal settlement of Motunau.



Introduced grassland covers the raised platform/plateau of the island, while some native grassland and herbfields are found on cliffs and scarps.



Reef surrounding Motunau Island.

Coastal Area 10 : Motunau

This coastal area includes the headland north of Motunau Beach settlement, the Motunau River mouth, the settlement and the 3.5 kilometre long, sweeping coastline as far south as Mt. Vulcan. The elevated, flat hinterland distinguishes this area from the hill country bordering the coastal environment to the south. The mixed sand/ gravel beach is contained by eroding cliffs to the west.

Coastal Context

The hinterland of Motunau consists of gently rolling hill country on the elevated terraces. The pleasant rural landscape is of high visual diversity and provides amenity values despite its land cover modification. The gullies draining Mt Vulcan contain a mix of regenerating shrubland and pine plantations.

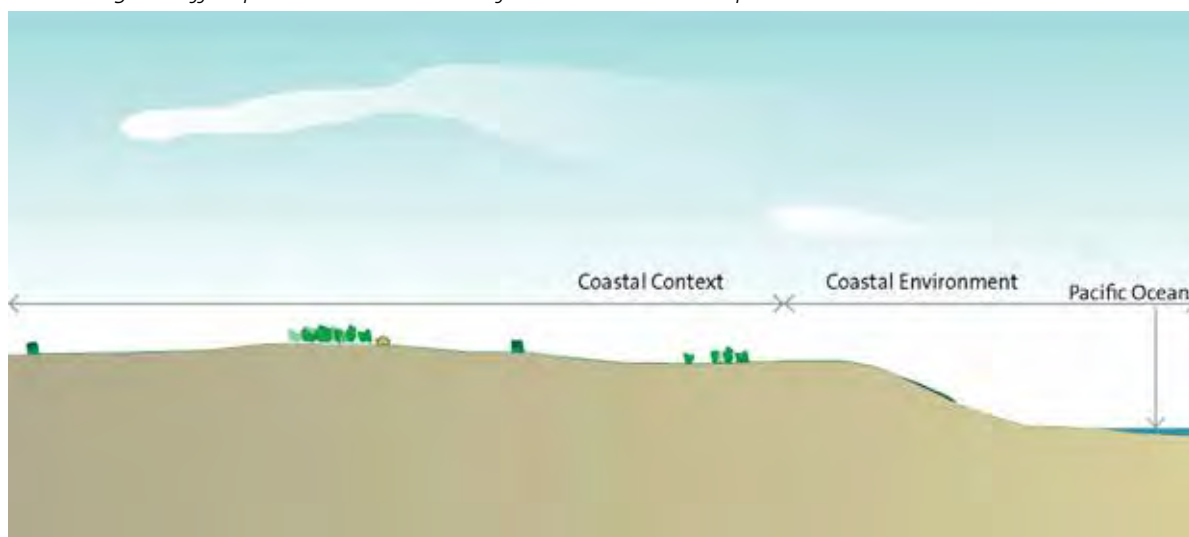




The Motunau raised plains and beach form a distinctive, frequently visited landscape within the Hurunui District. A surf break is located at Motunau Beach (immediately south of the settlement) and the rocky coastline offers attractive fishing and diving opportunities. Motunau River provides boating access via the Motunau River Bar.



The eroding sea cliffs separate the narrow beach from the raised coastal plains to the west.



Representative coastal diagram of Motunau.

Coastal Area 10 : Motunau

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High					
High	✓	✓			
Moderate to High			✓		
Moderate				✓	
Moderate to Low					✓
Low					
Very Low					
Overall Natural Character Rating for Coastal Area			Moderate		

Water

A small, resident population of Hector’s dolphins exist around the shores of Motunau. The headland with its rugged rocky coastline has been included in this area. An unusual abundance of crayfish and fish in this area attracts numerous fisherman (particularly on boats) and divers. The Motunau River bar is prone to silting and is shallow at low tide. To enable boat traffic the Motunau River mouth is dredged periodically. Small-scale erosion/ flood protection works have been erected along the shoreline within the settlement.



A small, resident population of Hector’s dolphins exist around the shores of Motunau. A surf break at Motuanu Beach (immediately south of the settlement) offers attractive fishing and diving opportunities in this area.

Abiotic Systems and Landform

The morphology and dynamic processes of the mixed sand and gravel beaches, like the one found south of Motunau, differ from those of pure sand beaches or gravel beaches found in more southerly parts of

the district. The backshore, which is the area that cannot even be reached by storm waves, is covered in coarse disc-shaped gravels. While the most significant morphological processes occur in the foreshore zone, where waves break, mixed sand and gravels create a dynamic area. The beach is in an erosional state, very slowly decreasing in size, as sediments cannot withstand the high-energy wave environment. The eroding sea cliffs separate the narrow beach from the raised coastal plains to the west. The undulating, raised coastal plains are dissected by steeply incised gorges. Two Geopreservation Sites have been identified, namely at the tip of the headland north of Motunau and approximately 4km upstream of the Motunau River mouth. Both sites contain important fossil discoveries.

Perceptual

The Motunau raised plains and beach form a distinctive, frequently visited landscape within the Hurunui District. A surf break is located at Motunau Beach (immediately south of the settlement) and the rocky coastline offers attractive fishing and diving opportunities in this area. This coastal area can be accessed from Greta Valley via a sealed road. The view of the sea and Motunau Island is particularly impressive after traversing the rolling hills. The farmed coastal plains are characterised by their visual simplicity and the contrast with the sea cliffs and incised gullies. Midden sites are signs of early Maori occupation around Motunau and today's settlement is one of the few nodes of development found along the Hurunui coast line, which is otherwise difficult to access.

Terrestrial Biotic Systems

Motunau River mouth contains an important pied shags colony, which is thought to be the last remaining breeding site on the South Island's east coast. White flippered penguins nest along the coast. Motunau River Conservation Area is situated on a small tract of low lying land on the true left of the Motunau River mouth, where minor remnants of dune pingao occur. There are also indigenous forests located within the deeply incised gullies immediately south of the Motunau settlement.

Land Cover and Land Use

Introduced trees and grassland dominate the elevated coastal plains, where paddocks create a cultivated pattern. The settlement at Motunau Beach is a node of modification and disturbance is visible around the boat landing site and associated coastal protection works.



Bach settlement at Motunau Beach.. Breeding pied shags can be found in macrocarpa trees beside the river mouth.



The eroding sea cliffs separate the narrow beach from the raised coastal plains to the west. The undulating, raised coastal plains are dissected by steeply incised gorges.

Coastal Area 11 : Cass

A long coastal area has been identified between Motunau Bay and Pegasus Bay. The eroding terraced coastline in this area is often backed by further elevated terraces and gently rising spurs further inland. This remote part of the coast impresses through its homogenous appearance and repetitive pattern of terraces, spurs and gullies.

Coastal Context

The key landmark in the hinterland of the coast is the limestone ridges of Mt Cass, which afford long distance views of the coast as far as Banks Peninsula. Walkways and various reserves, protected by the QEII trust and DOC, have been established around Mt Cass and Tiromoana Bush, some of which are part of a restoration project emerging from the mitigation of resource consents by Transwaste. However, the majority of the land is privately owned. Dry pastoral farmland covers most of the northern part of the context, while a large exotic forest plantation is located along the southern end of the area. The Kate Valley landfill represents the most significant modification of the coastal context of this area.





The foreshore of this area consists of narrow sand and shingle beaches covered at high tide which are backed to the west by up to 60 metre high eroding cliffs.



The eroding terraced coastline in this area is often backed by further elevated terraces and gently rising spurs further inland.



Representative coastal diagram of Cass.

Coastal Area 11 : Cass

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓	✓			
High			✓		
Moderate to High				✓	
Moderate					✓
Moderate to Low					
Low					
Very Low					
Overall Natural Character Rating for Coastal Area			High		

Water

The foreshore of this area consists of narrow sand and shingle beaches covered at high tide which are backed to the west by up to 60 metre high eroding cliffs.

Parts of the coast are made up of two tiers of elevated marine cliffs and terraces, which are particularly impressive. Slumping has occurred in the cliffs of the lower reaches of Kate Valley and nearby streams.

Abiotic Systems and Landform

The coastline within this area predominantly comprises sandstone in the hinterland, but an approximately 4km long section in the centre is formed of underlying limestone. The Mt. Vulcan rock slide and the Montserrat earth flow are good examples of earth movement, the latter one being heavily crevassed with an impressive scarp along its headwall. Both earth flows have been classified as Geopreservation Sites, the latter as an extremely well defined landform of scientific/educational value. In addition, the coast in this area contains crab fossils of particular interest

in the vicinity of Glenafric. The cliffs each side of Dovedale Stream contain fossils which weather out onto the beach, which has also been identified as a Geopreservation Site.



Southern base of Montserrat Earth Flow.

Perceptual

Sea View and Glenafric are two of the small settlements found in the immediate hinterland of the coastal area. The gravel access roads stop near the settlements and the coast line itself is inaccessible from the west due to the steep sea cliffs. The wider coast of Pegasus Bay can be viewed from the highpoint at Mt Cass, located in the

hinterland of this area, but the shoreline

below is obscured. A number of walkways around Tiromoana Bush provide access from Mt Cass Road to the coast and Ella Peak with various viewpoints and ecological attractions, such as wetlands along the way.

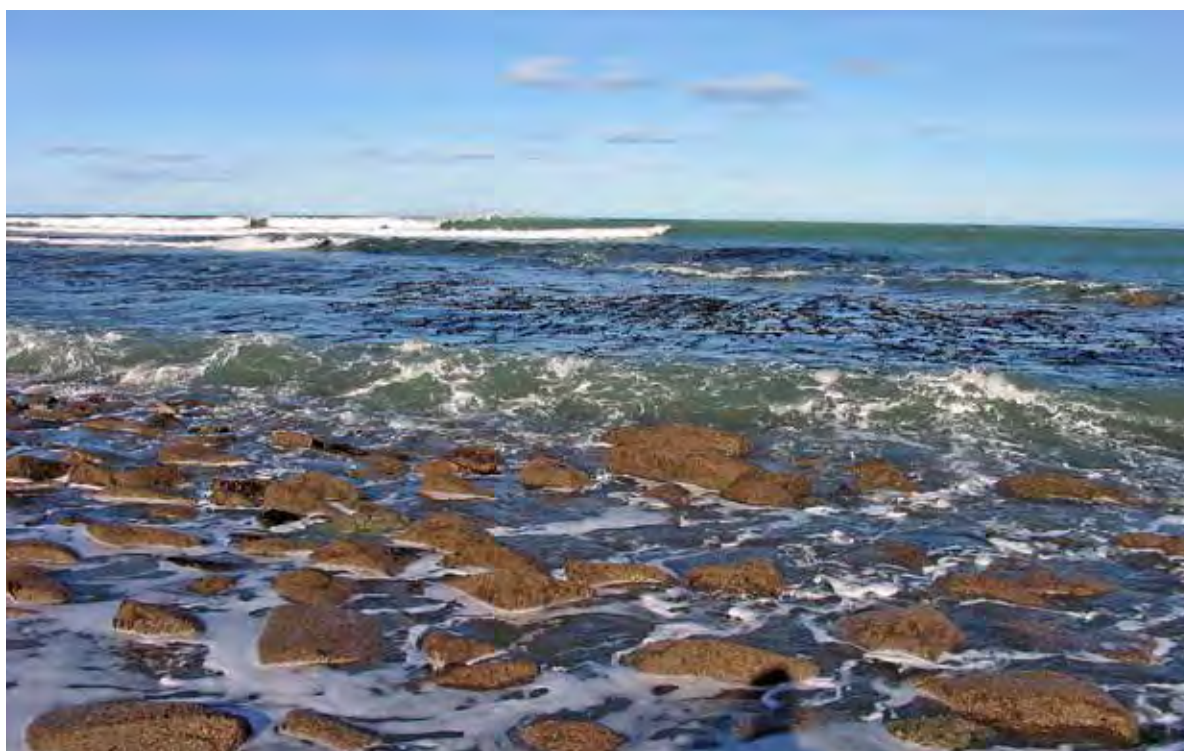
Terrestrial Biotic Systems

Dovedale Stream is the main stream located in this coastal area. In its incised, relatively wide gully a combination of indigenous hardwoods and regenerating scrub can be found. A number of other gullies to the south of Dovedale Stream also show signs of native regeneration. However, in general the coastal slopes are extensively grazed with more intensive agriculture on the flat spurs and tops, while native vegetation is sparse and confined to a few gullies. Tiromoana Scenic Reserve has been established in the Ella Peak area on low hills adjacent to the coast, near Glenafric Beach.

The coastal hill slope included in the reserve is divided by an incised gully running from the ridge top to sea level, cutting through a raised marine terrace. Kanuka is the dominant hardwood forest on the hill slope and in the coastal gully.

Land Cover and Land Use

Agricultural land uses dominate in this coastal area. Settlements can only be found in the hinterland, since the coast is largely inaccessible. A large pine forest plantation covers several spurs north of the Waipara River to the south of Mt Cass. This forms the endpoint of Pegasus Bay and its sandy beaches.



Rocky inter-tidal reef south of Motunau (image courtesy of P. Langlands).



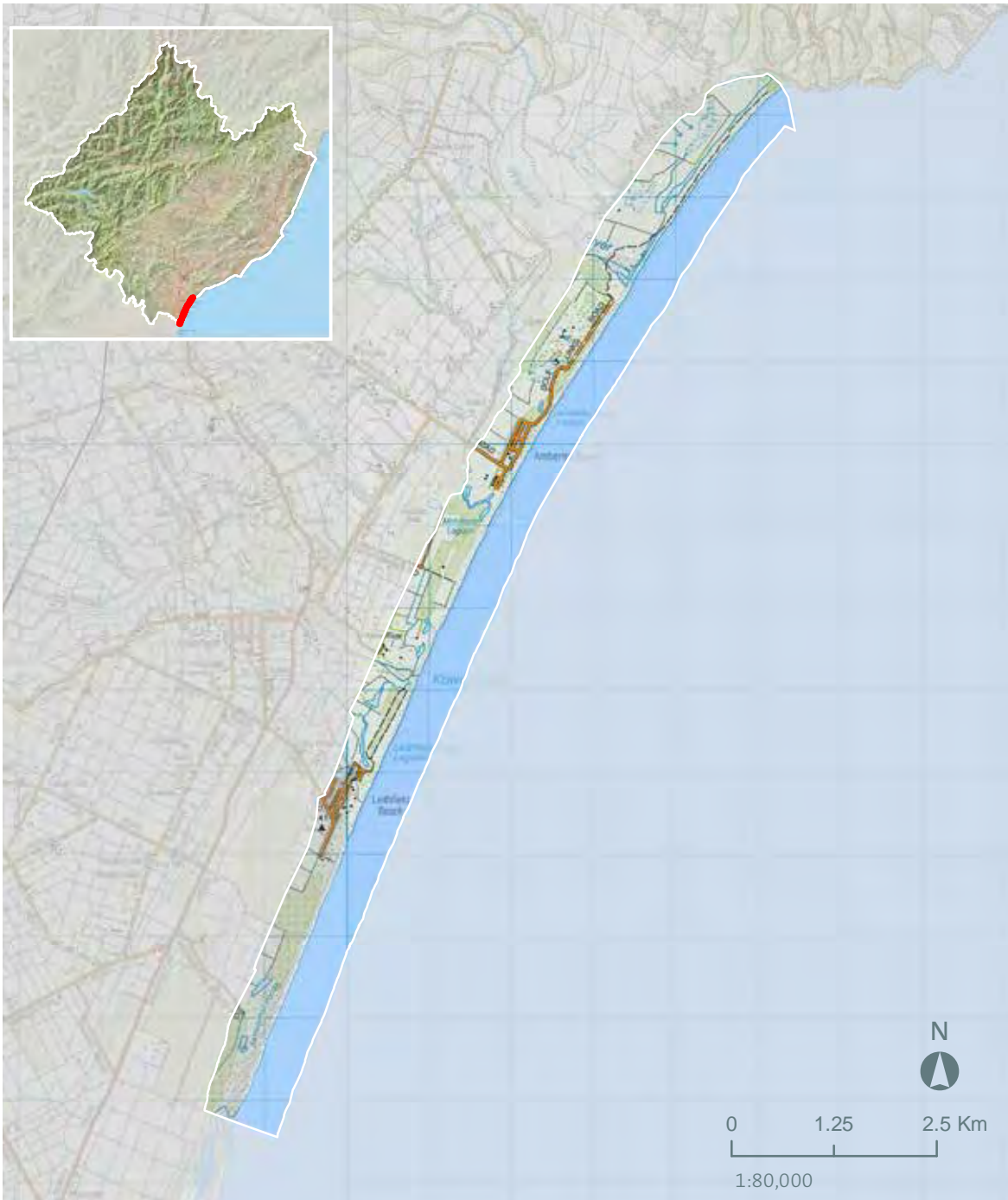
Glenafric settlement (right), broadleaved indigenous hardwoods in incised stream gully below Totara Peak and sandstone cliffs.

Coastal Area 12 : Waipara

This northern Pegasus Bay coastal area extends from the Waipara River lagoon to Ashworths Beach in the south and includes the settlements of Leithfield and Amberley Beach. The Saltwater Creek/ Ashley estuary is located in the adjacent coastal area to the south, however four small lagoons are included in this area. The wide, flat beaches in the northern part of Pegasus Bay contrast with the cliffs of the steeply eroding coastline below Mt. Cass further north. The Waipara and Kowai River mouths are also key features of this northern section.

Coastal Context

The flat northern Canterbury Plains, which form the context for this coastline are intensively farmed and small scale settlements, such as Leithfield and Amberley, lie along State Highway 1. On the coastal side of the highway large plantation forests are covering extensive areas and modifications, such as oxidation ponds and quarries, occur in this coastal hinterland. While the majority of the area is flat, low cliffs form the boundary to the coastal environment along the northernmost section of this coastal area, where the land starts to rise towards the Mt. Cass foothills.





The Waipara (pictured) and Kowai River mouths are key features of this northern section.



The wide, flat beaches in the northern part of Pegasus Bay contrast with the cliffs of the steeply eroding coastline below Mt. Cass further north. Waipara hapua lagoon is pictured in the foreground.



Representative coastal diagram of Waipara.

Coastal Area 12 : Waipara

Degree of Natural Character	Natural Character Attributes				
	Zone A	Zones A & B		Zone B	
	Water	Abiotic Systems & Landforms	Perceptual/ experiential	Terrestrial Biotic Systems	Land Cover & Land Use
Very High	✓				
High					
Moderate to High		✓			
Moderate			✓	✓	
Moderate to Low					✓
Low					
Very Low					
Overall Natural Character Rating for Coastal Area			Moderate		

Water

The coast line south of the Kowai River is dominated by sandy beaches backed by low coastal dunes. North of Leithfield, the sand beaches change to steep, eroding composite beaches, and mixed sand and gravel beaches. These northern Pegasus Bay beaches are characterised by upper foreshores composed of variable mixtures of sand and gravel adjacent to sandy foreshores and swash zones. The sandy part of the beach is only exposed at low tide. The northern boundary of the Banks Peninsula Marine Mammal Sanctuary is located at the Waipara River mouth. Within the sanctuary, there are a number of fishing restrictions and areas set aside for fishing.



Waipara River Mouth.

are sometimes flooded by the sea, which can lead to erosion of unconsolidated gravel and sand. The Waipara River mouth, which only occasionally opens, is usually offset to the north behind a bar, forming a characteristic hapua-type lagoon. Several notable hapua lagoons are located in this coastal area, namely those associated with the Waipara and Kowai River mouths, and Amberley Beach and Mimimoto Lagoons between these two rivers.

Abiotic Systems and Landform

This coast consists predominantly of composite, rather than mixed sand and gravel beach types. Gravel beaches are more stable than sand beaches and raised gravel ridges have developed along the landward side of the beaches. While these areas are well drained, they

Perceptual

The coastline consists mainly of shingle beaches above the tide mark with some low cliff faces. While access to the coast is relatively easy, these beaches are only rarely used for bathing. However, fishing, 4WD/ motorbike use and some fishing occurs, and Leithfield Beach serves a local surf spot. The coastal lagoons mentioned above are currently being restored (with willow removal) and walkways/ picnic areas

have been installed to link Amberley and Leithfield Beach, extending the network of tracks along the coastal reserve linking the Mimimoto Lagoon to the Waipara River. The coastal fringe contains rich farm land, settlements and associated recreation facilities, such as a golf course in Amberley Beach. The level of modification within the coastal environment is, therefore, higher than along the inaccessible Hurunui coastline.

Terrestrial Biotic Systems

Amberley Beach has a stable gravel area in the form of old beach ridges, rather than dunes located immediately behind the beach. These are colonised by scattered plants, such as shrubs, vines, grasses and herbs. These well-drained gravelly sites are exposed to salt spray during storms and very hot and dry in summer, which limits plant growth. The restoration of coastal wetlands in the northern part of Pegasus Bay has ecological benefits. The river mouth/coastal lagoons described above and the coastal Ashworths

Ponds serve as sea and shorebird habitats.

Land Cover and Land Use

The land cover on the dunes and coastal fringe is generally dominated by exotic species. In the central and southern section agricultural land use, settlements and recreational facilities (golfcourse) are encroaching towards the dunes. The lagoons/ wetlands and rivers are generally lined by willows, but restoration efforts have been undertaken to remove some of them. Exotic conifer plantations occur along the inland side of the dunes south of the Kowai River.



Mimimoto Lagoon shortly south of the Waipara River.



Northern extent of Pegasus Bay.

Outstanding Coastal Natural Character Areas

Following the assessment of natural character for each coastal area, coastal landscapes with Outstanding Natural Character were identified (see Section B for methodology). The following Section provides the maps and detailed value descriptions for each one of these seven areas that have been assessed as Outstanding in terms of their natural character.

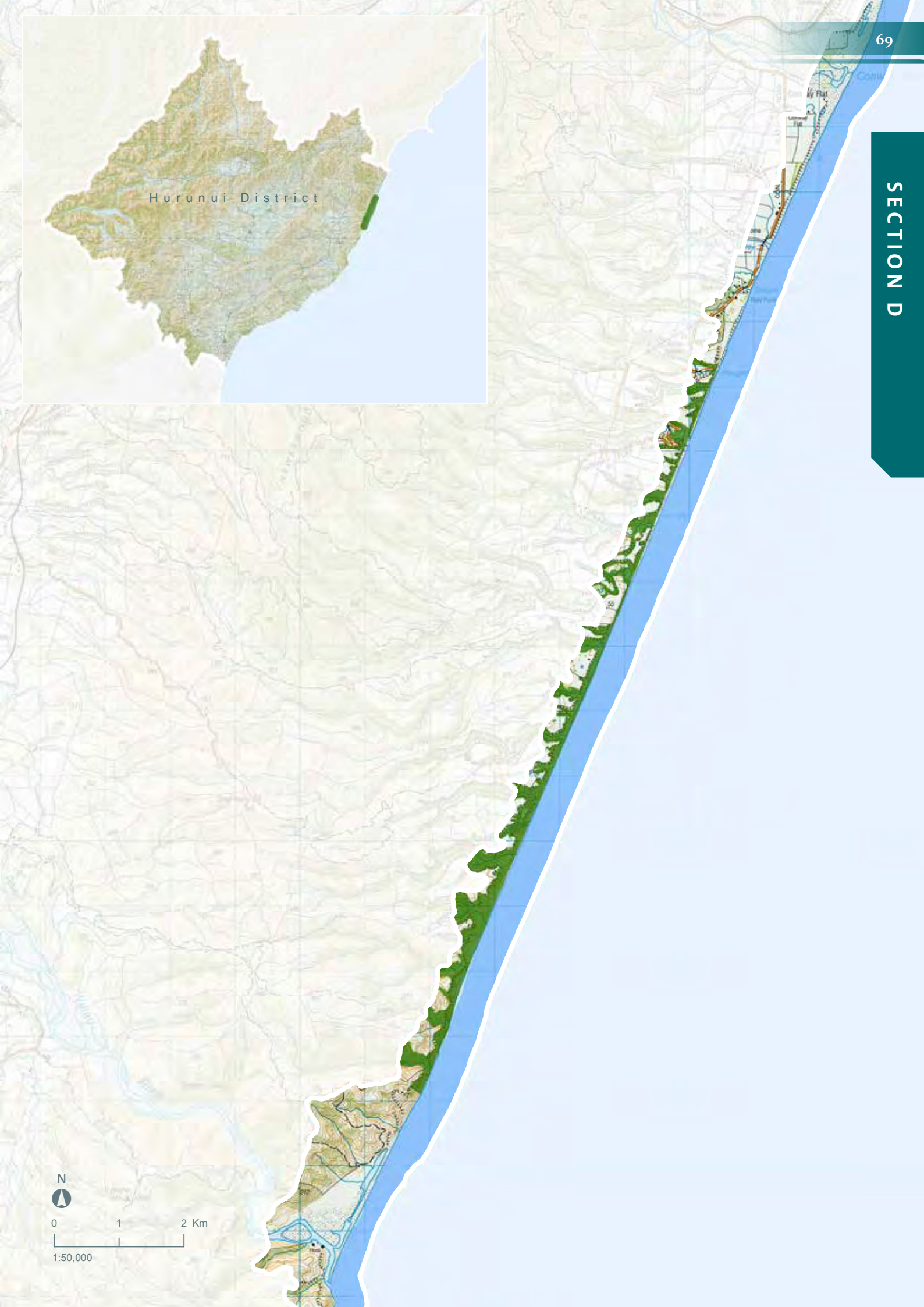
Conway Gullies Outstanding Coastal Natural Character Area

Exceptional examples of a large sequence of deeply incised drainage gullies, draped with coastal vegetation

Conway Gullies Outstanding Natural Character Attributes	
Natural Character Unit	Number 1: Conway Terraces
Unit Character Rating	High
Values	
Abiotic Systems	Ancient marine cliffing with coastal erosion, followed by rapid uplift. Very distinctive drainage pattern. Entire area is a Geopreservation site. Fossils and gravel beaches assist in tracing geological history. The marine terraces are an identified Geopreservation Site, as the layering of the six marine terraces sequences is particularly legible. A fossil forest and marine trace fossils at the back of a gravel beach near Ploughman Creek have also been identified as such sites.
Perceptual	Private property with limited access.
Terrestrial	NZ fur seals breed in area. Gullies contain broadleaf indigenous hardwood forests.
Land Cover	Indigenous land cover within gullies is significant given rarity of bush along coastline in Hurunui. Big Bush Gully and Ploughmans Stream contain broadleaf indigenous hardwoods, while most of the other gullies are covered in regenerating bush, with predominantly kanuka.
Conway Gullies Coastal Natural Character Area Rating	Outstanding



The incised gullies of this section of coastline contain indigenous hardwood forests.



Waiau River Mouth

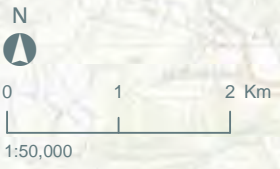
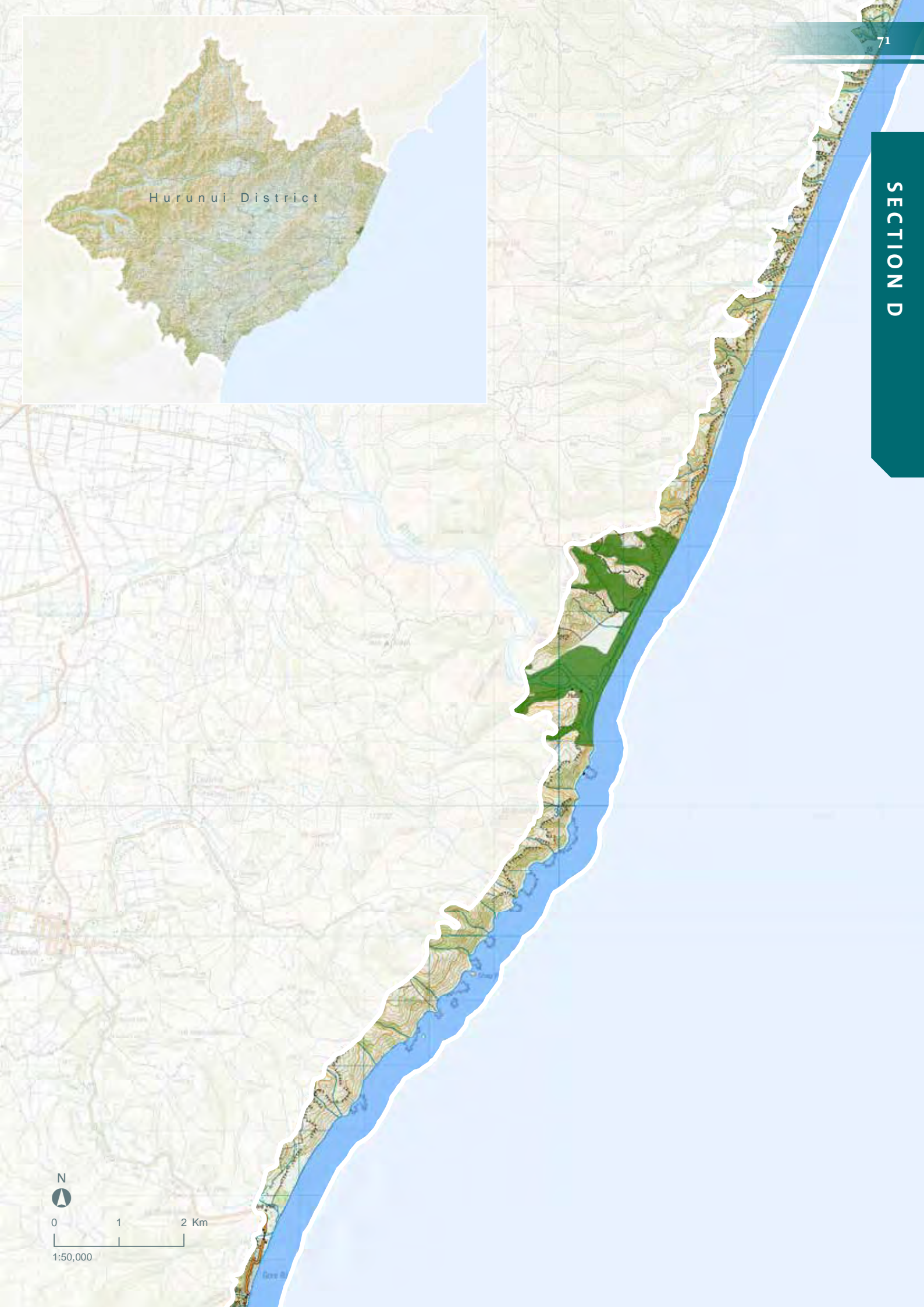
Outstanding Coastal Natural Character Area

Exceptional example of a relatively unmodified major river mouth, displaying excellent intact coastal characteristics.

Waiau River Mouth Outstanding Natural Character Attributes	
Natural Character Unit	Number 2: Waiau
Unit Character Rating	High
Values	
Water	Waiau River dominates coastal sediment supply.
Abiotic Systems	Hapua-style lagoon at river mouth, with beach barrier. Very limited modification.
Perceptual	Inaccessible, other than by river.
Terrestrial	Large scenic reserve on northern banks, with isolated lowland podocarp forest, which is very uncommon. The Waiau River mouth and lagoon represents an important site for birds, including a small pied cormorant colony and black-fronted tern wintering site.
Land Cover	Some parts grazed, but DOC managed scenic reserve is significant. Limited modification other than grazing.
Waiau River Mouth Coastal Natural Character Area Rating	
Outstanding	



Waiau River Mouth is inaccessible by road and contains unmodified coastal characteristics.



Mt Beautiful

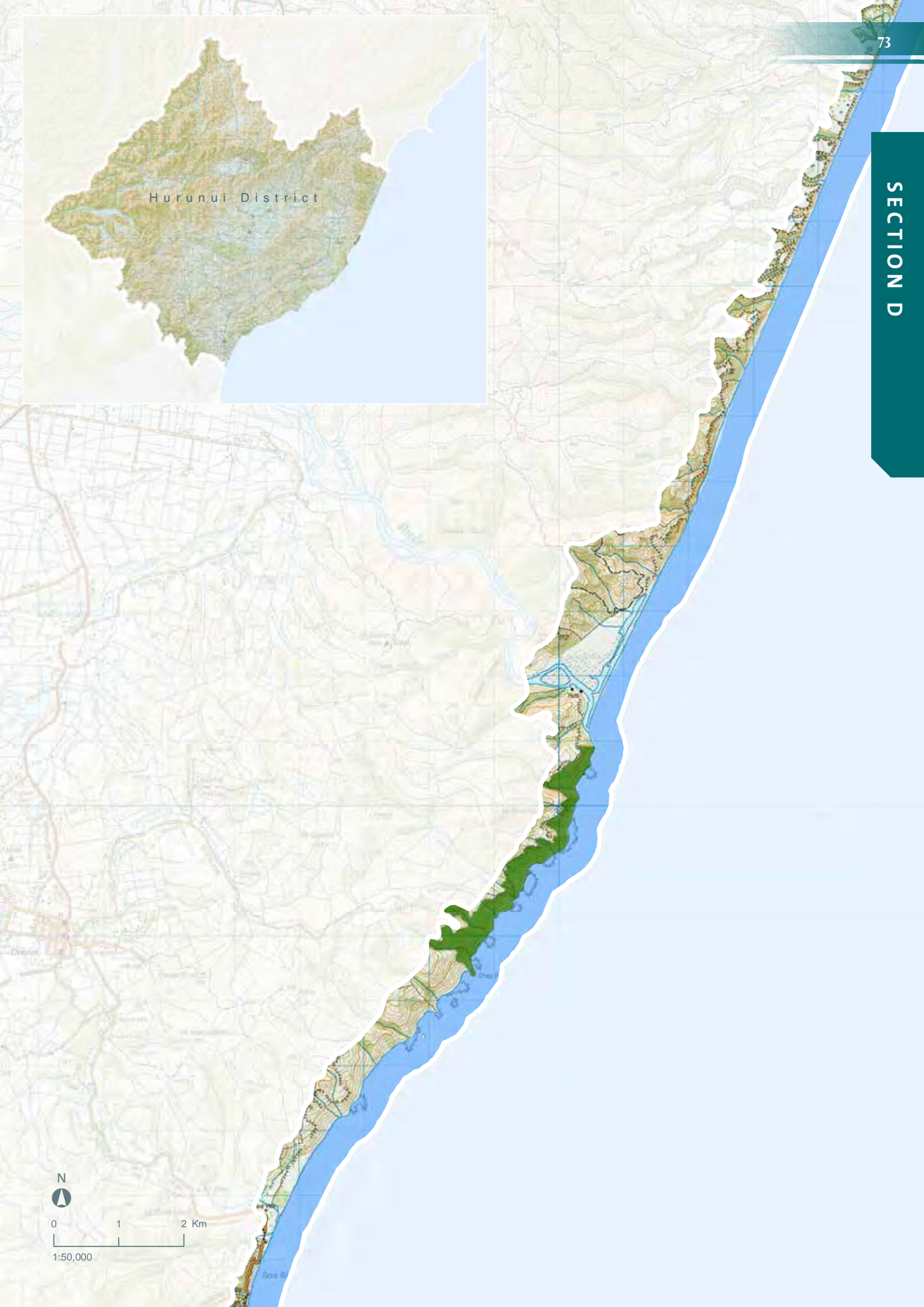
Outstanding Coastal Natural Character Area

Dramatic and intricate section of the Hurunui coastline displaying prominent coastal features with limited modification.

Mt Beautiful Outstanding Natural Character Attributes	
Natural Character Unit	Number 3- Shag Rock
Unit Character Rating	High
Values	
Water	Significant rocky reefs immediately off shore. Shag Rock supports breeding gulls and shags and there are occasional nesting colonies of white-fronted terns along this coastline.
Abiotic Systems	Steeply eroding cliffs, with dissected spurs. Shag Rock is a Geopreservation site.
Perceptual	Inaccessible. Dramatic coastline.
Terrestrial	Shag Rock Scenic Reserve located in southern part. Steep coastal slopes covered with broadleaf indigenous hardwoods. Gullies also rich with native species. Seals are also abundant.
Land Cover	Unmodified steep coastal cliffs and beaches, with limited tracks.
Mt Beautiful Coastal Natural Character Area Rating	
Outstanding	



Located shortly south of the Waiiau River Mouth Mt Beautiful terminates in rugged, steeply eroded cliffs and offshore rocks and reefs.



Cathedral Gully

Outstanding Coastal Natural Character Area

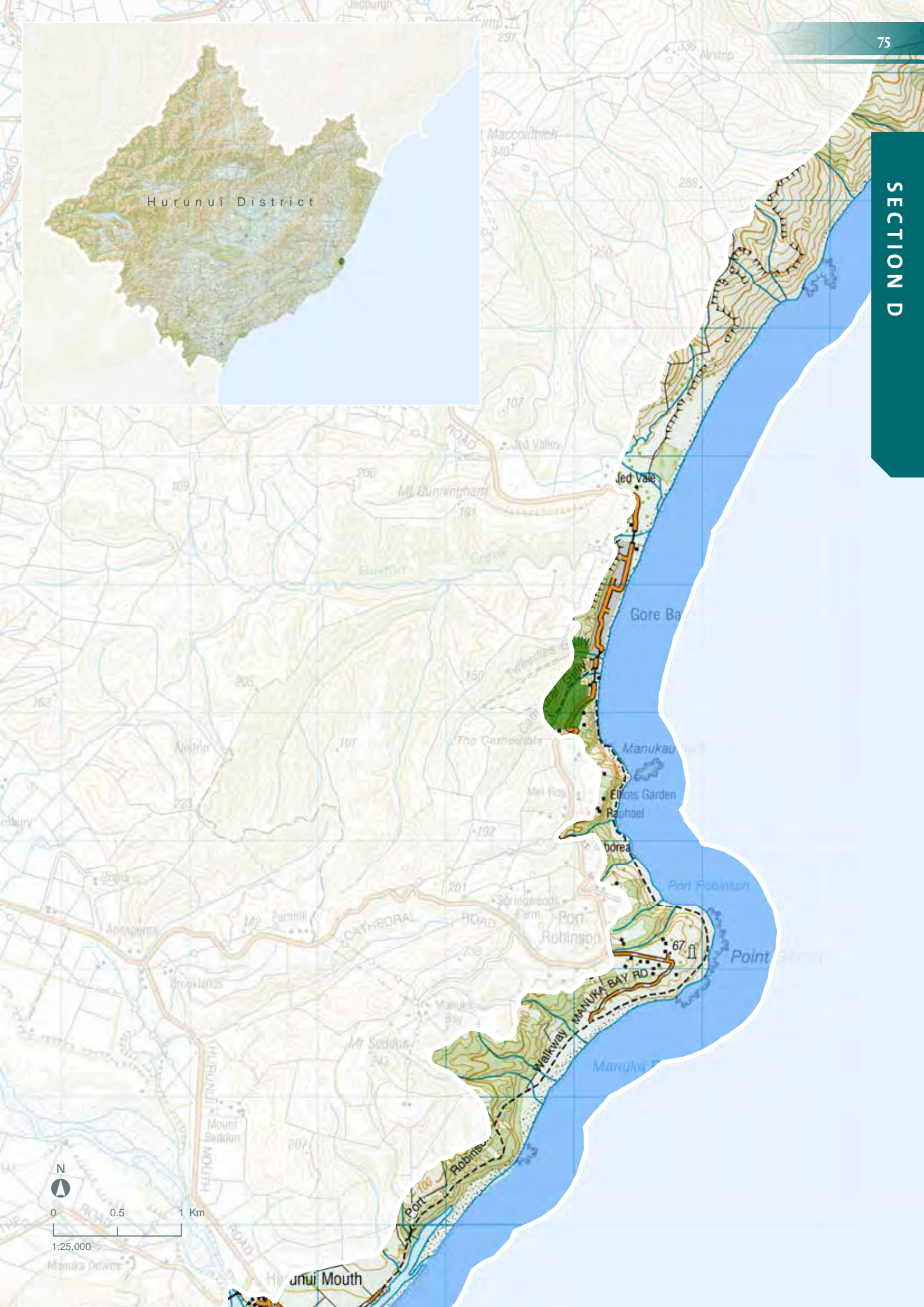
Dramatic eroding coastal cliffs and incised gullies covered with indigenous vegetation located very close to a popular holiday location.

Cathedral Gully Outstanding Natural Character Attributes	
Natural Character Unit	Gore Bay*
Unit Character Rating	Moderate
Values	
Abiotic Systems	Tidal foreshore comprising sand backed by impressive steep sea cliffs. Listed as a Geopreservation site.
Perceptual	Access to gully via beach. Important landscape feature of the area.
Terrestrial	Significant stand of coastal bush within gully
Land Cover	Surrounded by modification, this accessible small pocket of steeply incised gullies draped with indigenous vegetation is rare.
Gore Bay Coastal Natural Character Area Rating	Outstanding

**Note: To be considered 'outstanding' in the methodology only natural character areas rating as 'high' or 'very high' need to be considered. We have broken the rule in this case and included Gore Bay (for Cathedral Gully).*



Cliffs and incised gullies are a distinctive natural feature of the Gore Bay Coastline.



Hurunui River Mouth

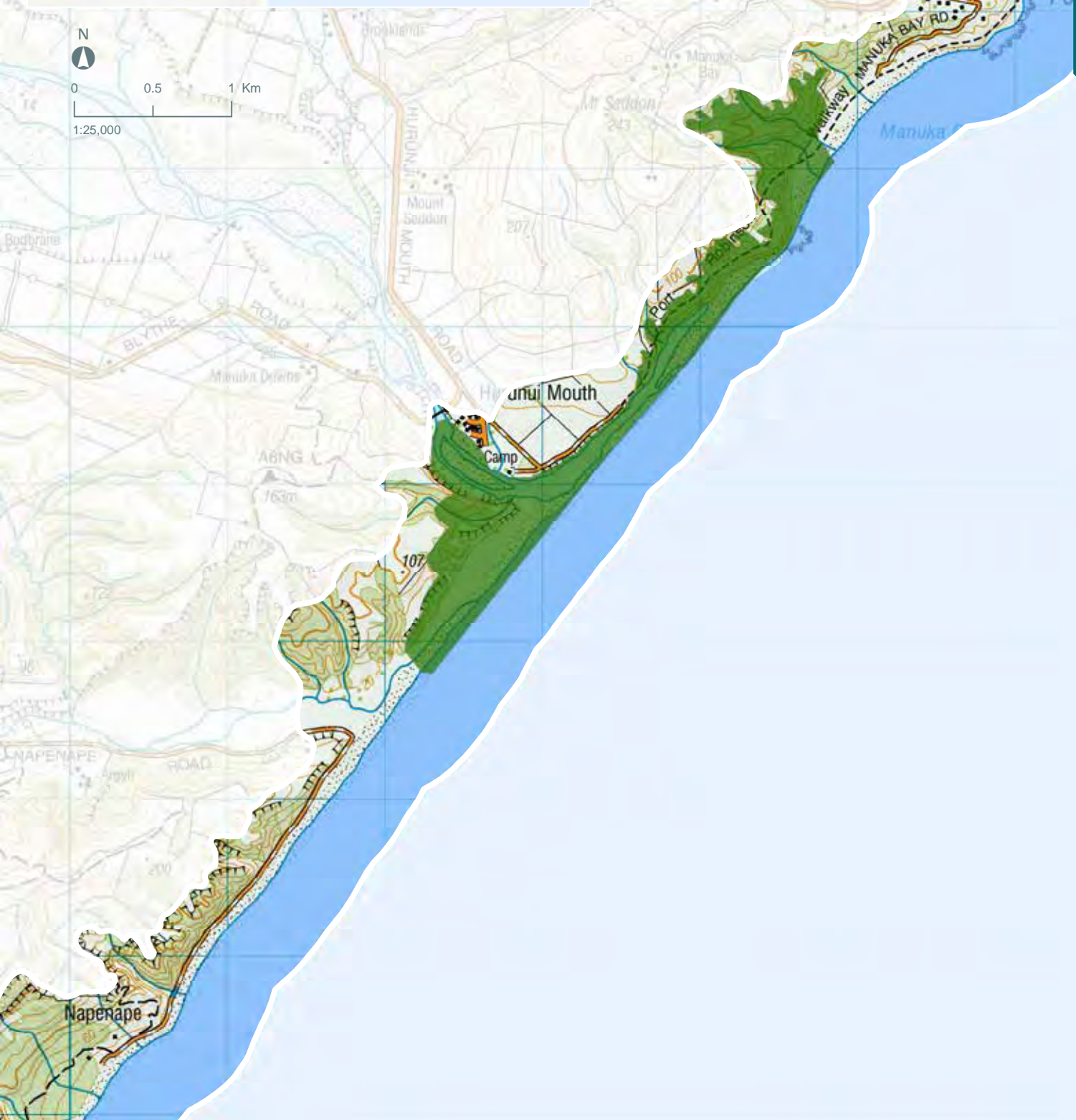
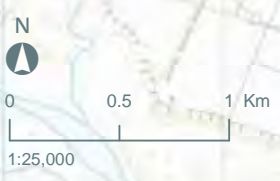
Outstanding Coastal Natural Character Area

The Hurunui River mouth is the key feature of the coastal section between Point Gibson and Napenape.

Hurunui Mouth Outstanding Natural Character Attributes	
Natural Character Unit	Number 5- Hurunui
Unit Character Rating	High
Values	
Water	Hurunui Lagoon extending north from the mouth. Wide shingle beach has formed with a distinctive foreshore and backshore.
Abiotic Systems	The Hurunui River forms a small river delta surrounded by coastal cliffs and the mouth terminates in a hapua-type lagoon. The lagoon predominantly contains fresh water, impounded by a long, narrow spit formed of coarse sediments by long-shore drift. Near the Hurunui River sandstone intrusions, which have been forced into overlying rocks, can be found. This geological feature is identified as a Geopreservation Site.
Perceptual	Camp ground located near Hurunui River mouth, area is frequented for fishing. Several archaeological sites with middens, fire areas and artefacts recorded at the Hurunui River mouth
Terrestrial	River mouth and lagoon are important sites for birds.
Land Cover	Small settlements can be found in this coastal area where road access exists, such as at the Hurunui Mouth.
Conway Gullies Coastal Natural Character Area Rating	
Outstanding	



The Hurunui Lagoon, river mouth and cliffs that surround it are a key natural feature of the Hurunui Coastline.



Napenape

Outstanding Coastal Natural Character Area

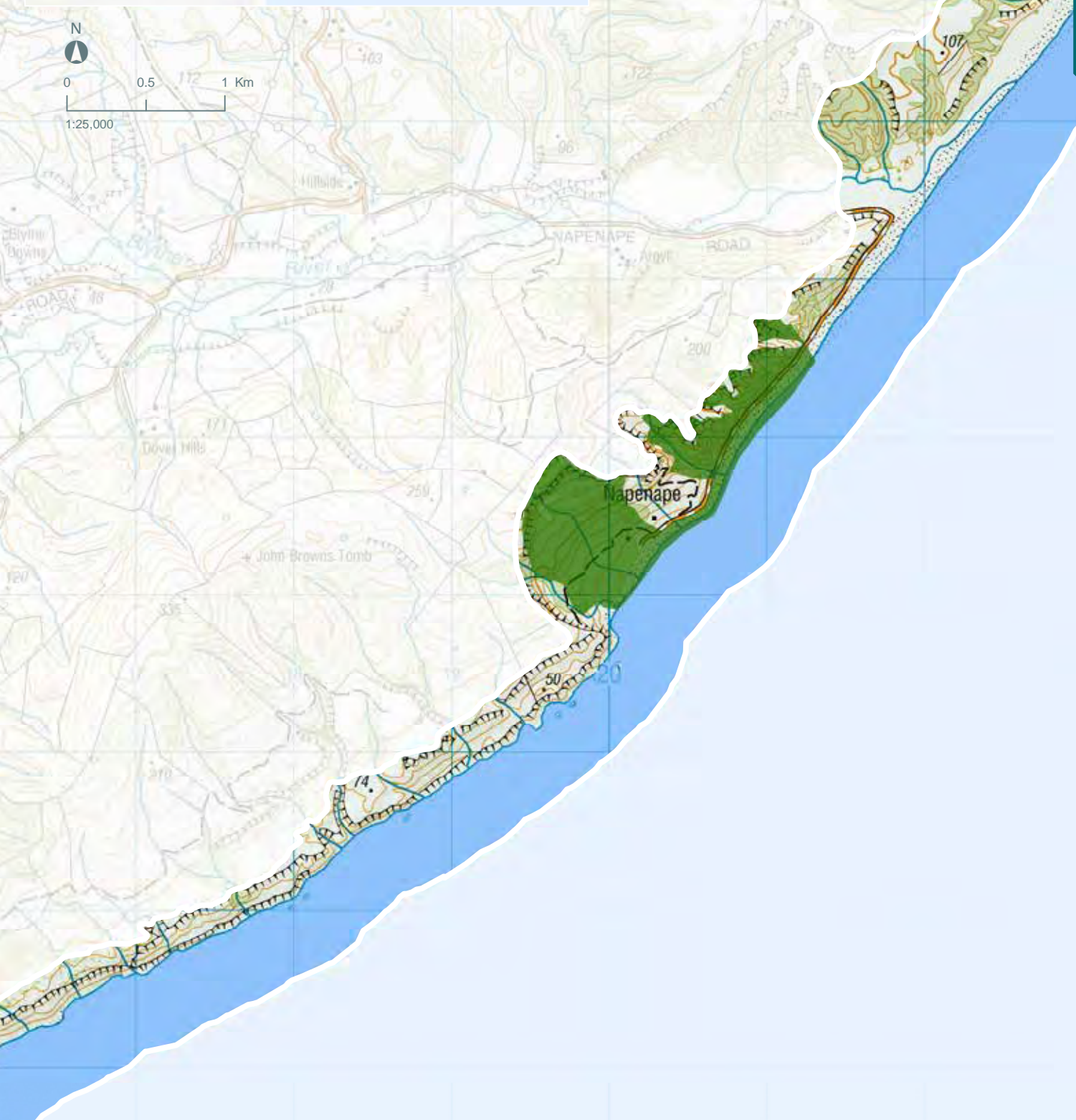
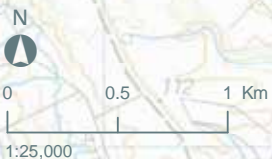
The striking amphitheatre-shaped coastal slump, unusual geology and impressive land-sea naturalness are uncommon in Hurunui.

Hurunui Mouth Outstanding Natural Character Attributes	
Natural Character Unit	Number 5- Hurunui
Unit Character Rating	High
Values	
Water	
Abiotic Systems	Striking amphitheatre-shaped slump with unusual limestone landforms.
Perceptual	Scenic Reserve clad in indigenous coastal vegetation.
Terrestrial	Significant stands of indigenous coastal forest, with rare grass found on coastal margin.
Land Cover	Impressive coverage of native vegetation.
Conway Gullies Coastal Natural Character Area Rating	Outstanding



Napenape Scenic Reserve has an impressive coverage of native vegetation.

SECTION D



Napenape

Motunau Island

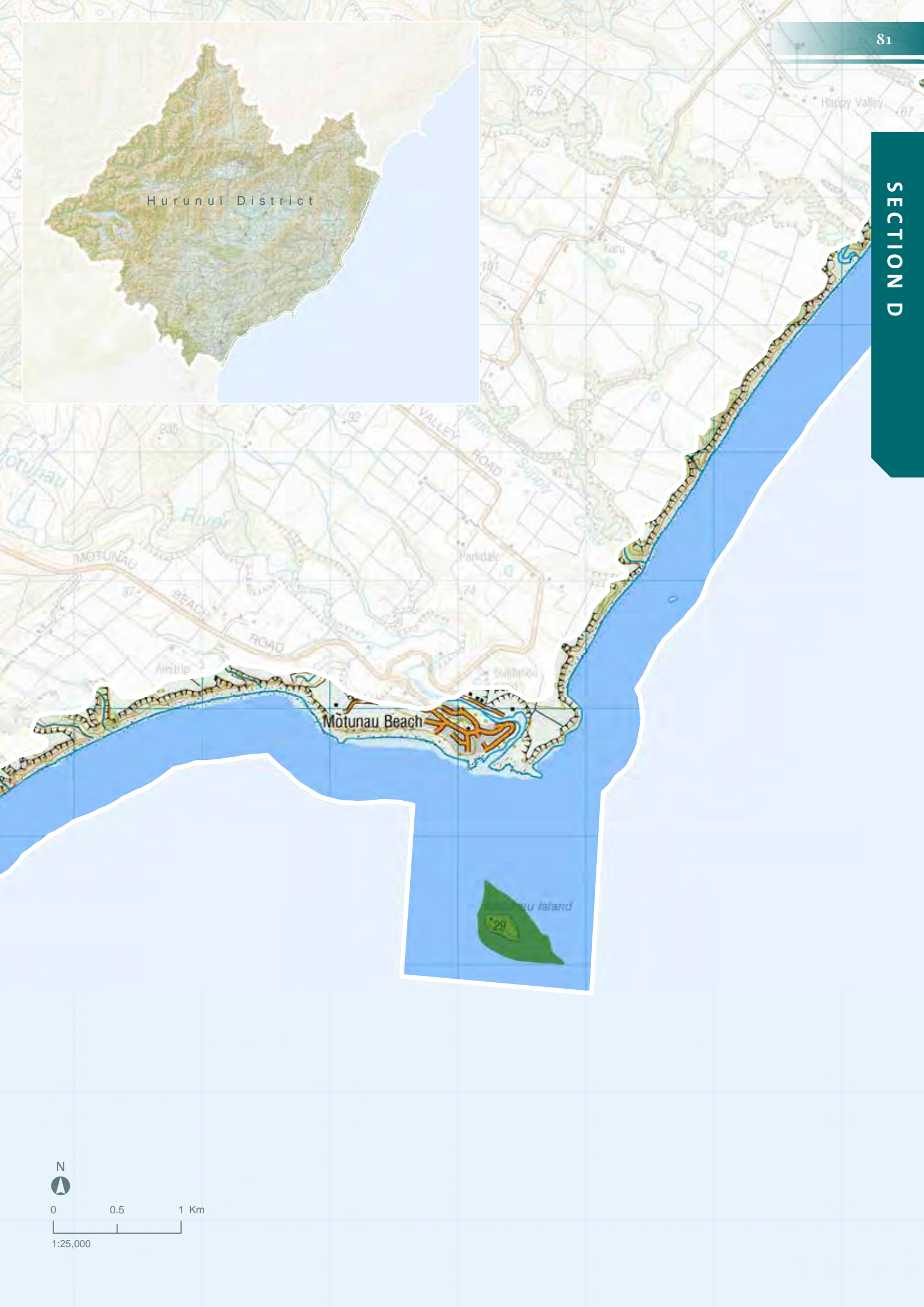
Outstanding Coastal Natural Character Area

Distinctive, flat topped island, noted for its internationally significant breeding bird colony is rare off the east coast of the South Island.

Motunau Outstanding Natural Character Attributes	
<i>Natural Character Unit</i>	Motunau Island
<i>Unit Character Rating</i>	Very High
Values	
<i>Water</i>	Significant nearshore island in district, with offshore reefs.
<i>Abiotic Systems</i>	Excellent example of eroding cliffs, friable soil and wave-cut reefs and cliffs.
<i>Perceptual</i>	Attractive and very visible cliffs, rich wildlife association with very limited modification.
<i>Terrestrial</i>	Internationally significant for birdlife.
<i>Land Cover</i>	
Motunau Island Coastal Natural Character Area Rating	
	Outstanding



Motunau Island is the only significant nearshore island in the region. The island has steep sides, rocky beaches and numerous offshore reefs.



Appendices

Appendix 1 Landscapes recognised in the Hurunui District Plan

The following landscapes have been identified as Outstanding and Significant Landscapes in the current Hurunui District Plan.

OUTSTANDING LANDSCAPES:

- Waiau mouth
- Gore Bay, Port Robinson
- Hurunui mouth
- Nape nape
- Motunau Island
- Maugatere/Mount Grey
- Weka Pass area
- Waiau River
- Inland Road, Terako
- Hanmer Range (western slopes)
- Clarence Valley
- Spenser Range
- Lewis Pass area
- Hurunui Catchment
- Te Kooti & Tekoa

Landscape Recognition other Documents

Hurunui District Landscape Study (Lucas Associates, 1995)

The following landscapes have been identified as Outstanding Landscapes in the Hurunui Landscape Study.

OUTSTANDING LANDSCAPES:

- Conway Flats
- Waiau mouth
- Gore Bay, Port Robinson
- Hurunui mouth
- Napenape
- Motunau Island
- Maugatere/Mount Grey
- Weka Pass area
- Waiau River
- Inland Road, Terako
- Hanmer Range
- Clarence valley
- Spenser Range
- Lewis Pass area
- Hokakura and Hurunui Catchment
- Te Kooti & Tekoa

SIGNIFICANT LANDSCAPES:

- Coastal hills and plains
- Hurunui River & Gorge
- Amberley Beach and plain

- Mount Grey Downs
- Hurunui Hills
- Lowry Peaks Range
- Isolated Hill
- Waiau River
- Hanmer Springs area
- Amuri Range
- Clarence Valley
- Philosophers Knob
- Main Divide
- Hurunui catchment
- Waitohi Gorge
- Waikari basin

Canterbury Regional Landscape Study (Boffa Miskell and Lucas Associates 1993)

Through a review of data, the Canterbury Regional Landscape Study (Boffa Miskell and Lucas Associates 1993) identified a number of areas in (or associated with) the district as regionally "outstanding". Areas and generic features of regional "significance" were also identified.

REGIONALLY OUTSTANDING:

- Haumuri Bluff and Kaikoura Coast
- Mid and Upper Clarence River
- Spenser Range
- Lewis Pass area
- Hurunui Lakes area
- Weka Pass area

REGIONALLY SIGNIFICANT:

- Motunau to Conway coastal plain
- Saltwater Creek and Ashley estuary
- plus, rivers, springs, wetlands, river terraces, coastal cliffs, dunes, inland sandhills, tussock and flax lands, shrubland and forest, prehistoric sites.
- Mount Oxford to Mount Grey Range
- plus, limestone scarps, outcrops and sinkholes, tussock and wetlands, forest and shrubland, flax and cabbage trees, prehistoric sites, skylines.

Proposed RPS following Canterbury Landscape Study Review 2010:

- The following areas have been identified in the Canterbury RPS review:
- Lake Sumner and Lewis Pass (incl Spenser Range, Lewis Pass Area, Hurunui Lakes area)
- Molesworth (incl Mid and Upper Clarence River)
- Weka Pass
- Kaikoura Peninsula and Coast (incl Haumuri Bluffs)

Appendix 2 Definition of Criteria for ONL Identification

The criteria for identification of Outstanding Natural Landscapes applied in the Hurunui Landscape Study (1995, Lucas Associates) were defined as follows:

1. NATURAL SCIENCE

Natural features and landscapes of at least district importance for reasons of the rarity or representativeness of their particular landform and landcover. A natural feature may be a landscape feature or an element/component of the landscape. Under S.6(b) geology and soils are elements of particular focus, as flora and fauna values are also considered elsewhere in the Act.

2. LEGIBILITY

The landscape (or natural feature) of district significance should clearly express past natural and/or cultural processes. Some may have strong historical connotations and a distinctive sense of place.

3. TRANSIENT

The natural feature or landscape of district significance providing predictable or regular experience of dimensions of nature other than landform or landcover e.g. concentrations of wildlife.

4. AESTHETIC

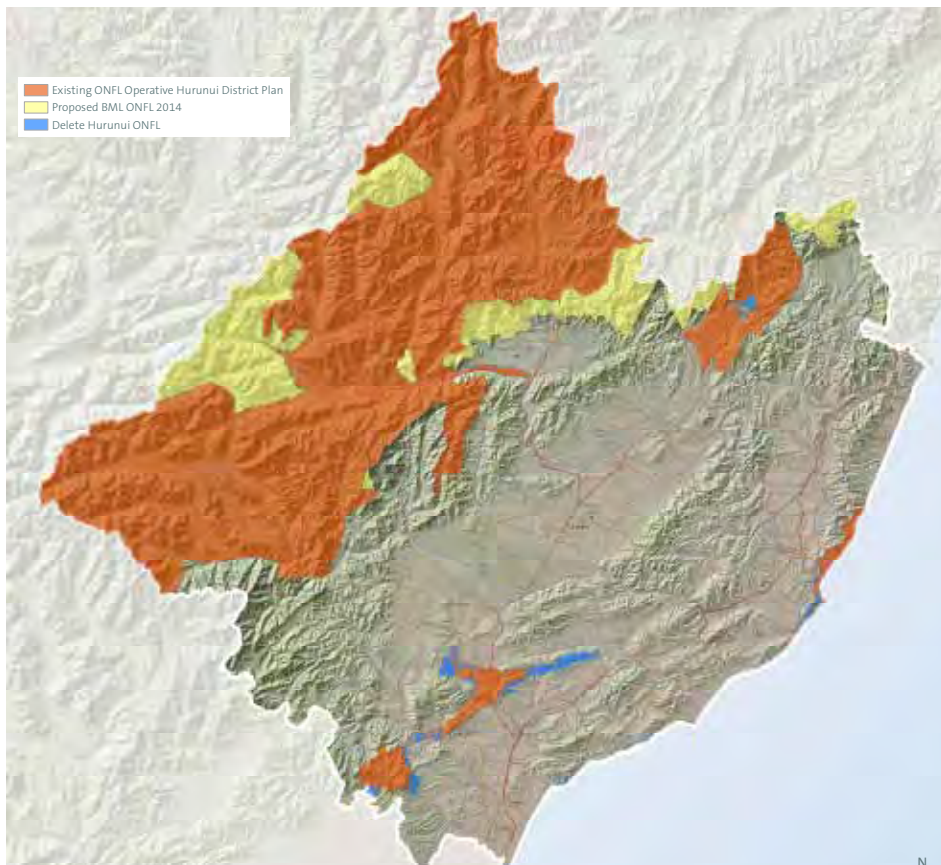
Landscapes (and natural features where applicable) that are of high aesthetic value determined on how memorable they are, on their naturalness, on their composition (coherence) and on other important aesthetic factors.

5. SHARED AND RECOGNISED

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 to cite or visit. The presence of existing protected sites is also likely to reflect shared and recognised values.

6. TANGATA WHENUA

The natural feature or landscape identified as having particular district importance to tangata whenua.



Map showing ONFLs in Hurunui District as proposed following the landscape review and pre-notification consultation undertaken in 2013-14 (see separate report for details and landscape value descriptions).

Appendix 3 Geopreservation Sites Waipara Gorge ONF/L

Waipara River Cretaceous-Paleocene Sequence- Canterbury

SIGNIFICANCE: One of the most complete and well exposed K-T sequences in New Zealand. Diverse microfauna, including type locality for various species. Holostratotype of Teurian Stage.

DESCRIPTION: Concretionary sandstones, mudstones and greensands. The K-T boundary occurs at the base of a 4 m thick glauconitic sandstone member near the top of the Conway Formation.

LOCALITY: A bluff on the south bank about 0.7 km upstream from the Laidmore Station road crossing, Waipara River between Doctors Gorge and junction with Birch Hollow Stream. M34 760 940.

ACCESS: Cross river at the base of hill on McKays Road.

EXPOSURE TYPE: River cuttings and river cliffs.

CLASSIFICATION: Importance= A Vulnerability = 3

Waipara River Cretaceous "Saurian Beds"- Canterbury

SIGNIFICANCE: The most prolific, easily accessible late Cretaceous marine reptile locality in New Zealand.

LOCALITY: Middle of Waipara River between Doctors gorge and junction with Birch Hollow Stream. M34 770 945.

EXPOSURE TYPE: Stream cuttings and river cliffs.

CLASSIFICATION: Importance = A Vulnerability= 2

HAZARDS: Commercial exploitation or plundering, erosion

Deans Earthflow Complex - Canterbury

SIGNIFICANCE: A series of earthflows important due to being one of the best New Zealand examples - particularly significant as a South Island example. Classified as an extremely well defined landform of scientific/educational value.

LOCALITY: "The Deans", Waipara River, North Canterbury. M34 81 | 961.

CLASSIFICATION: Importance = B Vulnerability= 3

Appendix 4 GIS data for desktop review

National GIS data provided by BML (and mapped at a variety of scales):

- Topo Maps (LINZ)
- Digital contour information 20m interval (LINZ)
- Land Cover Database 21 (Terralink, based on 2002 aerials)
- DOC conservation Units (May 2009)
- Critical sites² identified by DOC (Cant. Conservancy Animal Pest Management Strategy, 2006)
- QE II covenants (March 2007)
- River Environment Classification (NIWA)
- Land Resource Inventory (Landcare Research)
- Geopreservation sites and areas, as indicative points (Kenny & Hayward, 1998). These are mapped at 1:50,000 scale.

The following data was provided by Environment Canterbury:

- Current georeferenced orthophotos of the region
- Digitised (shp file format) land types of the Canterbury Region, and grouped into landscape types (data at 1:250,000)
- Digitised (shp file format) significant and outstanding natural features and landscapes
- Digitised (shp file format) outstanding natural features and landscapes from district plans
- Landscape series from District Plans, e.g. prominent ridgelines and significant landscapes
- Ecological series from District Plans (for some districts)
- Sites affected by Ngai Tahu Settlement Claims Act (ECAN, NRRP, 2002)
- Archaeological Sites for Canterbury (New Zealand Archaeological Association).

Specific GIS files included:

- Coastal hazard zones
- Coastal marine area
- Coastal inundation areas
- River and open water habitats for indigenous birds
- Significant vegetation of Canterbury water bodies
- Land of national significance

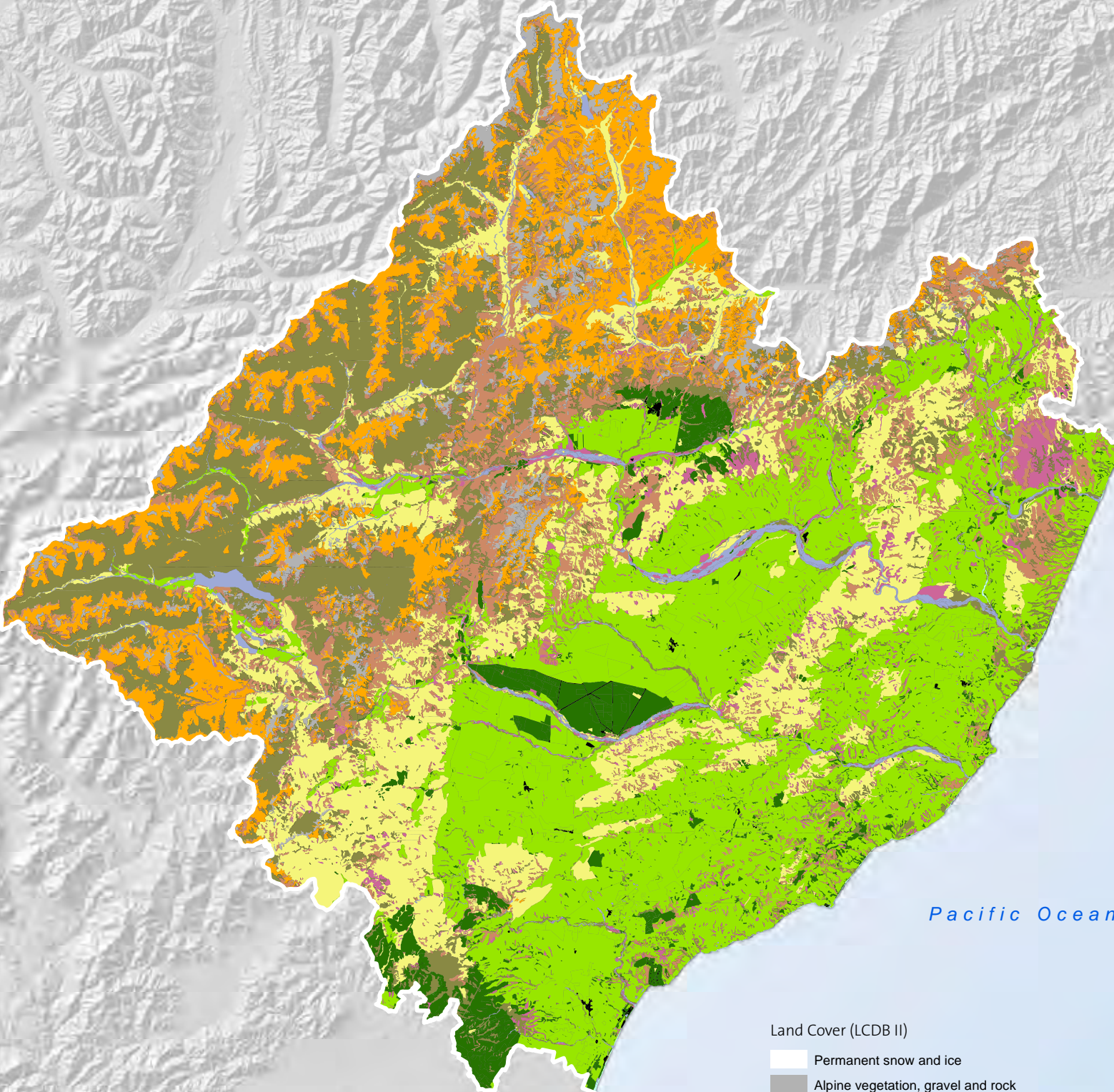
¹ *Land Cover Database 2 (LCDB2) is a thematic classification of 43 land cover and land use classes covering main-land New Zealand, the near shore islands and the Chatham Islands. The first Land Cover Database (LCDB1) was completed in 2000 using SPOT satellite imagery acquired over the summer of 1996/97. LCDB2 was released in July 2004 and used Landsat 7 ETM+ satellite imagery acquired over the summer of 2001/02. The new release reports land cover/land use change for the five-year period between each acquisition of satellite imagery.*

The Landsat 7 imagery used has been pan-sharpened to 15m spatial resolution then orthorectified using ground control point pairs from ortho-photography to a target r.m.s. (root mean square) positional mapping error of 20m. In areas with good ground control the Landsat imagery is correct to within 1 pixel. In areas with poor control (typically mountainous terrain) the imagery may have a positional error of two or more pixels.

Polygon boundaries have been created using both, automated and manual digitising techniques. Manual digitising was undertaken at a display screen resolution of 1:15 000. Cartographically this results in a mixture of “rasterised” and smooth polygons. This has been retained in the database to remind users of the spatial resolution of the imagery used. The raster effect becomes noticeable at 1:25 000 and users are advised to use the data at 1:25 000 or smaller scales to avoid visually having to confront this effect. Given the spatial resolution, ortho-rectification error and scale of manual digitising of LCDB2, it is good practice to use LCDB2 at a scale of 1:25 000 or smaller, (i.e. 1:50 000).

² *Critical sites integrate the conservation values of threatened and representative species and habitats in terrestrial, freshwater and marine ecosystems. They may have a variety of features contributing to their status such as the presence of representative or threatened species or habitats, connections between high value sites, or that they are a large area of relatively intact habitat.*

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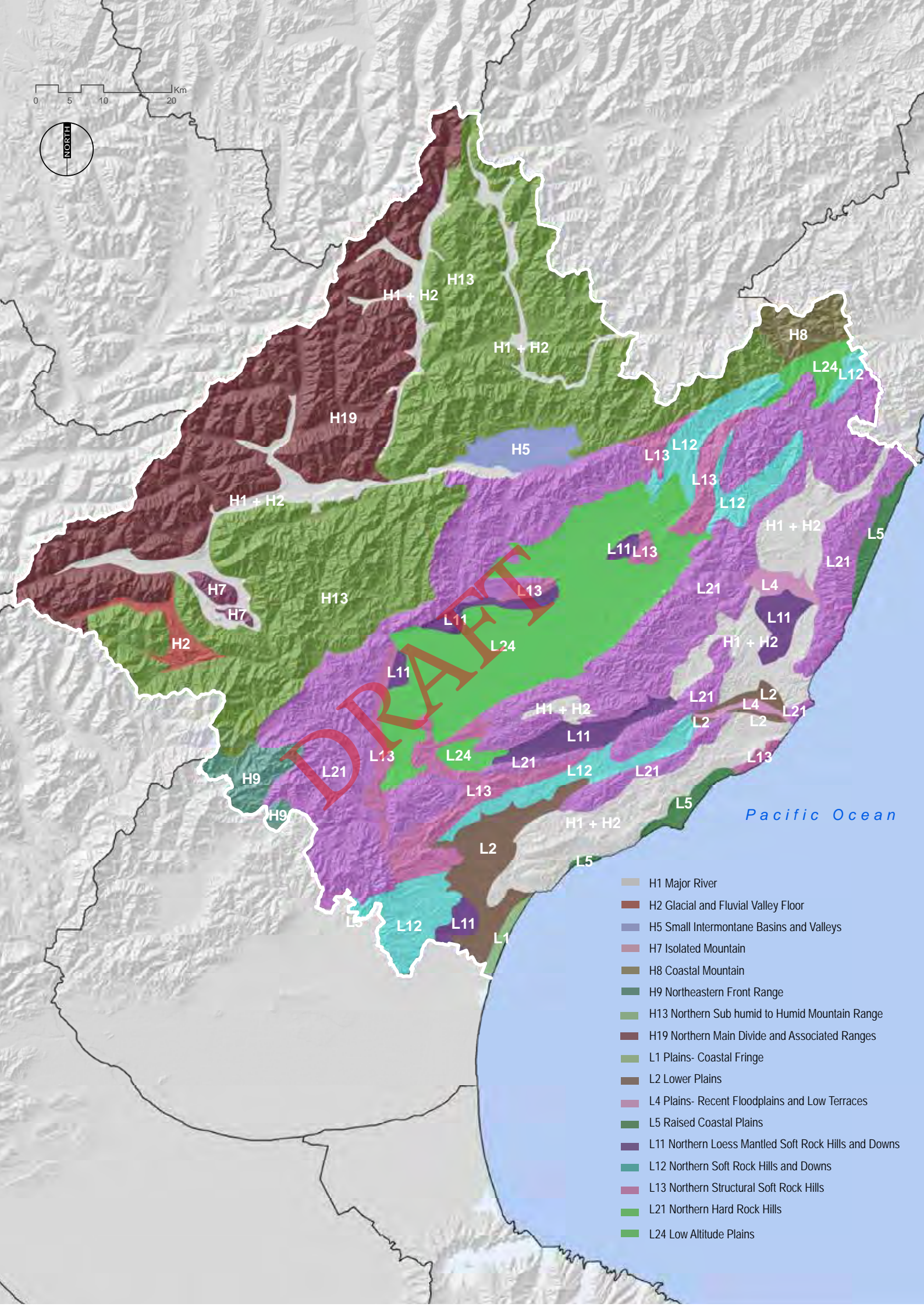


Pacific Ocean

Land Cover (LCDB II)

-  Permanent snow and ice
-  Alpine vegetation, gravel and rock
-  Indigenous forest
-  Exotic forest
-  Native shrubland fernlands
-  Exotic shrubs and shelterbelts
-  Tussock Grassland
-  Low producing grassland
-  High producing grassland, crops and vineyards
-  River, lakes and wetlands
-  Coastal and estuarine
-  Urban, man-made environment

0 5 10 20 Km



-  H1 Major River
-  H2 Glacial and Fluvial Valley Floor
-  H5 Small Intermontane Basins and Valleys
-  H7 Isolated Mountain
-  H8 Coastal Mountain
-  H9 Northeastern Front Range
-  H13 Northern Sub humid to Humid Mountain Range
-  H19 Northern Main Divide and Associated Ranges
-  L1 Plains- Coastal Fringe
-  L2 Lower Plains
-  L4 Plains- Recent Floodplains and Low Terraces
-  L5 Raised Coastal Plains
-  L11 Northern Loess Mantled Soft Rock Hills and Downs
-  L12 Northern Soft Rock Hills and Downs
-  L13 Northern Structural Soft Rock Hills
-  L21 Northern Hard Rock Hills
-  L24 Low Altitude Plains

