

Natural character Assessment

Map Unit	D1
Description	Pleasant River Estuary



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal estuary much in-filled with both fluvial and marine sediments. Fluvial input was probably enhanced during forest clearance. Estuary margins to the northwest modified by drainage and conversion to pasture. Extensive, relatively unmodified wetlands elsewhere. Estuary enclosed by a late-Holocene barrier (spit). Surface shows evidence of over wash features – now stable.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Undetermined post-European fluvial input, manifest as accelerated sedimentation and modification of hydrological processes. Episodic flooding and associated processes has been limited by drainage and reclamation in places on the estuary margin but processes essentially unconstrained.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Some water degradation due to nutrient and sediment runoff and, to a lesser extent, contamination from non native waterfowl.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness, especially in the lower reaches of the estuary. Relatively high percentage of saltmarsh, approaching 50%. Remainder is sandflats. Some evidence of reclamation around perimeter in upper estuary.	Medium high
The degree to which the vegetation cover is indigenous to the area?	Saltmarsh largely indigenous. Indigenous saltmarsh ribbonwood and silver tussock in places around perimeter. Exotic grasses evident around perimeter and associated with reclaimed areas.	Medium high
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate degree of modification. Ecological health of estuary considered good. Under moderate threat from reclamation, farming runoff, introduced weeds, nutrient pollution, stock grazing.	Medium
The degree to which wildlife is present and sustained?	Shellfish (cockles) likely present. Valuable habitat for a diversity of waterbirds including threatened species and trans-equatorial migrants such as bar-tailed godwits. Edge provide suitable habitat for terrestrial invertebrates and lizards. Likely spawning area for finfish such as flounder, galaxiids.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Factors which diminish natural character: <ul style="list-style-type: none"> • dwellings and building platforms on southern margins • drainage channels • pasture • conifer shelter belts Still predominantly natural in appearance, particularly to north and east.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Not 'wild' in the tempestuous sense, but has a moderately high degree of wildness in the undomesticated sense of the word. Has some scenic qualities, particularly to the north and east.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	While some areas of the estuary have been modified by drainage and conversion to pasture its geomorphological and hydrological integrity remains largely intact. It has a moderately high ecological value including a range of indigenous vegetation and providing valuable habitat for birds and fish. Its perceptual naturalness is compromised by drainage works and by residential development and it has relatively high wild and scenic value.	No

Map Unit	D2
Description	Tumai



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Sandstone cliffs with mixed sand/gravel beaches and intertidal reefs. Some minor landform modification by farming activities but essentially natural.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Coastal processes are predominantly erosional and relatively unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality from farmland runoff is likely at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macrocystis beds on offshore reefs. Terrestrial vegetation patterns are highly un-natural. Vegetation comprises pasture and crops, with small patches of pine forest. Some small patches of sparse native forest and scattered native shrubland. Very low naturalness on shore	High offshore
The degree to which the	Intertidal and subtidal macroalgal flora indigenous. Exotic	Medium

vegetation cover is indigenous to the area?	grasses evident along cliff tops. Little indigenous terrestrial vegetation apart from sparse, scattered native trees and shrubs on farmland and at top of coastal cliffs.	High
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of <i>Macrocystis</i> beds on offshore reefs. Rocky and cobble intertidal zone largely natural, albeit influenced by erosion. Under moderate threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Macrocystis beds valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community likely largely intact. Under occasional pressure from recreational fishers and sedimentation from erosion and human land-based activities. Terrestrial wildlife not sustained.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Buildings, structures and earthworks have a negligible effect on the character of the landscape.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	High degree of wildness in the tempestuous sense owing to the cliffs, particularly around the Matanaka headland. Moderate degree of wildness in the undomesticated sense – reduced by pasture, fences, buildings etc.(cumulatively) High scenic value.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	This unit displays a moderately high level of naturalness in terms of geological and hydrological processes. The terrestrial ecology is significantly modified, but it has a high degree of integrity in the intertidal and subtidal zones. It has a high level of perceptual naturalness and of wild and scenic value.	No

Map Unit	D3
Description	Hawksbury Lagoon [ORC Regionally Significant Wetland & ASCV in DCDP, detailed info incl veg mapping at: http://www.hawksburylagoon.org.nz/info/LinksResources.aspx]



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Lagoon margins are highly modified. The inland extent of the lagoon has been drained and converted to a racetrack. Other wetlands are infrequent and show evidence of drainage and reclamation. The outflow to the sea shows signs of channelisation.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Tidal exchange and outflow to sea has probably been restricted by development of the Waikouaiti Spit. Causeway within the lagoon restricts the entry of seawater. Entrance periodically excavated.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Highly degraded due to isolation from the natural freshwater and saltwater flushing and the removal wetland habitat. The lagoon is prone to algal blooms.	Low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely non-natural.	Low

The degree to which the vegetation cover is indigenous to the area?	Forty percent of species recorded are native, including saltmarsh ribbonwood and various grasses, rushes and herbs. Exotic grasses, shrubs and trees visually prominent around edges. Common planktonic algae a feature of lagoon waters. Blooms common in warmer weather.	Low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Lagoon highly modified. Input from farm runoff. Invertebrate communities typical of highly modified and enriched soft-bottom estuaries.	Medium low
The degree to which wildlife is present and sustained?	High diversity of indigenous waterbirds including royal spoonbill, waders, shags, gulls and waterfowl. The latter often present in high numbers. Gulls (red-billed and black-backed) present also, but often more associated with the adjacent landfill.	Medium low

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Very strong influence, particularly from earthworks / structures (not sure what they are) which crisscross the area. Dwellings right on the margins around much of it.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little or no wild quality left in either sense of the word. Little scenic value.	Low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Low	A highly degraded unit exhibiting high degrees of land modification, poor water quality and little wild or scenic value. It does provide some habitat for waterfowl.	No

Map Unit	D4
Description	Waikouaiti Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Holocene shore deposits. Barrier morphology has been modified by plantation forestry, pasture, playing fields, housing and other buildings. More natural dune forms (foredune and relict washover channels) dominate the southern end of the spit, modified by marram. Shore protection structures (groynes) have been placed at the extreme distal end of the spit in an attempt to minimise erosion and maintain inlet stability.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system (nearshore-beach-foredune sand exchange) intact, albeit dune processes are modified by marram. No sand transport from beach to hinterland due to dune stabilisation. Washover, and associated sand transport, now occurs only infrequently.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some minor reduction in water quality resulting from outflow from the Waikouaiti Estuary and Hawksbury Lagoon is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
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The degree to which the vegetation patterns are a product of natural processes?	Largely marram covered foredunes backed by exotic pine plantation.	Low
The degree to which the vegetation cover is indigenous to the area?	Low. Marram, lupins, pines.	Low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Relatively exposed sandy shoreline subject to constant disturbance from wave action. Low threat from sedimentation and farming runoff.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Finfish are common offshore and occasionally targeted by commercial trawlers. A variety of species of dolphin are regular, albeit brief, visitors.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Significantly modified by the Mainland Poultry operation, housing and other developments and built form. Earthworks are present (roads) but are of lesser impact.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The beach has both wild and scenic qualities modified (diminished) by the presence of conifers and built development. Wildness and scenic qualities probably highest at ends – the eastern spit and Matanaka.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	The presence of marram, lupin and pine, combined with structural works to create playing fields and other urban (and semi-industrial) developments have compromised the geomorphic and ecological processes within this unit to a significant extent. The intertidal and aquatic habitats have some ecological integrity. The unit has low perceptual naturalness but some wild and scenic value.	No

Map Unit	D5
Description	Waikouaiti Estuary



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal estuary with multiple arms; now much modified by drainage and reclamation, particularly in the upper reaches. Margins adjacent to Karitane have been modified with shore erosion measures (seawalls, groynes).	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Undetermined post-European fluvial input, manifest as accelerated sedimentation and modification of hydrologic processes are likely. The modifications listed above have altered the geomorphology and hydrology of the estuary. Due to the large size of the estuary portions remain influenced by essentially natural processes.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Water quantity is somewhat reduced by water abstraction up stream. Water quality affected by point and non point source discharges from the surrounding farm and residential land.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness, especially in the lower reaches of the estuary. Moderate percentage of saltmarsh, approaching 40%. Remainder is largely sandflats. Some	Medium high

	evidence of reclamation around perimeter in upper estuary.	
The degree to which the vegetation cover is indigenous to the area?	Saltmarsh largely indigenous. Exotic grasses evident around perimeter and associated with reclaimed areas.	Medium high
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate degree of modification. Ecological health of estuary considered good. Under moderate threat from erosion, reclamation, farming runoff, introduced weeds, nutrient pollution, stock grazing.	Medium
The degree to which wildlife is present and sustained?	Shellfish (cockles) present. Roosting and feeding habitat for a high diversity of waterbirds, including trans-equatorial migrants. Likely spawning area for finfish such as flounder, galaxiids.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks have modified the character of the estuary through canalisation, reclamation, flood banks, railway embankment, sewerage ponds etc. Large areas of it are relatively unmodified, however. Parts of the Karitane township are within this unit.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Significantly diminished by the domesticating effects of residential development, reclamation and drainage. Little scenic quality except at northern and western margin and eastern margin. Southern and northern margins significantly degraded in a scenic sense.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	The estuary has been modified by reclamation and drainage around its margins altering its form and its hydrological processes. It has reasonably extensive areas dominated by indigenous vegetation and provides habitat for water birds and fish. It has relatively low perceptual naturalness and scenic value.	No

Map Unit	D6
Description	Karitane Headland



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Sandstone headline connected to the Karitane coast by a tombolo. Landforms include cliffs and intertidal reefs. Some dwellings on the inland site but landforms essentially natural.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Predominately erosional and largely unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some minor reduction in water quality resulting from outflow from Waikouaiti Estuary and non-point source sediment and nutrient inputs associated with the surrounding land use at times is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Low. Area has been farmed. Being allowed to regenerate in places.	Low
The degree to which the	Largely exotic grasses. Very small patches of indigenous	Low

vegetation cover is indigenous to the area?	shrubs along with occasional exotic trees.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Largely natural intertidal rocky shore and shallow subtidal reefs, apart from training wall. High degree of naturalness of <i>Macrocystis</i> beds on offshore reefs. Rocky and cobble intertidal zone largely natural, albeit influenced by erosion. Under moderate threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	<i>Macrocystis</i> beds valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community likely largely intact. Under occasional pressure from recreational fishers and sedimentation from erosion and human land-based activities. Roosting site for seabirds (little spotted shag, among others) and breeding site for red-billed gulls.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Buildings have a moderate degree of effect on the naturalness of the character of the headland, although they are restricted to the western end. Earthworks (tracks, roads) have only a minor effect and that is also mainly exerted to the south west.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The scenic quality of the headland is high. High degree of wildness in the tempestuous sense owing to the cliffs and rocks. Moderate degree of wildness in the undomesticated sense – reduced by dwellings, roads etc.(cumulatively)	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Exhibits reasonably high geomorphological integrity. Its terrestrial ecology is highly modified but its intertidal and aquatic ecology is largely intact. It retains a moderate degree of perceptual naturalness and has high scenic value.	No

Map Unit	D7
Description	Karitane Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Late-Pleistocene terrace fronted by a sandy beach. Karitane township is located adjacent to the northern end of the beach. The remainder of the terrace is pasture. A scarp separates the terrace from the beach. No foredune development, so some indication this coastline is (occasionally) erosional.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Intact nearshore-beach sand transport system. No sand transport to hinterland. Relatively unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some minor reduction in water quality resulting from outflow from Waikouaiti Estuary and non-point source sediment and nutrient inputs associated with the surrounding land use at times is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely exotic grasses and weeds to high water mark. Some regeneration taking place.	Low

The degree to which the vegetation cover is indigenous to the area?	Low to moderate. Largely exotic grasses and weeds with some regeneration (Ngaio etc.)	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Relatively exposed sandy shoreline subject to constant disturbance from wave action. Low threat from sedimentation and farming runoff. Scattered offshore reefs with associated <i>Macrocystis</i> communities.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Finfish are common offshore and occasionally targeted by commercial trawlers. Paua, kina and rock lobster likely associated with offshore reefs. Red-billed gulls breed on islets. Provides roosting and foraging habitat for shorebirds.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	The Karitane township is located over part of the northern beach front area. This diminishes the natural character, as does the presence of roads. It is more 'natural' in its southern and eastern portions than its northernmost area.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wild in the undomesticated sense, and wild in the tempestuous sense increasing from north to south. Overall influenced by domestication. Scenic quality significant.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	While retaining moderately high geomorphological and hydrological integrity, the integrity of the terrestrial ecology is low. The ecology of the intertidal and aquatic habitats is moderately intact. The unit has moderate perceptual naturalness and wild and scenic value.	No

Map Unit	D8
Description	Seacliff



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Sandstone headlands with some basalt sections. Landforms comprise of cliffs (many vegetated), gravel and sand beaches, intertidal reefs and are essentially natural. Hillslopes unstable in places, related to deforestation at least in part.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Main processes are erosional and are largely unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate-high energy coastline with low turbidity. Some minor reduction in water quality resulting from farming runoff is possible at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely exotic grasses and weeds. Area farmed. Some gullies scrub filled.	Medium low
The degree to which the vegetation cover is indigenous to	Low on developed farmland. Moderate to high in many of the steep gullies and coastal cliffs, where substantial	Medium low

the area?	patches of indigenous scrub can be found.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Largely natural intertidal rocky shore and shallow subtidal reefs, apart from training wall. High degree of naturalness of <i>Macrocystis</i> beds on offshore reefs. Rocky and cobble intertidal zone largely natural, albeit influenced by erosion. Under low to moderate threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	<i>Macrocystis</i> beds valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community likely largely intact although dive surveys suggest lower abundance and diversity than expected in some places. Under occasional pressure from recreational fishers and sedimentation from erosion and human land-based activities. Coastal cliffs likely to provide roosting and nesting habitat for seabirds.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Occasional farm buildings and dwellings which have a minor effect. Cutting for railway is significant earthwork at the northern extent. Otherwise no notable earthworks. No notable structures except for a shearing shed (?) close to the water at the southern end of the unit.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wildness in tumultuous sense is high owing to cliffs and beaches. Wildness in undomesticated sense limited. Scenic qualities are high.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Deforestation has adversely affected both lands stability and terrestrial ecology. The ecology of the intertidal and aquatic habitats remains moderately intact. Occasional farm buildings and the railway diminish perceptual naturalness to a degree but wild and scenic value is high.	No

Map Unit	D9
Description	Warrington and Doctors Point Sandspits



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Natural in the sense that the dominant landforms comprise dune forms – relict to modern foredunes with minor relic transgressive or washover features (drainage channels) on the inland margins. The dune morphology is modified by marram. Recently active washover channels occur at the distal end of the Warrington Spit. Dunes have been levelled at the northern end of the spit for housing.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system (nearshore-beach-foredune sand exchange) intact, albeit dune processes are modified by marram. Washover, and associated sand transport, has been constrained and probably occurs less frequently following the spread of marram. Possible but relatively minor alterations in nearshore processes including sediment accumulation resulting from alongshore transport of dredge spoil from Haywood Point.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Minor reduction in water quality resulting from outflow from Blueskin Bay and surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram covered sand backed by exotic pine plantation.	Low
The degree to which the vegetation cover is indigenous to the area?	Low. Marram, lupins, pines.	Low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Sheltered sandy shoreline. Moderately low threat from sedimentation and farming runoff. Cockle beds important	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of sheltered sandy beaches of southern New Zealand. Moderate diversity and high abundance of some species. Roosting habitat for shorebirds. Popping area for sealions.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Presence of dwellings and sewerage ponds diminish natural character notably to the north of the Warrington spit. Southern portion has no buildings, structures or earthworks to detract from its character. Doctors Point sandspit has no buildings or structures but has been slightly modified by roadways and tracks.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wild in tumultuous sense and undomesticated sense over most of the area. Notable domestication in northern portion but notable non-domestication over southern two thirds of the Warrington spit. The Doctors Point spit is slightly more domesticated. Main scenic contribution is in views out.	Medium high for wild, medium only for scenic.

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	While this unit scores reasonably highly on perceptual naturalness, it is quite highly modified by human activities. The dune structure has been modified by marram and by earthworks to facilitate residential and associated activities, and its terrestrial ecology is significantly modified as a consequence. The aquatic environment is least modified resulting in a moderately high presence of wildlife.	No

Map Unit	D10
Description	Blueskin Bay



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal estuary with conspicuous flood-tide sand delta. The estuary is much in-filled with both fluvial and marine provenance. Fluvial input was probably enhanced during forest clearance and possible accumulation of dredge spoil. Margins quite modified around most of the Bay particularly in the northwest corner of the unit where drainage and infilling of the estuary margin has occurred.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Undetermined post-European fluvial input, manifest as accelerated sedimentation and modification of hydrological processes. Tidal flow through estuary mouth has likely been constrained and accelerated following elongation and stabilisation of the spit associated with marram. Episodic flooding and associated processes has been limited by drainage and infill in places on the estuary margin.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Some water degradation due to nutrient runoff and, to a lesser extent, contamination from waterfowl. Some infiltration from septic tanks is likely.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Saltmarsh in isolated patches. Patterns reflect extensive development around perimeter.	Medium low
The degree to which the vegetation cover is indigenous to the area?	Saltmarsh present but only in isolated patches in northwest and southeast. Some <i>Zostera</i> beds in central inlet. Terrestrial vegetation dominated by exotic grasses, shrubs and trees, with several very small strips of indigenous forest on margins.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Intertidal zone supports high biomass of cockles and abundance of other infauna. Wading birds feed in inlet. Some minor effect from runoff and sedimentation.	Medium
The degree to which wildlife is present and sustained?	Important feeding area for wading birds including trans-equatorial migrants. Kai moana values. Commercial cockle harvesting. Red-billed gulls and white-fronted tern breed on Rabbit Island and Doctors Point.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Margins quite highly modified around most of the Bay, particularly in the north west corner where dwellings and other structures are located within the unit. In addition the roads and railway corridor modify it to quite a significant degree. The majority of the Bay area is highly natural, however.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Some wild (tumultuous) qualities around Doctors Point. Mostly its wildness is limited as the edges have a high degree of domestication reducing wildness in both the remote and tumultuous senses. Scenic quality is high.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	Blueskin Bay is assessed as modified to a moderately high degree by sedimentation and water quality degradation. Nonetheless it has high value as a feeding ground for wading birds and its cockle beds sustain a commercial harvest. It has moderately high perceptual naturalness and is an important scenic asset.	No

Map Unit	D11
Description	Mapoutahi Cliffs



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with coastal cliffs, intertidal reefs and sandy pocket beaches extending to a narrow low headland at the eastern end of the unit. Low modification except for the railway cutting along the upper cliff face.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Coastal processes are predominantly erosional and relatively unmodified. Possible but relatively minor alterations in nearshore processes including sediment accumulation resulting from alongshore transport of dredge spoil dumping may have occurred.	High
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from Blueskin Bay and surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Highly modified vegetation comprising mainly exotic grassland and shrubland, but some patches of indigenous vegetation on coastal cliffs and headland.	High subtidal

The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Terrestrial vegetation is mainly exotic, as above, with regenerating hardwood forest on headland.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. Sandy, rocky and cobble intertidal zone largely natural, albeit influenced by erosion. Under moderately low threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Likely paua, rock lobster and kina habitat. Community likely largely intact. Under occasional pressure from recreational fishers and sedimentation from erosion and human land-based activities. Vegetation provides habitat for indigenous and introduced birds. Shores and cliffs provide habitat for sea birds.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	The landform is devoid of buildings or structures. The railway cutting along the cliff face diminishes the naturalness of the unit to a degree.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Minor domestication caused by the railway cutting and by a mown track on Goat Island, but definitely wild in the tempestuous sense. High scenic quality.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	The Mapoutahi Cliffs have been modified by the construction of the railway cutting and by the replacement of the indigenous vegetation with pasture and other exotic vegetation. They do, however, retain a moderately high degree of geomorphological and ecological naturalness and a high degree of perceptual naturalness and wild and scenic value.	No

Map Unit	D12
Description	Purakaunui Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Composite late-Holocene bay-head barrier. The landform elements comprise foredunes, likely formed and modified by marram, seaward of now stable transgressive dune features (probably parabolic dunes).	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact, albeit dune processes are modified by marram and plantation forestry. No sand transport from beach to hinterland due to dune stabilisation and exotic plant cover. Possible but relatively minor alterations in nearshore processes including sediment accumulation from alongshore transport of dredge spoil may have occurred.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from Purakanui Estuary and surrounding land use is likely. Pine trees have probably lowered the water table within the barrier.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the	Largely marram and lupin covered foredunes backed by	Low

vegetation patterns are a product of natural processes?	exotic pine plantation.	
The degree to which the vegetation cover is indigenous to the area?	Low. Marram, lupins, pines.	Low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Low threat from sedimentation and farming runoff.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Finfish are common offshore. The exotic forest likely supports some native and introduced wildlife.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No buildings, no discernible earthworks, no structures.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wildness reduced (in the domesticated sense) by the presence of pines. Wildness in the tempestuous sense moderate. Scenic value moderate.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	While the sandspit retains a moderately high level of geomorphological and hydrological naturalness, it is highly modified in an ecological sense. Vegetation on the spit is largely exotic and dominated by pines, lupins and marram. The Sea beach and intertidal zone retain a higher level of ecological integrity. The spit is perceptually of high natural character but is lacking in wild and scenic value.	No

Map Unit	D13
Description	Purakanui Inlet



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal estuary with conspicuous flood-tide sand delta. Much in-filled with sediments of both fluvial and marine provenance. Fluvial input and accumulation was probably accelerated during forest clearance. Modified by roading and other structures.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Undetermined post-European fluvial input, manifest as accelerated sedimentation and modification of hydrologic processes are likely. Otherwise essentially unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Some water degradation due to nutrient runoff and, to a lesser extent, contamination from waterfowl. Some infiltration from septic tanks is possible.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Moderate saltmarsh cover in patches. Largely developed around perimeter.	Medium low
The degree to which the vegetation cover is indigenous to	Saltmarsh present in moderately large patches. Some remnant and regenerating indigenous vegetation, especially	Medium

the area?	on eastern shore	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Intertidal zone supports cockles and abundance of other infauna. Wading birds feed in inlet. Some minor effect from runoff and sedimentation.	Medium
The degree to which wildlife is present and sustained?	Important feeding area for water birds. Kai moana values.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Boat houses, dwellings, cribs all present. Roads around margins, causeway, reclamation. All diminish natural character to a degree.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Highly scenic. Wildness in both senses limited.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	A degree of degradation of the natural forms and processes of the estuary has occurred, mainly as a consequence of forest clearance. The ecology of the inlet has been compromised by a reduction in the indigenous vegetation in and around it, but it remains important for wading birds and water fowl. Its perceptual natural character is diminished by the presence of cribs and other structures but it remains highly scenic.	No

Map Unit	D14
Description	Potato Point



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Landforms associated with basalt headland with notable convexity in shape characteristic of Otago volcanics. Coastal cliffs, offshore reefs and stacks, minor headlands and coves. Essentially natural.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from Purakanui Estuary and non-point source sediment and nutrient inputs associated with the surrounding land use is likely at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Cleared land currently grazed.	Low

The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses evident along cliff tops. Small patches of regenerating indigenous flora on headland	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. Rocky intertidal zone largely natural, with minimal influenced by erosion. Under moderately low threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Likely paua, rock lobster and kina habitat. Community likely largely intact. Under occasional pressure from recreational fishers and sedimentation from erosion and human land-based activities. Very limited terrestrial habitat. Breeding area for little blue penguin. Cliffs likely provide seabird habitat.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Some earthworks on the eastern slope which are not particularly sympathetic. Buildings on seaward side diminish naturalness to a degree. Cribs on western side diminish it more.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Steeply sided landform with cliffs around the bottom is wild in both the tumultuous and undomesticated sense. The dwelling and shed on the upper surface diminish these qualities to a degree. It is highly scenic.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	A highly natural volcanic landform. The landward portion of the unit has been significantly modified in an ecological sense but the intertidal and aquatic ecology is reasonably intact. The unit shows some modification in terms of earthworks and structures but retains a moderately high degree of wild and scenic value.	No

Map Unit	D15
Description	Long Beach to Heyward Point



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	This stretch of coast comprises three late-Holocene bayhead barriers, separated by basalt headlands. Barriers comprise of relict foredunes, likely formed with native species early in the sequence, then modified by marram grass. Transgressive dune features (probably parabolic dunes) inland, much modified by agriculture and the settlement of Long Beach. Headlands with seacliffs, offshore reefs and stacks, minor headlands and coves are essentially natural. Relict sea-cliffs inland.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact, albeit dune processes are modified by marram. Sand transport from beach to hinterland is limited due to dune stabilisation and exotic plant cover. Headlands are actively eroding. Possible alterations in nearshore processes including sediment accumulation resulting from alongshore transport of dredge spoil may have occurred.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is likely at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram, muehlenbeckia and lupin covered foredunes on beaches. Behind dunes vegetation patterns are dominated by a residential area and developed farmland with scattered exotic trees. At Heyward Point there is highly modified pasture with a large patch of remnant indigenous forest, and cliffs with prominent patches of indigenous vegetation. High degree of naturalness of macroalgal beds on subtidal reefs.	Medium
The degree to which the vegetation cover is indigenous to the area?	Low. Marram, muehlenbeckia, lupins, on foredunes, backed by exotic grassland and trees. Possibly scattered rushes and sedges in wetter paddocks. Small strip of indigenous vegetation along tops of coastal cliffs. Small patches of residual or regenerating indigenous forest are present. At Heyward Point there is a mixture of exotic-dominated pasture and largely-intact dry coastal podocarp/broadleaf forest, in approximately equal proportions. Intertidal and subtidal macroalgal flora indigenous.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. High degree of naturalness of macroalgal beds on subtidal reefs. Rocky intertidal zone largely natural, with minimal influenced by erosion.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Likely paua, rock lobster and kina habitat. Community likely largely intact. Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions and furseals haul out here occasionally. Breeding habitat for little blue penguin. Finfish are common offshore. Cliffs provide habitat for red-billed gulls, spotted shags and other seabirds. A pair of yellow-eyed penguin nested here in 2014. Pupping area for sealions.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks discernible in the form of roads at Long Beach and Whareakeake. Cribs diminish natural character in the north western portion of Long Beach but no other buildings or structures are noticeable within the unit.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild	Cliffs and dunelands are wild in both the tumultuous and	High

and scenic qualities?	undomesticated sense. The domesticating effects of the residential development at Long Beach are very limited in terms of the unit as a whole.	
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Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Some modification of the dune forms has occurred owing to exotic plant cover. Headland forms are relatively unmodified. Modified terrestrial ecology but high aquatic value. High perceptual naturalness and high wild and scenic value.	No

Map Unit	D16
Description	Aramoana Beach & barrier north of the mole



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Sand accumulation northwest of a long groyne (the mole) has formed a prograded barrier. In contrast, the northern end of the unit is largely unmodified. Here the coast is comprised of high basalt cliffs with sandy beaches. Dune forms comprise transgressive sand ramps against cliffs. Dunes have been levelled at the southern inland portion of the unit for housing.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact, albeit dune processes are modified by marram. Alongshore sediment transport has been interrupted by earthworks and structures, and to a lesser degree deposition of spoil dredged from the Otago Harbour.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some reduction in water quality resulting from outflow from the Otago Harbour and surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product	Largely marram, muehlenbeckia and lupin covered foredunes with occasional exotic trees and grasses	Medium low

of natural processes?		
The degree to which the vegetation cover is indigenous to the area?	Moderately low. Marram, muehlenbeckia, lupins, exotic trees, exotic grasses. Efforts being made to replant with indigenous shrubs and grasses.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. Low threat from dredge spoil dumping.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions and fur seals haul out here occasionally. Finfish are common offshore. Breeding area for yellow-eyed penguin.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks and structures (the mole and the subsequent build-up of sand dunes to its north west) diminish the naturalness of the vicinity, and the cribs and roadways diminish it more. The naturalness of the cliffs and northern beach is not diminished in this way, however.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The beach, particularly at its northern end, has wild qualities in both senses of the word, and is highly scenic. .	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	The landforms at the northern end of the unit are largely unmodified but central dunes have been levelled for housing, and shore protection works (the mole) and marram have affected dune processes. The integrity of the terrestrial ecology has been compromised but the intertidal and aquatic habitats are more natural, and yellow eyed penguins, fur seals and sea lions are present from time to time. The northern portion of the unit has high perceptual naturalness, but the southern low. The beach, particularly the northern half, has high wild and scenic value.	No

Map Unit	D17
Description	Aramoana Spit



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Narrow recurved spit formed between groynes and dredged harbour channel. Much eroded following construction of the mole, although this has been somewhat mitigated in recent years due to deposition of dredge spoil in the nearshore environment. Dunes consist of transgressive elements with frequent blowouts. Morphology is much modified by marram and sand fences. Several cribs are located on the dunes towards the centre of the unit. The Spit is vulnerable to erosion and breaching.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact, albeit dune processes are modified. Alongshore sediment transport processes and hydrology is modified by engineering structures, dredging of the harbour channel and associated dumping of the dredge spoil.	Medium low
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some reduction in water quality resulting from outflow from the Otago Harbour and surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram, muehlenbeckia and lupin covered dunes with occasional exotic trees and grasses	Medium low
The degree to which the vegetation cover is indigenous to the area?	Moderately low. Marram, muehlenbeckia, lupins, exotic trees, exotic grasses. Efforts being made to clear exotics along the spit and replant with indigenous shrubs and grasses.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, low modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions and fur seals haul out here occasionally. Finfish are common offshore.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	The roadway and buildings (cribs and the pilots' houses) diminish the naturalness to a small degree only.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The Spit is extremely exposed to the elements which ensures that it has a high degree of tumultuous wildness. The buildings domesticate it to a degree reducing its undomesticated wildness. It has high scenic qualities.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	Marram grass combined with engineering efforts, both amateur and professional, have modified the natural processes of the spit and compromised its ecological integrity. The intertidal and aquatic habitats have higher integrity. While the structures and road works diminish perceptual naturalness somewhat it retains a high degree, and its vulnerability results in a high degree of wild and scenic value.	No

Map Unit	D18
Description	Aramoana Salt Marsh



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal flats, saltmarsh and relict transgressive dune forms. Saltmarsh has formed largely in response to sediment accumulation and changing tidal flows related to the mole and associated structures. Eastern portion is essentially unmodified. Elsewhere saltmarsh is modified by drainage channels, vehicle tracks, roads, conversion to agricultural land and the settlement at Otafelo Point.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The processes of tidal inundation and associated salinity are essentially natural. The supply and redistribution of sediments is likely to be altered by Port of Otago channel works and port activities (including the wakes of large vessels). The margins of the wetlands have been drained or infilled by farming practices. New areas of saltmarsh are forming along the eastern margins.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Generally good quality – nutrient addition associated with runoff from the farm adjacent to the wetland is unlikely to be high given the gradient and low intensity of farming. Wetland water quality is likely to reflect the overall quality of Harbour waters. The wetlands are vulnerable to fuel spills.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High. Extensive, largely intact saltmarsh. Includes second largest representation of dune slacks and associated vegetation in New Zealand.	High
The degree to which the vegetation cover is indigenous to the area?	High. Largely indigenous. Saltmarsh includes <i>Selliera</i> , <i>Samolus</i> , rushes and <i>Sarcocornia</i> . <i>Marram</i> and exotic grasses around perimeter. <i>Zostera</i> beds present in sparse patches at lower tide levels.	High
The (apparent) health and level of modification of intertidal and aquatic habitats?	Generally unmodified and in good health. Under moderate threat from sedimentation and vehicular access.	High
The degree to which wildlife is present and sustained?	Protected area. Feeding area for wading birds and waterfowl, including trans-equatorial migrants. Abundant and moderately diverse intertidal epifauna and infauna typical of southern salt marshes.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	The road around the margins of the salt marsh diminishes its natural character a tiny amount. There do not appear to be any other buildings or structures on the marsh.	High

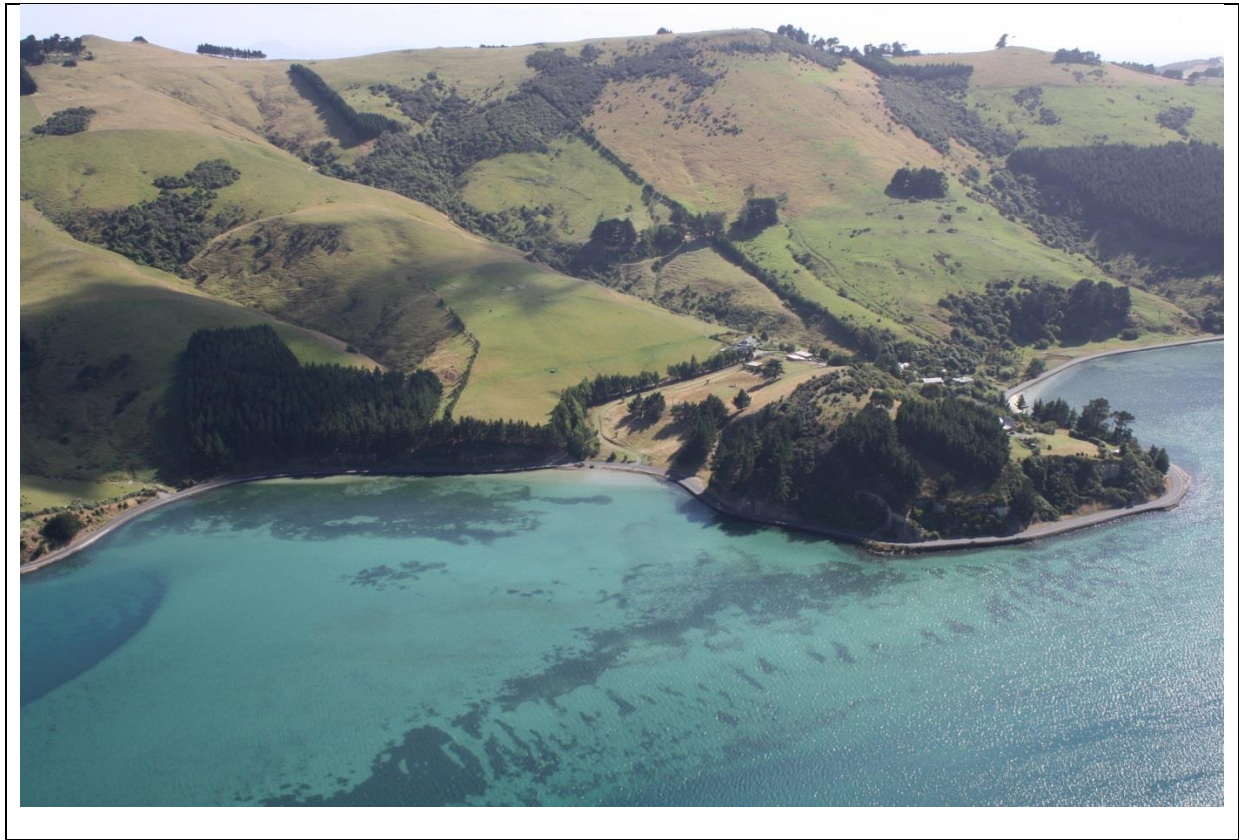
Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The area is very wild in the undomesticated sense, less so in the tumultuous sense. Its scenic qualities are arguable. Salt marshes do not fit comfortably into the dominant picturesque aesthetic.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	Modified by the mole and by harbour dredging, the salt march nonetheless has moderately high geomorphological and hydrological integrity. It has high ecological value exhibiting largely indigenous vegetation and providing habitat to diverse species of fauna. The salt marsh has a high degree of perceptual naturalness and exhibits a moderately high degree of wildness, but has some scenic value.	No

Map Unit	D19
Description	Otafelo Point to Port Chalmers



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Terrestrial coastal environment modified by settlement around harbour perimeter, roading and reclamation. Marine environment modified by channel dredging. Fluvial input was probably enhanced during forest clearance.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Constrained by the above modifications. Beach systems reduced in number and area by roading.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is likely to reflect the overall quality of Harbour waters. Stormwater discharge and non-point source runoff from surrounding port and industries lowers water quality.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Heavily modified over time with farming and settlement around perimeter. Road and rail corridors encroach and numerous areas have been reclaimed, albeit not extensive.	Low
The degree to which the vegetation cover is indigenous to	Generally exotic trees, shrubs and grasses. Extensive <i>Zostera</i> beds on the intertidal zone of the central sand	Low. Medium in

the area?	banks.	intertidal zone
The (apparent) health and level of modification of intertidal and aquatic habitats?	Otago Harbour supports a wide range of habitats, including <i>Macrocystis</i> beds, <i>Zostera</i> beds, sandy and muddy bottoms and encrusting communities. Intertidal habitat is modified around the perimeter of the harbour by occasional areas of reclamation and human laid rock seawalls alongside roadways. Rocky and cobble intertidal zones below human influence are largely natural. Shipping channel regularly dredged to maintain depth. Soft intertidal shore largely natural. Moderate threat from sedimentation, runoff and dredging.	Medium
The degree to which wildlife is present and sustained?	Intertidal communities in generally good health. High biomass of shellfish on harbour sandbanks. Valuable kai moana site. Sandbanks are used regularly by a wide variety of wading birds and waterfowl as roosting and feeding sites, with often very high abundance of some species. Diverse and abundant intertidal flora and fauna typical of sheltered harbours of southern New Zealand. Finfish moderately common in harbour. Salmon present seasonally.	Medium High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Road around the harbour edge significantly diminishes the natural character. Areas of reclamation also. Dwellings, jetties etc also diminish the natural character.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little wildness in either tumultuous or undomesticated senses. Bays and inlets are highly scenic however.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	Roading, reclamation, the construction of seawalls and dwellings, and agriculture had all modified the geological, hydrological and ecological processes within this unit. The intertidal communities are in good health, and the sandbanks provide shellfish to wading birds. The level of perceptual naturalness is low and it has little wildness left. It does have scenic value, however.	No

Map Unit	D20
Description	Port Chalmers



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Port coast modified by settlement around harbour perimeter, roading and reclamation.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Highly modified by the above structures.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is likely to reflect the overall quality of Harbour waters. Stormwater discharge and non-point source runoff from surrounding Port and industries lowers water quality.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Highly modified.	Low
The degree to which the vegetation cover is indigenous to the area?	Largely exotic trees, grasses and weeds	Low

The (apparent) health and level of modification of intertidal and aquatic habitats?	Extensive reclamation in port area and Watson Park. Rocky intertidal zone away from built up area much less modified, but hand laid rock seawall and formed roadway rings much of the peninsula.	Medium low
The degree to which wildlife is present and sustained?	Intertidal flora and fauna away from developed areas such as the port, wharves, slipways, etc. (i.e. Back Beach, Sawyers Bay) is in relatively good to moderately good health. Historical contamination from industries sited in Sawyers Bay (timber treatment, tanning) has had an impact on infaunal communities within the bay, as has sedimentation from land runoff. In other areas (e.g. Back Beach, rocky intertidal shores) the communities are in moderately good health and reflect communities from equivalent substrate in other southern South Island harbours.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Extensively modified by reclamation, roading along the harbour edge, jetties, boatsheds, moorings, townscape.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little remnant wildness in either tumultuous or undomesticated senses. Steep harbour margins provide some scenic value.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Low	The ports structures combined with other industrial and residential activities have significantly compromised the geological, hydrological and ecological processes within this unit. The intertidal and aquatic habitat areas retain a moderate degree of ecological health. The unit has little perceptual naturalness and little wildness but retains some scenic value.	No

Map Unit	D21
Description	Upper Otago Harbour



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Modified by settlement, railway and road development, seawalls, reclamations and other structures.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Highly modified by the above structures. There are few sections of coast unmodified by reclamations.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Stormwater discharge and non-point source runoff lowers water quality. High residence time of contaminants.	Medium low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Heavily modified over time with farming and settlement around perimeter. Road and rail corridors encroach and some areas have been reclaimed, especially nearer the head of the harbour.	Low
The degree to which the vegetation cover is indigenous to	Generally exotic trees, shrubs and grasses. Extensive Zostera beds on the intertidal zone of the central sand	Low. Medium in

the area?	banks.	intertidal zone
The (apparent) health and level of modification of intertidal and aquatic habitats?	The upper Otago Harbour supports a wide range of habitats, including <i>Macrocystis</i> beds, <i>Zostera</i> beds, sandy and muddy bottoms and encrusting communities. Intertidal habitat is modified around the perimeter of the harbour by extensive areas of reclamation and human laid rock seawalls alongside roadways. Rocky and cobble intertidal zones below human influence are largely natural. Shipping channel regularly dredged to maintain depth. Soft intertidal shore moderately natural. Moderate threat from sedimentation, runoff from land and stormwater, and dredging.	Medium low
The degree to which wildlife is present and sustained?	Intertidal communities in generally good health. High biomass of shellfish on harbour sandbanks. Valuable kai moana site. Sandbanks are used regularly by a wide variety of wading birds and waterfowl as roosting and feeding sites, with often very high abundance of some species. Diverse and abundant intertidal flora and fauna typical of sheltered harbours of southern New Zealand. Finfish moderately common in harbour. Salmon present seasonally.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Harbour-side roads, dredging of channel, buoys and channel markers, causeways, reclamation, dwellings, jetties, boat-sheds and city scape - all diminish natural character. Some remnants however, in steep margins on both sides of the harbour and in water movements etc.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little wildness in either sense left (except in a southerly!). Moderately highly scenic however.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	The upper harbour is extensively modified by acts of human habitation. The water body retains some ecological value, however. Perceptual naturalness is low, as is wildness, but it retains scenic value.	No

Map Unit	D22
Description	Harbour head / Dunedin



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Heavily modified over time with settlement around perimeter. Road and rail corridors encroach and extensive areas have been reclaimed at the head of the harbour.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Heavily modified and constrained.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Stormwater discharge and non-point source runoff lowers water quality. High residence time of contaminants.	Low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Heavily modified over time with settlement around perimeter. Road and rail corridors encroach and extensive areas have been reclaimed at the head of the harbour.	Low
The degree to which the vegetation cover is indigenous to the area?	Generally exotic trees, shrubs and grasses.	Low.

The (apparent) health and level of modification of intertidal and aquatic habitats?	Generally soft sandy and muddy bottoms with encrusting communities on wharf piles and rocky shores. Intertidal habitat is modified around the perimeter of the harbour by extensive areas of reclamation and human laid rock seawalls alongside roadways. Rocky and cobble intertidal zones below human influence are largely natural but of low diversity and abundance due to distance from open ocean, freshwater influence (from the Water of Leith) and exposure at low tide. Soft intertidal shore moderately natural. Moderate threat from reclamation, sedimentation, runoff from land, stormwater and litter.	Medium low
The degree to which wildlife is present and sustained?	Intertidal communities in generally moderate health. Moderately high biomass of smaller sized shellfish on shores at head of harbours. Intertidal flora and fauna relatively depauperate, but typical of heads of sheltered harbours of southern New Zealand. Finfish moderately common in harbour. Salmon present seasonally.	Medium low

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Reclamation, wharves, city-scape dredging, channel markers all diminish the natural character.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little remnant wildness of either type. Little scenic value.	Low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Low	The upper harbour is extensively modified by acts of human habitation including extensive reclamation leaving little of ecological value. It is a domesticated coastline with little wild or scenic value.	No

Map Unit	D23
Description	Harbour Islands / Portobello Peninsula



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	A ria coastline – the pattern of headlands and islands formed by sea-level rise and drowning of valleys eroded in the Otago Peninsula volcanics. Relatively unmodified hill slope and coastal processes.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	A generally low-energy coastline dominated by tidal processes. Hillslopes with a northern aspect show stronger and more active cliff development due to the longer fetch in this direction. Processes essentially unconstrained.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Water quality has been low in the proximity of the Portobello sewage discharge. Otherwise an area of strong tidal action and occasional wave action, which would tend to disperse contaminants. Water quality is likely to reflect the overall quality of Harbour waters.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Originally cleared and farmed, goat island, and to a lesser extent, Quarantine Island, are being allowed to regenerate.	Medium low
The degree to which the	Much of Goat Island now regenerating indigenous scrub.	Low

vegetation cover is indigenous to the area?	Patches of regenerating indigenous scrub on Quarantine Island. Rest is largely exotic grasses.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. Rocky and cobble intertidal zone largely natural, albeit influenced by erosion. Under low threat from sedimentation and farming runoff. Threat from invasive species such as <i>Undaria</i> and <i>Styela</i> .	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish and invertebrates. Community likely largely intact. Under occasional pressure from recreational fishers and sedimentation from erosion and human land-based activities. Nesting site for little cormorant.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Buildings affect the natural character of Quarantine Island and the Portobello Peninsula but not Goat Island. Earthworks (the road) affects the naturalness of the Portobello Peninsula but not the islands. The pylons on Goat and Quarantine Islands affect their naturalness to a degree.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Goat Island has both tumultuous wildness from its precipitous sides, vegetation and undomesticated wildness. Quarantine Island is more domesticated but has a moderate degree of tumultuous wildness through its steep, roughly vegetated margins. The Portobello Peninsula has a moderate degree of tumultuous wildness through its steep topography. All three have high scenic quality.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	The Portobello peninsula and harbour islands form one geomorphological unit but with varying ecological and landscape value. The Portobello peninsula is the most modified, Quarantine Island less so and Goat Island has the highest natural character, both ecologically and perceptually. The intertidal and aquatic habitats have a moderately high degree of health. Overall the unit has moderately high wild and scenic quality.	No

Map Unit	D24
Description	Portobello Bay / Harwood Flats



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Extensive southwest-orientated relic transgressive dune forms (most parabolic). Modified by earthworks, roads, dwellings, a golf course and agriculture. Shoreline modified by ad-hoc shore protection works north of the golf course.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is no longer intact. Sand transport processes no longer occur due to dune stabilisation and exotic plant cover. Possible alterations in nearshore processes related to construction of the mole and maintenance of harbour entrance and channel may have occurred.	Medium low
The degree to which water quality and quantity are unaffected by land use activities?	Some reduction in water quality from stormwater and non-point source discharges. Water quality is likely to reflect the overall quality of Harbour waters.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Low. Largely cleared and farmed or settled.	Low

The degree to which the vegetation cover is indigenous to the area?	Exotic grasses, trees and weeds predominate. Very little regenerating indigenous vegetation. Extensive <i>Zostera</i> beds	Low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Sandy shore modified with hand laid rock wall alongside roadway. Small areas of reclamation. Offshore sandflats relatively natural. Erosion threat moderately high. Moderate threat from sedimentation and coastal runoff.	Medium high
The degree to which wildlife is present and sustained?	Intertidal communities in generally good health. High biomass of shellfish on harbour sandbanks. Valuable kai moana site. Sandbanks are used regularly by a wide variety of water birds as roosting and feeding sites, with often very high abundance of some species. Moderately diverse and abundant intertidal fauna typical of sheltered harbours of southern New Zealand. Extensive <i>Zostera</i> beds. Important breeding and feeding grounds for a variety of vertebrate and invertebrate fauna.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks include roading, and drainage ditches. These diminish naturalness to a degree. Dwellings and farm buildings diminish it more. Seawalls are structures diminish natural character.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The area (Harwood) has low relief and is not of a character commonly thought to be aesthetically pleasing. It is domesticated and organised. Portobello Bay is less domesticated and has higher aesthetic value. The unit is moderately low in tumultuous wildness and low in undomesticated wildness.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	This unit has been highly modified by development with low terrestrial ecological value remaining. The intertidal and aquatic habitats have a moderately high degree of health, and the unit provides moderately high level of value to fauna. The unit has little perceptual naturalness or wild or scenic quality.	No

Map Unit	D25
Description	Otakou / Te Rauone



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Prograded barriers within harbour embayments, separated by a breccia headland. Some relic transgressive dune features, but these are much modified by earthworks, roads, dwellings and agriculture. Shoreline modified by seawall at Otakou and ad hoc residential sea-walls north of Te Rauone. Nearshore processes are probably modified by maintenance of harbour channel and historic (now largely sunk) groynes.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact at Te Rauone Beach only. Wider sand transport processes, involving exchange of sand between harbour and terrestrial environments, no longer occurs due to dune stabilisation and exotic plant cover. Considerable alterations in nearshore processes are likely, related to construction of the mole and maintenance of harbour entrance and channel.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Some reduction in water quality from stormwater and non-point source discharges. Water quality is likely to reflect the overall quality of Harbour waters.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Low. Largely cleared and farmed or settled.	Low
The degree to which the vegetation cover is indigenous to the area?	Exotic grasses, trees and weeds predominate. Very little regenerating indigenous vegetation. <i>Zostera</i> beds are a feature	Low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Sandy shore modified with hand laid rock wall alongside roadway. Small areas of reclamation. Offshore sandflats relatively natural. Erosion threat moderately high. Moderate threat from sedimentation and coastal runoff.	Medium high
The degree to which wildlife is present and sustained?	Intertidal communities in generally good health. High biomass of shellfish on sandflats. Valuable kai moana site. Sandbanks are used regularly by a wide variety of wading birds and waterfowl as roosting and feeding sites. Moderately diverse and abundant intertidal fauna typical of sheltered harbours of southern New Zealand. <i>Zostera</i> beds are an important breeding and feeding ground for a variety of vertebrate and invertebrate fauna.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Naturalness diminished by roading, jetties, dwellings, boatsheds, navigation beacons, retaining.	Medium low

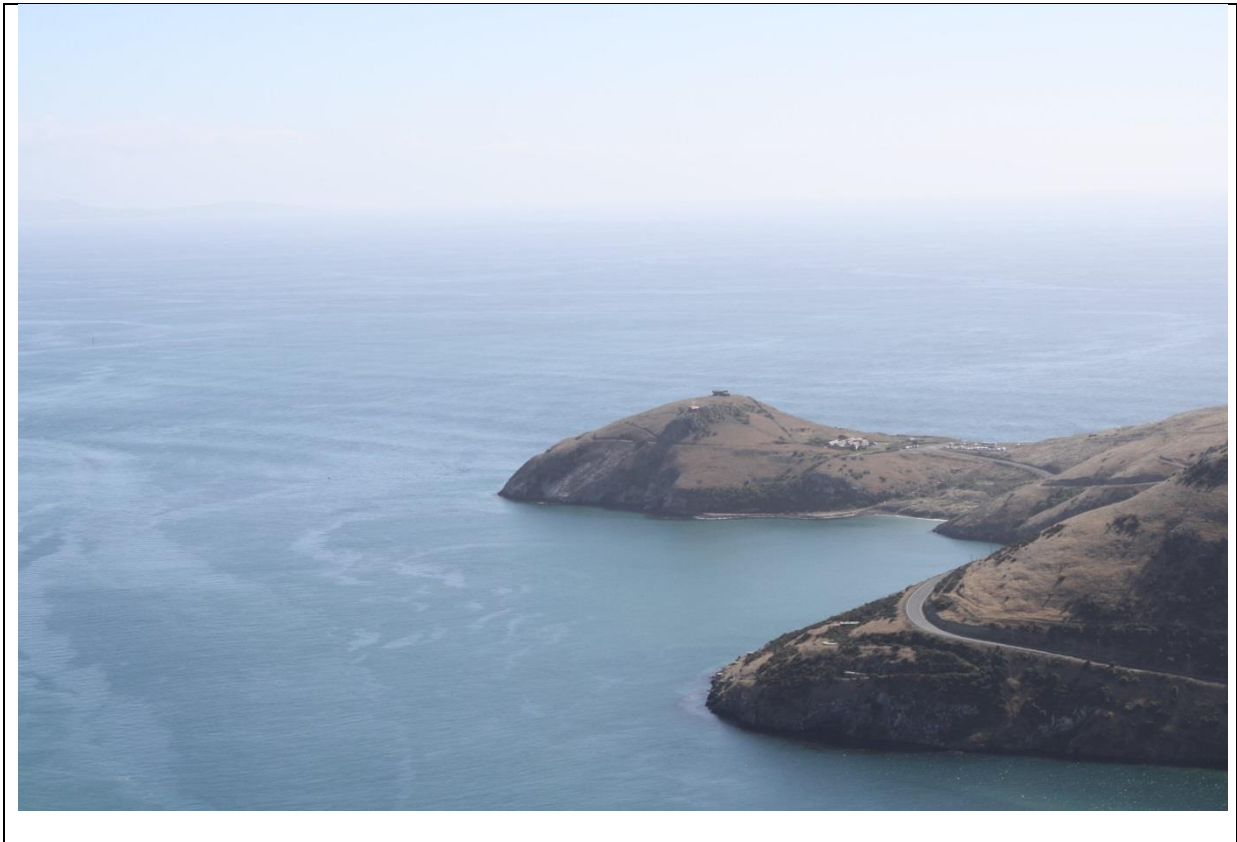
Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Domesticated by dwellings, roading etc. The earthflow and sea lend some tumultuous wildness. Little undomesticated wildness. Moderately high scenic value.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	Natural processes, geological, hydrological and ecological, have all been significantly compromised on land. The intertidal and aquatic habitats retain moderately high health, and wildlife is present and moderately well sustained. The unit retains some perceptual naturalness and, while domesticated, has moderately high scenic value.	No

Map Unit	D26
Description	Taiaroa Head



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with coastal cliffs, offshore reefs and pocket beaches. Landforms modified by walkways, roads, farming, buildings and wildlife viewing structures but essentially natural. Seabed modified by dredging.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Coastal processes are predominantly erosional and relatively unmodified. Possible but relatively minor alterations in nearshore processes resulting from dredging and associated spoil dumping may have occurred.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate to high energy coastline with low turbidity. Some reduction in water quality resulting from outflow from the Otago Harbour and surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Low. Largely cleared and farmed.	Low
The degree to which the vegetation cover is indigenous to the area?	Mainly pasture with some patches of regenerating indigenous vegetation.	Low

The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. Rocky intertidal zone largely natural, with minimal influenced by erosion. Under low threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Intertidal rocky shore and subtidal reefs rich and diverse habitat with flora and fauna typical of exposed southern coasts. Abundant finfish, and likely habitat for kina, paua and lobster. Breeding site for blue penguins, northern royal albatross, sooty shearwater, spotted shag, red-billed gull, Caspian tern, little shag, Stewart Island Shag. Pilot's Beach is a haul out and breeding site for fur seals. Occasional haul out site for sea lions, leopard seals and elephant seals.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Albatross Centre, lighthouse etc diminish naturalness. Carpark and road diminish it too.	Medium high

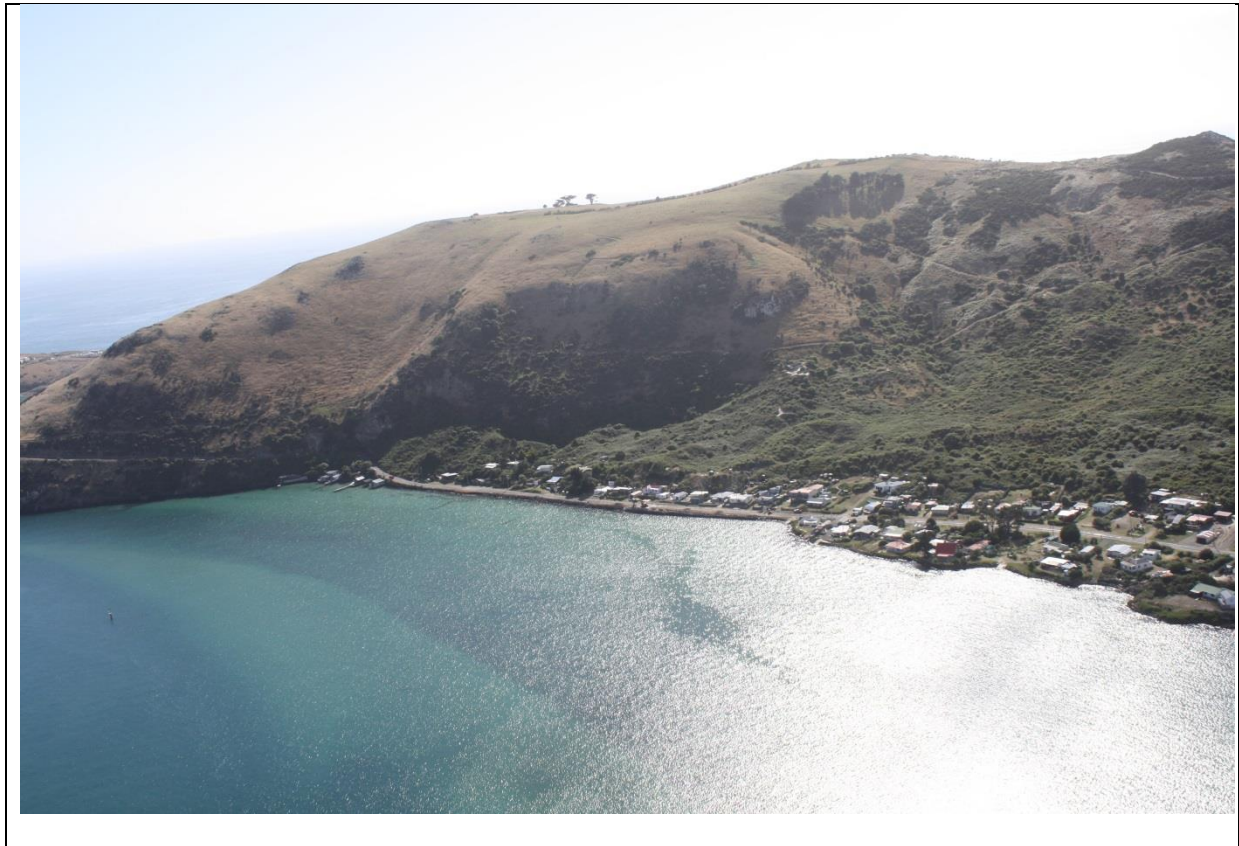
Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wild in tumultuous sense – cliffs, beaches. Domesticated to a degree also. Highly scenic as notable promontory.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Has a highly natural form and processes but it also highly modified in terms of its terrestrial ecology. The intertidal and aquatic habitats retain a moderately high level of health. Despite the obvious modifications, the unit retains a moderately high level of perceptual naturalness and of wild and scenic value.	No

Map Unit	D27
Description	Harington Point



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Landforms associated with basalt headland with notable convexity in shape characteristic of Otago volcanics. Coastal cliffs, intertidal reefs and stacks, minor headlands and coves. Only minor modification (road and historic gun emplacements). Nearshore likely modified by dredging and deposition of dredge spoil in the vicinity of the Otago Harbour.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Geomorphic processes are predominantly erosional and relatively unmodified. Hydrologic processes in the Otago Harbour modified by dredging and deposition of dredge spoil	High
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline on the open coast. Some minor reduction in water quality resulting from outflow from the Otago Harbour and runoff.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the	Heavily modified over time with farming and settlement	Low

vegetation patterns are a product of natural processes?	around perimeter. Road encroaches in parts and small areas have been reclaimed or are being reclaimed, albeit not extensive.	
The degree to which the vegetation cover is indigenous to the area?	Generally exotic trees, shrubs and grasses. Some regenerating scrub and pockets of indigenous bush. Patchy <i>Zostera</i> beds in the intertidal zone.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Intertidal habitat is modified around the perimeter of the harbour by occasional areas of reclamation and human laid rock seawalls alongside roadways. Rock walls colonised by typical rocky shore epifauna. Shipping channel regularly dredged to maintain depth. Soft intertidal shore largely natural. Moderate threat from sedimentation, runoff and dredging. Kai moana gather recreationally.	Medium low
The degree to which wildlife is present and sustained?	Intertidal communities in generally moderately good health. Shellfish gathered as kai moana site. Sandy beach infauna typical of sheltered harbours of southern New Zealand. Finfish moderately common in harbour. Salmon present seasonally. Seabird habitat on coastal cliffs.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks to construct roads diminish natural character. Gun emplacements and other structures present, but with minimal impact.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Tumultuous wildness provided by the cliffs, particularly on the seaward side. Lower undomesticated wildness on the harbour side but high on the seaward side. Highly scenic.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	This unit has high geomorphological and hydrological integrity but development has compromised its ecology, both on and off shore. It has moderately high perceptual naturalness and moderately high wild and scenic value.	No

Map Unit	D28
Description	Pipikaretu



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Relatively small (compared to those further south) Late-Holocene bay-head barriers, separated by prominent basalt headlands. Barriers comprised of foredune ridges, with adjoining transgressive dune features (parabolic dunes and ramps). Dune morphology is modified by marram, and wildlife viewing structures including artificial wetlands at Pipikaretu Beach. Headlands with sea-cliffs, intertidal reefs, minor headlands and sandy coves are essentially natural. Relict sea-cliffs inland.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact, albeit dune processes are modified by marram. Sand transport from beach to hinterland is limited due to dune stabilisation and exotic plant cover. Headlands are actively eroding and relatively unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is likely at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram, muehlenbeckia and lupin covered foredunes backed by occasional exotic trees and grasses. Steep slopes and cliffs vegetated with indigenous native forest. Some replanting being undertaken.	Medium low
The degree to which the vegetation cover is indigenous to the area?	Medium. Marram, muehlenbeckia, lupins, exotic grassland. Steep slopes and cliffs vegetated with indigenous native forest. Some regeneration evident and replanting being undertaken.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, medium modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. Artificial hides and tunnels form part of penguin viewing experience.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions haul out here occasionally. Finfish are common offshore. Breeding area for yellow-eyed penguin.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Structures and earthworks to create hides and dams at Penguin Place diminish the naturalness of the vicinity to a slight degree. The overall character of the unit, particularly to the north and south of Pipikaretu proper, is, however, highly natural.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The modifications to the landform at Penguin Place are more obvious from the air than the land. The broader vicinity is wild in both the undomesticated sense and wild in the tumultuous sense. It is highly scenic.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Predominantly intact geomorphologic and hydrologic processes. Varying degrees of ecological integrity but an important unit for wildlife. High perceptual naturalness and high wild and scenic value.	No

Map Unit	D29
Description	Okia / Victory Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	A late-Holocene bay-head barrier comprised of an extensive sequence of foredune ridges with a relatively minor transgressive dune element (probably parabolic dunes) on the coastal margin. Significant based on the size of the foredune sequence. Dune morphology is modified by pasture on the inland areas of the unit and by marram and forestry on the seaward margins, but remains largely natural. Relict sea-cliffs inland.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact, albeit dune processes are modified by marram. No sand transport from beach to hinterland due to dune stabilisation and exotic plant cover.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some minor reduction in water quality resulting from outflow from Papanui Inlet and surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product	Largely marram, muehlenbeckia and lupin covered foredunes backed by pine plantation to the south and	Medium high

of natural processes?	exotic grasses. Some replanting being undertaken and widespread regeneration evident.	
The degree to which the vegetation cover is indigenous to the area?	Okia Flat Wetland Management Area is a Regionally Significant Wetland (no.115) supporting a high diversity of wetland flora (and fauna – see below) including the only known <i>Sphagnum</i> moss on Otago peninsula. Marram, muehlenbeckia, lupins, exotic grasses also present. Some regeneration evident and extensive replanting being undertaken.	Medium high
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, medium modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. Popular walking track area.	Medium high
The degree to which wildlife is present and sustained?	High diversity of terrestrial indigenous fauna present including lizards and birds of scrub, open country and coastal environments. Infaunal communities typical of disturbed sandy beaches of southern New Zealand. Surf clams widespread and abundant. Sealions haul out here occasionally. Pupping area for sealions. Fur seals breed at north end of beach. Southern elephant seals have been recorded here. Finfish are common offshore. Breeding area for yellow-eyed penguin.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Buildings, structures and earthworks are widely present but have only a small influence on the character of the landscape, diminishing its natural character by a small amount.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	While much of the area is farmed it is still very rough farmland and it retains much of the sense of wildness in the undomesticated sense. It also has a fairly high degree of wildness in a tumultuous sense. It has some scenic value, particularly around the margins, the Pyramids etc.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	An area with important ecological, geological and geomorphic features only partially degraded by exotic vegetation and farming activity. High perceived naturalness and moderately high wild and scenic value.	No

Map Unit	D30
Description	Papanui Inlet



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal estuary much in-filled with both fluvial and marine sediments. Fluvial input was probably enhanced during forest clearance. Estuary margins modified by conversion to pasture, roading, and some dwellings on the southern margin. Small areas of relatively unmodified wetland. Estuary enclosed by a late-Holocene barrier.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Undetermined post-European fluvial input, manifest as accelerated sedimentation and modification of hydrological processes. Tidal flow through estuary mouth has likely been constrained and accelerated following elongation and stabilisation of the spit associated with marram.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Some water quality degradation due to nutrient runoff and contamination from waterfowl. Limited outflow limits flushing of the unit.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Saltmarsh in very small isolated patches. Largely developed around perimeter, with some patches of indigenous scrub and forest.	Medium low

The degree to which the vegetation cover is indigenous to the area?	Saltmarsh present but only in isolated patches in north and southwest. Some <i>Zostera</i> beds in northern part inlet. Largely exotic grasses and trees around perimeter of inlet, but some patches of indigenous scrub and forest. Saltmarsh ribbonwood and rare or threatened species/plant communities at the Papanui Inlet Saltmarsh near Dick Road, which is a Regionally Significant Wetland (no. 120).	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Intertidal zone supports high biomass of cockles and abundance of other infauna. Wading birds feed in inlet. Moderate threat from runoff and sedimentation.	Medium
The degree to which wildlife is present and sustained?	Important feeding area for a diversity of waterbirds. Often high abundance of some species. Kai moana values. Commercial cockle harvesting. Popping area for sealions.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks around the margins to create roads and drainage/reclamation have a small effect on naturalness. Scatterings of dwellings also have a small effect. Quarrying near the southern margin has a greater effect but it is localised.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Margins towards the ocean are wild in both the undomesticated and tumultuous senses. The southern margins are more domesticated. Views across water to mountains are highly valued.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	The unit is modified structurally, hydrologically and ecologically by human activities around its margins. It has moderately high perceptual naturalness and moderately high wild and scenic value.	No

Map Unit	D31
Description	Cape Saunders



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Predominantly basalt headland with some trachyte. Landforms comprise sea-cliffs, intertidal reefs, sea-stacks and sandy coves and essentially natural. Small dune systems located in some coves comprised of transgressive dune features and foredune ridges. Dune morphology is modified by marram.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact, albeit dune processes are modified by marram. Sand transport from beach to hinterland is limited due to dune stabilisation and exotic plant cover. Headlands are actively eroding and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Moderate – high energy coastline. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is likely at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product	High degree of naturalness of macroalgal beds on subtidal reefs. Cleared land currently grazed. Largely marram,	Medium low

of natural processes?	muehlenbeckia and lupin covered foredunes with occasional indigenous shrubs at pocket beach (Papanui Beach).	
The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses evident along cliff tops. Small patches of regenerating indigenous flora on headlands. Marram, muehlenbeckia, lupins, occasional indigenous shrubs on dunes of Papanui Beach. Some evidence of regeneration.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural, with minimal influenced by erosion. Moderately exposed sandy shoreline of Papanui Beach subject to disturbance from wave action. Under low threat from sedimentation and farming runoff.	High
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional pressure from recreational fishers and low threat from sedimentation and human land-based activities. Seabirds roost on headlands. Nesting habitat for spotted shags. At Papanui Beach infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions and fur seals haul out here occasionally. Breeding area for yellow-eyed penguin and spotted shags.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	One dwelling and curtilage plus a single penguin hide and the lighthouse are the only built form to detract from the natural character of the unit.. Almost no earthworks discernible except the road to the lighthouse and some farm tracks. Together have a very small influence on the natural character of the landscape.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Cliffs and reefs provide tumultuous wildness. High degree of undomesticated wildness too. Highly scenic.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	Some diminishment of naturalness through human activity, particularly farming. Intertidal and aquatic habitats are of high quality and the unit is important wildlife habitat. It has high perceptual naturalness and high wild and scenic value.	No

Map Unit	D32
Description	Allans Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Composite Late-Holocene bay-head barrier. The landform elements comprise foredunes, transgressive dune features, (probably parabolic dunes) superimposed on relict foredunes. Foredune ridges, likely formed by marram, are present on the south-west inlet coast. Dune morphology is modified by pasture, forestry and marram.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact, albeit dune processes are modified by marram. No sand transport from beach to hinterland due to dune stabilisation and exotic plant cover. Sand supply to Allans Beach is probably reduced following stabilisation of the Sandfly Bay dune system.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some minor reduction in water quality resulting from outflow from Hoopers Inlet and surrounding land use is likely at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product	Largely marram, muehlenbeckia and lupin covered foredunes backed by occasional exotic trees and grasses.	Medium low

of natural processes?	Some replanting being undertaken, especially of pikao.	
The degree to which the vegetation cover is indigenous to the area?	Medium. Marram, muehlenbeckia, lupins, exotic grasses. Good stands of coastal tussock. Some regeneration evident and replanting of pikao being undertaken.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, medium modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Rocky shore and subtidal reef community rich and diverse. Sealions haul out here occasionally. Fur seals breed at eastern end of beach. Finfish are common offshore. Breeding area for yellow-eyed penguin and little blue penguin. Popping area for sealions.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Tracks through sand hills only evidence of modification. These have a miniscule effect on the natural character of the unit.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Cliffs and northern end contribute tumultuous wildness. Scores highly in undomesticated wildness. Highly scenic.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Some diminishment of natural processes through human activity, in particular the spread of exotic dune vegetation. The intertidal and aquatic habitats are healthy and the beach is important to wildlife. It has high perceptual naturalness and high wild and scenic value.	No

Map Unit	D33
Description	Hoopers Inlet



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal estuary much in-filled with both fluvial and marine sediments. Fluvial input was probably enhanced during forest clearance. Estuary margins very modified by conversion to pasture, reclamation, roading and causeways. Estuary enclosed by a late-Holocene barrier with large saltmarsh/wetland on the inland margin. Small areas of relatively unmodified wetland and saltmarsh elsewhere around perimeter.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Undetermined post-European fluvial input, manifest as accelerated sedimentation and modification of hydrological processes. Tidal flow through estuary mouth has likely been constrained and accelerated following stabilisation of the spit associated with marram.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Some water quality degradation due to nutrient runoff and contamination from waterfowl. Limited outflow and periodic closure of the inlet mouth limits flushing of the unit.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Saltmarsh in very small isolated patches. Largely developed around perimeter.	Medium
The degree to which the vegetation cover is indigenous to the area?	Saltmarsh present but only in isolated patches in northeast and southwest. Scattered <i>Zostera</i> beds in inlet. Largely exotic grasses and trees around perimeter of inlet. Hooper Inlet Swamp is a Regionally Significant Wetland (no. 61) behind the dunes of Allan's Beach.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	Intertidal zone supports moderate biomass of cockles and wide variety of other estuarine infauna. Wading birds feed in inlet. Moderate threat from runoff and sedimentation. Inlet mouth closed for long periods allowing nutrients and sediment to build up.	Medium low
The degree to which wildlife is present and sustained?	Important feeding area for waterbirds. Often high abundance of some species. Numbers of infauna occasionally inhibited by high nutrient load and low salinity.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Structures include houses, farm buildings, power poles, boat houses, jetties. Earthworks include roads, causeways, drainage channels. Together they modify the natural character of the landscape to a degree. The south eastern side is least affected.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wildness in both senses is limited. Scenic qualities very high – views of hills over water.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	Relatively highly modified by sedimentation due to human activities (farming) on the adjacent land. Relatively low ecological value. Has moderately high perceptual naturalness and while wildness is low scenic value is high.	No

Map Unit	D34
Description	Sandfly Bay



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Partly mobile dune system characterised by low vegetation cover and high aeolian sand transport. Active transverse dunes. Multiple relic transgressive phases extending to Hoopers Inlet indicated by paleosols. Foredune and hinterland dune morphology is modified by marram.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact (nearshore-beach-foredune). Sand transport from beach to hinterland much reduced due to marram, but remains largely unconstrained at present.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	High energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is likely.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely unmodified indigenous broadleaf/hardwood forest at Hooper inlet end, and around active dunes of Sandfly Bay. Also marram covered foredunes backed by muehlenbeckia, lupins, and exotic grasses.	Medium high

The degree to which the vegetation cover is indigenous to the area?	Remnant/regenerating Indigenous broadleaf/hardwood forest continuous at eastern end, grading to scattered at western end. Pikao survives here. Also marram, muehlenbeckia, lupins, exotic grasses.	Medium high
The (apparent) health and level of modification of intertidal and aquatic habitats?	High health, medium modification. Moderately exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. Popular tourist destination.	Medium high
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Rocky shore and subtidal reef community at either end of the beach rich and diverse. Sealions haul out here regularly. Fur seals breed at eastern end of beach. Finfish are common offshore. Likely valuable habitat for terrestrial invertebrates, lizards and birds. Breeding area for yellow-eyed penguin and little blue penguin. Sooty shearwater may still breed here.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	There are no discernible structures within this unit. A track down to the beach is the only evidence of earthworks. Little to detract from its natural character.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The sand blow provides some tumultuous wildness. The lack of modification provides undomesticated wildness. Moderately high scenic qualities.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	This unit has high to medium high natural character across all disciplines. Geological and ecological processes are adversely affected to a small degree by the presence of marram	No

Map Unit	D35
Description	Sandymount



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with high steep coastal cliffs, subtidal reefs, caves and stacks, minor headlands and coves, and are essentially natural.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Medium energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is possible at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Medium to high naturalness of tops which are grazed, and cliffs.	Medium high
The degree to which the	Intertidal and subtidal macroalgal flora indigenous. Patches	Medium

vegetation cover is indigenous to the area?	of remnant/regenerating indigenous forest on tops and cliffs, some large. Mixed rough exotic grassland and tussockland, with patches of wetland vegetation on easier slopes.	high
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural, with minimal influenced by erosion. Under low threat from sedimentation and farming runoff.	High
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional pressure from recreational fishers and low threat from sedimentation and human land-based activities. Seabirds roost on headlands and offshore stack. Sooty shearwater may be present.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No structures or earthworks to detract from its natural character.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Cliffs, blowholes and caves all provide high degrees of tumultuous wildness. Ruggedness and lack of modification provide undomesticated wildness. Highly scenic.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	Geological, hydrological and ecological processes are largely intact. Terrestrial vegetation is modified by pasture grasses by indigenous vegetation is present. High perceptual naturalness and wild and scenic value.	Yes

Map Unit	D36
Description	Seal Point



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with coastal cliffs, relatively gently sloping intertidal platforms, offshore reefs and stacks, chasms, minor headlands and coves. Landforms essentially natural.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Medium energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is possible at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Mixture of grazed farmland and less-modified tussockland, and relatively unmodified cliff vegetation.	Medium low
The degree to which the	Intertidal and subtidal macroalgal flora indigenous. Exotic	Medium

vegetation cover is indigenous to the area?	grasses evident along cliff tops. Very small patches of regenerating indigenous flora on headland and in gullies, mixed exotic grassland/indigenous tussockland along tops of cliffs.	low
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural, with minimal influenced by erosion. Under low threat from sedimentation and farming runoff.	High
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Likely paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional pressure from recreational fishers and low threat from sedimentation and human land-based activities. Fur seals haul out. Seabird habitat.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No structures. No earthworks.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Cliffs lend the coast some tumultuous wildness but not as much as further north. Undomesticated wildness high. Has moderately high scenic quality.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Highly natural geomorphological and hydrological processes. Ecology modified by the presence of pasture on the cliff tops. High perceptual naturalness and wildness but slightly lesser scenic quality.	No

Map Unit	D37
Description	Boulder Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Mixed sand/gravel beach with stable/vegetated transgressive dune forms. Dune morphology is modified by marram.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact, albeit dune processes are modified by marram. Sand transport from beach to hinterland is nil due to dune stabilisation and exotic plant cover.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	High energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is possible at times. Occasional contamination from the WWTP outfall.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram covered foredunes backed by muehlenbeckia and lupins with occasional exotic trees and grasses behind.	Medium low
The degree to which the	Medium. Marram, muehlenbeckia, lupins, exotic grasses.	Medium

vegetation cover is indigenous to the area?	Some remnant and regenerating indigenous vegetation evident at either end of the beach.	low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderately high health, medium modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Rocky shore and subtidal reef community at either end of the beach rich and diverse. Sealions and fur seals haul out here occasionally. Finfish are common offshore. Breeding area for yellow-eyed penguin.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks present in old road and current road only. One small hut is the only building.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Tumultuous wildness provided by rocky beach and headlands. Undomesticated wildness high. Scenic qualities arguably moderate – lack of sandy beach, incoherent vegetation patterns.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	Geological processes modified by marram and hydrological naturalness impacted by WWTP. Terrestrial ecology modified by presence of exotic vegetation (marram, lupins, grasses, trees). Perceptual naturalness diminished by roads and structures. Definitely wild but lacking scenic value.	No

Map Unit	D38
Description	Highcliff / Pudneys Cliff



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with coastal cliffs, offshore reefs, minor headlands and coves. Essentially natural.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	High energy coastline with low turbidity. Some minor reduction in water quality resulting from outflow from streams and non-point source sediment and nutrient inputs associated with the surrounding land use is possible. Occasional contamination from the Tahuna WWTP outfall.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Largely-unmodified vegetation on very steep slopes and cliffs with a thin strip of highly modified farmland along clifftops.	High

The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Extensive patches of remnant/regenerating indigenous forest, with a thin strip of pasture on easier slopes above cliffs.	High
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural, with minimal influenced by erosion. Under low threat from sedimentation and farming runoff.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and human land-based activities. Forest and cliffs likely provide habitat for a diversity of terrestrial invertebrates, lizards and bush and seabirds.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No buildings, structures or earthworks to detract from natural character.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Height of cliffs plus surf provide high tumultuous wildness. Undomesticated character provides high undomesticated wildness. Drama of cliffs provides high scenic qualities.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	High geological and hydrological naturalness, but affected by the WWTP. High ecological naturalness with some adverse effects from erosion. High perceptual naturalness and high wild and scenic value.	Yes

Map Unit	D39
Description	Smalls Beach / Tomahawk



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Transgressive dune systems separated by basalt cliffs. Dune morphology, particularly at Tomahawk, is modified by marram, parks, housing, roads and footpaths.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact, albeit dune processes are modified by marram. Dunes retain some mobility although sand transport from beach to hinterland is limited due to dune stabilisation and exotic plant cover.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is adversely affected at times by storm water, outflow from Tomahawk Lagoon and the Tahuna WWTP outfall.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Mainly remnant/regenerating indigenous forest with smaller areas of marram and lupin covered foredunes, and exotic grasses behind. Modified with vehicle and walking tracks. Occasionally visited by trail bike riders	Medium
The degree to which the vegetation cover is indigenous to the area?	Largely remnant/regenerating indigenous forest with marram, muehlenbeckia, lupins, and exotic grasses. Active replanting programme for indigenous shrubs and trees	Medium

	along creek banks.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Rocky shore and subtidal reef community at ends of the beaches moderately rich and diverse. Sealions and fur seals haul out here occasionally. Finfish are common offshore. Roosting area for seabirds. Red-billed gull nests on Bird Island. Popping area for sealions.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Some earthworks (roads) and structures (gun emplacements) which together detract a little from the natural character. Residential development plus playing fields etc together diminish it quite significantly. The foredunes are reasonably intact, however.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Cliff headlands provide some tumultuous wildness, and the surf provides some also. Some undomesticated wildness also. Highly scenic at its eastern end (Smalls Beach).	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	Geological and hydrological processes modified by human habitation and the presence of marram in the dune systems. These also modify the terrestrial and intertidal ecology, but the unit is still important for wildlife. It has moderate perceptual naturalness and some sense of wildness. Smalls Beach is highly scenic, Tomahawk less so.	No

Map Unit	D40
Description	Tomahawk Lagoon



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Two shallow lagoons joined by a narrow channel. Seaward margins modified while the upper margins are relatively natural. Some reclamation.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Hydrological processes modified by channelization, drainage and reclamation. Tidal exchange is minimal and outflow to sea often closed.	Low
The degree to which water quality and quantity are unaffected by land use activities?	The above modifications to hydrologic processes have adverse effects on water quality. Non-point source sediment and nutrient inputs associated with the surrounding land use and birdlife are high.	Low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Margins dominated by natural/regenerating indigenous terrestrial, especially at upper ends of lower and upper lagoons.	High
The degree to which the vegetation cover is indigenous to the area?	Regionally Significant Wetland (no. 154) and QEII covenant. Margins are predominantly indigenous vegetation, including several threatened species. Common	High

	planktonic algae a feature of lagoon waters. Blooms common in warmer weather.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Lagoon moderately modified. Input from farm runoff. Invertebrate communities typical of highly modified and enriched soft-bottom estuaries.	Medium low
The degree to which wildlife is present and sustained?	High diversity of indigenous waterbirds including marsh and spotless crane, waders, gulls, waterfowl. The latter often present in high numbers.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Roads, causeways, reclamation, canalisation, drains all earthworks which influence character. Dwellings, farm buildings. Western lagoon less modified and more natural than eastern.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little wildness in either sense. Some scenic value.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	While geological and hydrological values are low the lagoons retain ecological integrity, particularly their landward edges. While the estuarine life is modified by runoff, it is important habitat for waterfowl. The lagoons retain moderate perceptual naturalness and moderate wild and scenic value.	No

Map Unit	D41
Description	Lawyers Head



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with cliffs and reefs. Some earthworks and roading, but the coastal margins are relatively unmodified.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is adversely affected at times by storm water, outflow from the Tomahawk Lagoon and the Tahuna WWTP outfall.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Golf course occupies part of headland. Remainder is sealed car park and regenerating indigenous vegetation	Medium low
The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses evident associated with golf course. Extensive patches of regenerating indigenous flora along cliff tops.	Medium low

The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural. Under low threat from sedimentation and stormwater runoff. Site of disused sewage outfall.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and human land-based activities. Red-billed gull nest on cliffs and white fronted tern nest on headland. Sealions very occasionally haul out.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Road and carpark have modified the landform.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Elevation, surrounding cliffs and surf provide tumultuous wildness. Undomesticated wildness reduced.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	The landform has been modified by the construction of the road, golf course and carpark, and by the planting of exotic grasses. The seaward edges of the headland retain fairly high geological and ecological naturalness although water quality is diminished. It retains moderately high perceptual naturalness and wild and scenic value.	No

Map Unit	D42
Description	Ocean Beach Domain



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Former transgressive dunefield and deflation surface; now highly modified. Few original dune forms remain due to waste disposal, park development, golf course development and ocean grove cemetery. Fore-dune morphology reflects the presence of marram.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Highly modified. The active coastal sand-system is intact, albeit dune processes are modified by marram. Sand transport from beach to hinterland prevented by the fore-dune and John Wilson Drive.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Adversely affected at times by stormwater outflow and Tahuna WWTP outfall.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram and lupin covered fore-dunes with exotic grasses behind. Modified with roadways and walking tracks.	Low
The degree to which the vegetation cover is indigenous to	Medium. Marram, muehlenbeckia, lupins, exotic grasses. Some regenerating indigenous vegetation on the dunes.	Low

the area?		
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, considerable modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and stormwater runoff. Tahuna WWTP outfall 1100m offshore.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of low diversity and low abundance. Sealions haul out here rarely. Finfish are common offshore.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Significantly modified by playing fields, John Wilson Memorial Drive. Also modified by sports facilities. Beach itself is reasonably unaffected by these modifications but for the beachside track and dwellings at its western extent.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Some wildness provided by the surf (tumultuous wildness). Little undomesticated wildness. Some scenic value.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Low	This unit is highly modified by the processes of human habitation. It retains some scenic value.	No

Map Unit	D43
Description	St Clair



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Highly modified with shore protection structures (sea-wall and geotextile bags). Hinterland developed. Beach morphology modified by the above structures to a high degree.	Low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	No nearshore-beach-hinterland sand transport. Beach and nearshore processes modified by shore protection works.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Medium energy coast. Adversely affected at times by stormwater outflow and Tahuna WWTP outfall.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Highly modified with little significant vegetation. A few indigenous trees in playground	Low
The degree to which the vegetation cover is indigenous to	Very low cover. A few indigenous trees and shrubs and exotic grasses.	Low

the area?		
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and stormwater runoff. Rocky shore at western end of beach relatively natural.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of low diversity and low abundance. Intertidal rocky shore community largely intact and typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and stormwater runoff.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Highly modified by Esplanade, dwellings and urban form.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Some wildness provided by the surf (tumultuous wildness). Little undomesticated wildness. Some scenic value.	Low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Low	This unit is highly modified by human habitation and lacks wild and scenic value.	No

Map Unit	D44
Description	White Island



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Small island with subtidal reefs. Largely natural.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Unaffected in large part - offshore island in moderate energy sea. Possibly some contamination from Tahuna WWTP outfall at times	High

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Devoid of vegetation	
The degree to which the vegetation cover is indigenous to the area?	Devoid of vegetation	
The (apparent) health and level of	High degree of naturalness of macroalgal beds on subtidal	High

modification of intertidal and aquatic habitats?	reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone natural. Under very low threat from human influence.	
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional pressure from recreational fishers and very low threat from human land-based activities. Seabirds roost on islet.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No structures, buildings or earthworks.	High

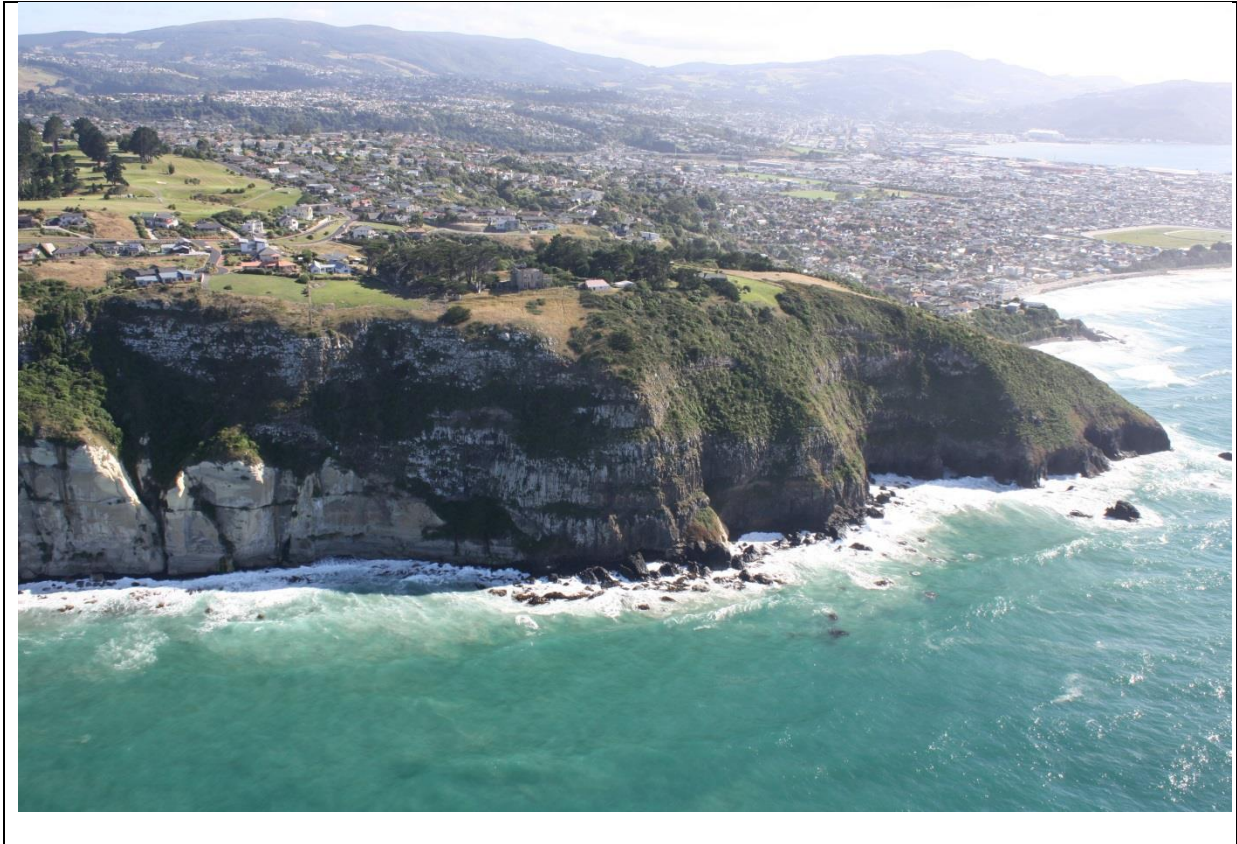
Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	High tumultuous wildness and undomesticated wildness. Little scenic value.	Medium high.

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	Has high geological and ecological value and is very wild, but has little scenic value.	Yes

Map Unit	D45
Description	St Clair Cliffs



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland with cliffs, intertidal and offshore reefs and blowholes. Gravel beach (Second beach) adjacent to the St Clair unit. Landforms here are rather modified by historic quarrying and more recent earthworks.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Dominant processes are erosional and are relatively unmodified.	Medium High
The degree to which water quality and quantity are unaffected by land use activities?	Moderate to high energy coast. Water quality affected by stormwater runoff at Second Beach, and occasionally by outfall from the Tahuna WWTP.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Residential development on top of cliffs. Some regenerating indigenous vegetation	Medium low
The degree to which the vegetation cover is indigenous to	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses evident associated with residential development.	Medium

the area?	Extensive patches of regenerating indigenous flora along cliff tops and on cliff face.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural. Under low threat from sedimentation from erosion and land runoff.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and human land-based activities. Fairy prion nest on cliffs.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks present in Back Beach road and cutting. Dwellings on the cliff top detract from the natural character to a degree.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Cliffs provide tumultuous wildness. Dwellings diminish undomesticated wildness to a degree. High scenic value.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	The unit has been affected by quarrying and by residential and related development. The aquatic ecology is predominantly intact and it is important for wildlife. It has moderately high perceptual naturalness and high wild and scenic value.	No

Map Unit	D46
Description	Tunnel Beach



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Sandstone cliffs with sea stacks, an arch and coves with narrow sandy beaches. Minor earthworks at Tunnel Beach but essentially natural.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Dominant processes are erosional and are relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from non-point source sediment and nutrient inputs associated with the surrounding land use is possible at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Farmed land on top of cliffs. Some very small patches of regenerating indigenous vegetation	Low
The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses evident along cliff tops. Small patches of regenerating indigenous flora along cliff tops. Moderately	Medium low

	extensive salt tolerant herb field exists on headland.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural. Under low threat from sedimentation from erosion and land runoff.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and human land-based activities. Fairy prion nest on cliffs.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Only earthworks notable are the track down to Tunnel Beach. Some sort of dewatering system present close to the St Clair cliffs.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Sandstone cliffs and their convolutions plus the surf provide a high degree of tumultuous wildness. Dwellings diminish the undomesticated wildness to a degree. Very high scenic quality.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	Highly natural coast with naturalness diminishing towards the landward boundary of the unit due to the almost complete replacement of the indigenous vegetation with pasture.	No

Map Unit	D47
Description	Blackhead



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Basalt headland. Highly modified by quarry. Natural basaltic columns on the lower slopes.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Main processes are erosional and despite quarry are relatively unmodified. Perhaps some armouring of cliffs by deposition of sediments down hill slopes.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coast. Water quality occasionally affected by the Green Island WWTP.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Quarry occupies most of top of headland. Headland slopes being allowed to regenerate.	Low
The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses and patches of regenerating indigenous flora along face of headland.	Medium low

The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural. Under low threat from sedimentation, farming and stormwater runoff.	Medium high
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and human land-based activities. Red-billed gull nest on cliffs and white fronted tern nest on headland. Fur seals very occasionally haul out.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Natural form largely destroyed by quarry and associated buildings. Margins of the feature around and just above water level retain natural character.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	The water margins have both high wildness (in both senses) and high scenic quality but this is modified by the effects of the quarry.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	The landward part of this unit is highly modified by quarrying. The seaward margins retains some naturalness and the subtidal reefs are important faunal habitat. It retains little perceptual naturalness and while it retains some wildness it lacks scenic quality.	No

Map Unit	D48
Description	Island Park



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Transgressive dune system, now stable, intersected by the Kaikorai estuary outflow. Earthworks modifications including roads, tracks, the speedway, car parking have modified dune morphology.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	The active coastal sand-system is intact, albeit the transgressive dune is now stabilised and foredune processes are modified by marram. Sand transport from beach to hinterland is limited due to dune stabilisation and exotic plant cover.	Medium
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is adversely affected by outflow from Kaikorai estuary, runoff, and occasionally by the Green Island WWTP outfall.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram and lupin covered foredunes with occasional indigenous shrubs and exotic grasses behind. Modified with walking tracks. Occasionally visited by trail bike riders	Medium low

The degree to which the vegetation cover is indigenous to the area?	Medium. Marram, ngaio, muehlenbeckia, lupins, exotic grasses. Moderately extensive regenerating indigenous vegetation on the dunes.	Medium low
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions haul out here occasionally. Finfish are common offshore.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks modifications include roads, tracks, the speedway, car parking. Buildings include the speedway and the gun club. The dune system is so extensive, however, that the degree of modification these provide is relatively small.	Medium high

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wildness in undomesticated sense is pretty high. Wildness in the tumultuous sense is lesser. Scenic quality is fairly low.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	This unit exhibits significant modifications to geological, hydrological and (terrestrial) ecological processes. Its intertidal and aquatic zones are less affected and it has some importance for wildlife. It has moderately high perceptual naturalness and medium wild and scenic value.	No

Map Unit	D49
Description	Kaikorai Estuary



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Long narrow estuary. Mouth intermittently closed. Estuary margins modified by roads, causeways, drainage channels and buildings. Some reclamation.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Natural processes have been modified by the above modifications.	Medium low
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is reduced due to point and non point discharges upstream. Limit outflow and intermittent closure of the estuary mouth limits flushing of the unit.	Low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Extensively modified across much of the estuary. Small percentage of saltmarsh (11%) and rushland (6%). Remainder is largely mudflats and sandflats. Some evidence of reclamation around perimeter in upper estuary.	Medium low
The degree to which the vegetation cover is indigenous to the area?	Upper reaches and part of lower reach comprise Regionally Significant Wetland (no. 68) 'Kaikorai Lagoon Swamp'. Approximately 20% of vegetation indigenous, comprising a	Medium

	range of marsh communities. Remainder comprises exotic trees, shrubs and grasses around perimeter and associated with reclaimed areas.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate degree of modification. Ecological health of estuary considered moderate. Under threat from erosion, reclamation, farming runoff, introduced weeds, nutrient pollution, stock grazing, litter, vehicles and leachate from landfill.	Medium
The degree to which wildlife is present and sustained?	Shellfish (cockles) present in lower estuary. Roosting, feeding and/or breeding habitat for a high diversity of waterbirds including marsh crake and threatened Australasian bittern. Likely spawning area for finfish such as flounder, galaxiids.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks include roads, causeways, the tip, drainage channels, and canalisation. Dwellings, farm buildings, industrial buildings affect the northern and eastern sides significantly more than the western side.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Domestication is high. Little wildness of either type. Some scenic value, particularly along the western margin.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	While providing important habitat for wildlife this unit has been significantly modified by human habitation and lacks perceptual naturalness of wild and scenic value.	No

Map Unit	D50
Description	Green Island



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Small offshore basalt island with intertidal reefs.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Processes are predominantly erosional and relatively unmodified.	High
The degree to which water quality and quantity are unaffected by land use activities?	Offshore island in moderate energy sea. Water quality affected by outflow occasionally from the Kaikorai estuary and Green Island WWTP outfall.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Relatively natural	High
The degree to which the vegetation cover is indigenous to the area?	Almost exclusively indigenous vegetation. Some exotic grasses.	High

The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone natural. Under very low threat from human influence.	High
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional pressure from recreational fishers and very low threat from human land-based activities. Fur seals haul out. Seabirds roost on islet. Breeding site for yellow-eyed penguin, fairy prion and little blue penguin.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No earthworks, buildings or structures.	High.

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Very wild in both senses. Some scenic value.	Medium high

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	A highly natural off shore island with high perceptual naturalness and wild and scenic value.	Yes

Natural character Assessment Sheet

Map Unit	D51
Description	Ocean View / Westwood



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Late-Holocene foredune ridges, formed in association with marram. A Pleistocene coastal terrace separates inland hillslopes from recent dunes/beach. Several small streams bisect the dunes. Modified by roading and occasional car parks and houses at the southern end of the unit.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system (nearshore-beach-foredune sand exchange) intact, albeit dune processes are modified by marram. Streams are likely to have been channelized by foredune development in association with marram.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some reduction in water quality resulting from runoff and outflow from the Kaikorai and Otokia estuaries possible at times	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram and lupin covered foredunes with occasional indigenous shrubs and exotic grasses behind. Modified with walking tracks. Occasionally visited by trail	Medium low

	bike riders	
The degree to which the vegetation cover is indigenous to the area?	Medium. Marram, ngaio, muehlenbeckia, lupins, exotic grasses. Moderately extensive regenerating indigenous vegetation behind the foredunes. Important area of remnant pikao.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff.	Medium
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions haul out here occasionally. Finfish are common offshore.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks present only as roads and tracks with a fairly minor effect. Dwellings are present along most of this unit with a greater influence.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Dwellings result in a moderately high level of domestication. The dunes and the beach-surf provide some tumultuous wildness. Scenic value limited.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	This unit has been modified by human habitation and the spread of marram. It has moderately low perceptual naturalness and a similar level of wild and scenic value.	No

Map Unit	D52
Description	Brighton



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Coastal cliffs with coves with sandy beaches and intertidal reefs. Modified by earthworks for roads, dwellings and playing fields. Small dune system adjacent to Otokia Creek has been replanted in indigenous dune plants. Dune hinterland modified by carpark and surf lifesaving club buildings.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system (nearshore-beach-foredune sand exchange) intact in dune system. Main processes elsewhere are erosional and are largely unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline. Some reduction in water quality resulting from outflow Otokia estuary at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	High degree of naturalness of macroalgal beds on subtidal reefs. Residential development on top of cliffs. Patches of regenerating indigenous vegetation interspersed with	Medium

	exotic grasses.	
The degree to which the vegetation cover is indigenous to the area?	Intertidal and subtidal macroalgal flora indigenous. Exotic grasses evident along cliff tops along with quite large patches of indigenous vegetation. Marram on dunes at back of beach.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	High degree of naturalness of macroalgal beds on subtidal reefs. <i>Durvillaea</i> dominated community. Rocky intertidal zone largely natural. Under low threat from sedimentation form erosion and land runoff. Beach typical of semi sheltered sandy shores of southern New Zealand.	Medium
The degree to which wildlife is present and sustained?	Subtidal reefs valued as rich and diverse habitat. Feeding and spawning area for a variety of finfish. Paua, rock lobster and kina habitat. Community largely intact. Rich and diverse rocky intertidal epifauna typical of exposed southern coasts. Under occasional very low pressure from recreational fishers and low threat from sedimentation and human land-based activities. Sandy shore infauna of low diversity and abundance.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Roads, tracks, playing fields, residential development and other buildings all detract from the natural character of the unit. Dwellings and other structures domesticate it.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Very domesticated, except for the island/headland. Scenic value is moderately high, however. (Picturesque).	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	The geomorphology of this unit is largely unmodified but the ecological processes are modified by residential occupation and related developments. It has low perceptual naturalness but some wild and scenic value.	No

Map Unit	D53
Description	Otokia Creek



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal Creek. Residential development on both banks. Flow has been constrained beneath the road bridge. Upstream wetlands modified by reclamation and drainage channels.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Natural processes have been restricted by the above modifications.	Medium low
The degree to which water quality and quantity are unaffected by land use activities?	Water quality is reduced due to farming runoff and nutrient pollution. Limit outflow and Intermittent closure of the estuary mouth limits flushing of the unit.	Medium low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Moderate degree of naturalness. Relatively high percentage of swampland upstream. Remainder is modified with residential development on both banks. Some evidence of reclamation upstream.	Medium low
The degree to which the vegetation cover is indigenous to	The Lower Otokia Creek Marsh, in the upper reach of this unit is a Regionally Significant Wetland (no. 61). Swampland	Medium

the area?	vegetation largely indigenous. Mixture of exotic and indigenous trees along banks. Exotic grasses evident around perimeter and associated with developed areas.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate degree of modification. Ecological health of estuary considered moderate. Under threat from reclamation, farming runoff, introduced weeds, nutrient pollution, stock grazing.	Medium
The degree to which wildlife is present and sustained?	Valuable habitat for a diversity of waterbirds. Edges provide suitable habitat for terrestrial invertebrates and lizards. Infauna typical of moderately enriched lowland streams. Likely spawning area for finfish such as flounder, galaxiids.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Buildings and structures abound around the margins of the creek including the road bridge at the Brighton shop. The inland portion of the estuary shows evidence of artificial drainage channels and the area around the road bridge has been canalised.	Low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	No wildness in the tumultuous sense. Little wildness in the undomesticated sense. Some scenic quality.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	Natural processes have been restricted by residential and related developments. Perceptual naturalness is low, but some scenic value.	No

Map Unit	D54
Description	Brighton Road Beach south



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Late Holocene foredune ridges, formed in association with marram, seaward of a Pleistocene coastal terrace. Several small streams bisect the dunes. Modified with road and occasional carparks and houses.	Medium
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system (nearshore-beach-foredune sand exchange) intact, albeit dune processes are modified by marram. Streams are likely to have been channelized by foredune development in association with marram.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from farming runoff is possible at times.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram and lupin covered cliffs with extensive indigenous shrubs along cliff tops and exotic grasses behind. Modified with road, occasional car parks and walking tracks.	Medium low
The degree to which the vegetation cover is indigenous to	Medium. Marram, ngaio, muehlenbeckia, lupins, exotic grasses. Moderately extensive regenerating indigenous	Medium

the area?	vegetation atop cliffs.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium low modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. Intertidal and subtidal rocky reef platforms largely natural.	Medium high
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Intertidal and subtidal reefs harbour rich and diverse flora and fauna. Sealions haul out here rarely. Finfish are common offshore. Low pressure from recreational shellfish gatherers. Indigenous vegetation is likely to support indigenous terrestrial invertebrates, lizards and bush birds. Beach and cliffs provide suitable habitat for shorebirds.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks present as roads and tracks. Presence of dwellings has more influence.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wildness is provided by the surf. Diminished by the residential domestication of the unit. Some scenic value.	Medium low

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	This unit has moderately high geomorphological and hydrological naturalness but its terrestrial ecology is modified by exotic vegetation. Perceptual naturalness is moderately low and it lacks wild or scenic value.	No

Map Unit	D55
Description	Kuri Bush



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Pleistocene terrace with sandy pocket beaches, semi-continuous intertidal and subtidal schistose reefs . Distinctive reddish sand, derived from erosion of last-interglacial beach sands that overlie regional schists, which are capped with loess. Several small streams, some associated with low dunes. Modified with road and occasional carparks and houses but essentially natural.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Main processes are erosional and are largely unmodified.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Moderate energy coastline with low turbidity. Some minor reduction in water quality resulting from farming runoff is possible.	Medium high

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram and lupin covered cliffs with extensive indigenous shrubs along cliff tops and exotic grasses behind. Modified with road, occasional car parks and	Medium low

	walking tracks.	
The degree to which the vegetation cover is indigenous to the area?	Medium. Marram, ngaio, muehlenbeckia, lupins, exotic grasses. Moderately extensive regenerating indigenous vegetation atop cliffs.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium low modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately low threat from sedimentation and farming runoff. Intertidal and subtidal rocky reef platforms largely natural.	Medium high
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Intertidal and subtidal reefs harbour rich and diverse flora and fauna. Sealions haul out here rarely. Finfish are common offshore. Low pressure from recreational shellfish gatherers. Indigenous vegetation is likely to support indigenous terrestrial invertebrates, lizards and bush birds. Beach and cliffs provide suitable habitat for shorebirds.	Medium high

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Earthworks present as roads and tracks. Dwellings and farm buildings.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Wildness is provided by the surf and by the rocky reefs. Diminished by the residential domestication of the unit. Moderate scenic value.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium high	A highly natural unit in geological terms. Terrestrial ecology is modified by exotic vegetation. Aquatic and intertidal ecology is highly valued. It has a moderate degree of perceptual naturalness and wild and scenic value.	No

Map Unit	D56
Description	Taieri Mouth



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Partial tombolo in lee of Motorata Island, seaward of a Pleistocene coastal terrace. Stable dunes have formed in association with marram. Some reclamation around the river mouth but landforms are essentially natural.	Medium high
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Active coastal sand-system intact, albeit dune processes are modified by marram. No sand transport from beach to hinterland due to dune stabilisation and exotic plant cover.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Open coast moderate-high energy. Water quality in the Taieri River adversely affected by point discharge, runoff and drainage from the intensively developed catchment.	Medium

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Largely marram and lupin covered cliffs with extensive indigenous shrubs behind dunes and exotic grasses behind. Modified with road, car parks and walking tracks.	Medium low

The degree to which the vegetation cover is indigenous to the area?	Medium. Marram, ngaio, muehlenbeckia, lupins, exotic grasses. Moderately extensive regenerating indigenous vegetation behind dunes and on true right bank.	Medium
The (apparent) health and level of modification of intertidal and aquatic habitats?	Moderate health, medium low modification. Exposed sandy shoreline subject to disturbance from wave action. Moderately threat from sedimentation and farming runoff. Shellfish common on sandflats, albeit at moderate to low densities.	Medium high
The degree to which wildlife is present and sustained?	Infaunal communities typical of disturbed sandy beaches of southern New Zealand are of relatively low diversity and low abundance. Sealions haul out here and pup on occasion. Finfish are common offshore. Shellfish common on sandflats, albeit at moderate to low densities. Very low pressure from recreational shellfish gatherers. Indigenous vegetation is likely to support indigenous terrestrial invertebrates, lizards and bush birds. Beach and cliffs provide suitable habitat for shorebirds.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Some dwellings present. The road is evidence of earthworks. Road bridge is a prominent structure. Some reclaimed land.	Medium low

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Some wildness in the tumultuous sense as a result of the river and sea meeting. Little wildness in the undomesticated sense. Moderate scenic quality.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium	The geology of the unit retains medium to high naturalness. The terrestrial ecology is modified but evidence of regenerating indigenous vegetation is present. Aquatic and intertidal ecology is of medium to high health. The perceptual naturalness of the unit is moderately low, but it has some wild and scenic quality.	No

Map Unit	D57
Description	Taieri River Gorge (lower)



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Tidal river through schist gorge. Relatively unmodified.	High
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Relatively unmodified albeit hydrologic processes including flow and sediment transport may be affected by development and landuse upstream.	Medium high
The degree to which water quality and quantity are unaffected by land use activities?	Water quality adversely affected by point discharges, runoff and drainage up stream. Abstraction has reduced water quantity, albeit minimum flows are maintained.	Medium low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Moderate. Extensive indigenous bush on both banks. Lower reaches modified by residential development, roadway and bridge.	Medium high
The degree to which the vegetation cover is indigenous to the area?	High percentage cover of indigenous vegetation upstream of bridge. Two small Regionally Significant Wetlands are present on the edges of the river: Governors Point Swamp	Medium high

	(no. 54) and Rocky Hill Tidal Marshes (no. 131) both of which have diverse vegetation including kahikatea, totara, matai and miro.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Impacted by sedimentation and runoff from farmland.	Medium
The degree to which wildlife is present and sustained?	Habitat for various waterbirds. Spawning site for galaxiids.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	No structures. Small area of reclamation and a number of cribs adjacent to the bridge diminishes natural character.	High

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Undomesticated and wild in that sense. Not wild in the tumultuous sense. High scenic qualities.	High

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
High	A highly natural schist gorge with regenerating indigenous vegetation along both sides but with hydrological processes affected by upstream activities with a consequent reduction in the integrity of ecological processes within the river. Highly scenic.	No

Map Unit	D58
Description	Taieri River Gorge (upper)



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Low Breccia hill country. Tidal river. Holocene river deposits and associated wetlands in valleys. Modified by drainage, channels, causeways, and flood protection works.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Hydrologic processes including flow and sediment transport affected by development and landuse up stream. The above modifications restrict the inland influence of the saline tidal flow.	Medium low
The degree to which water quality and quantity are unaffected by land use activities?	Water quality adversely affected by point discharges, runoff and drainage up stream. Abstraction has reduced water quantity, albeit minimum flows are maintained.	Medium Low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Low. Extensive exotic forestry on both banks. Upper reaches modified by farming. Marshland extensively drained.	Low
The degree to which the vegetation cover is indigenous to the area?	Moderate to low percentage cover of indigenous vegetation on marshlands, but extensive encroachment by exotic grasses. Includes Regionally Significant Wetland no.	Medium low

	147, Takitooa Swamp which, whilst heavily modified, provides habitat for wetland birds including South Island fernbird.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Impacted by sedimentation and runoff of nutrients from farmland.	Medium
The degree to which wildlife is present and sustained?	Waterfowl and waders present. Extensive spawning area for galaxiids.	Medium

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Tracks, roads, drainage channels, causeways. Buildings and dwellings. All reduce the natural character to a degree (cumulatively).	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Some degree of undomesticated wildness. No tumultuous wildness. Some degree of scenic value.	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	This unit has been significantly modified by human activity and has significantly diminished naturalness in all senses as a consequence. Some scenic value.	No

Map Unit	D59
Description	Henley



Geomorphological and Hydrological naturalness

Criteria	Comments	Rating
The degree to which the landforms / seabed are the product of natural processes?	Semi-tidal with virtually nil coastal influence. Meanders adjacent to main channel. Wetlands modified by drainage, channels, causeways, and flood protection works.	Medium low
The degree to which natural geomorphological and hydrological processes are operating unconstrained?	Channel morphology and flows highly modified by drainage works and storm-water management structures.	Low
The degree to which water quality and quantity are unaffected by land use activities?	Highly modified by runoff from non-point agricultural sources.	Medium low

Ecological naturalness

Criteria	Comments	Rating
The degree to which the vegetation patterns are a product of natural processes?	Low. Extensively modified by farming. Marshland extensively drained. Some areas of wetland being allowed to regenerate.	Low
The degree to which the vegetation cover is indigenous to the area?	Moderate to low percentage cover of indigenous vegetation on wetlands, but extensive encroachment by exotic grasses. Includes two Regionally Significant	Medium low

	Wetlands: Waipora Boot Swamp (no. 166) and (in part) the Waipori/Waiholo Wetland Complex (no. 167) which support a very high diversity of indigenous flora and fauna.	
The (apparent) health and level of modification of intertidal and aquatic habitats?	Impacted by sedimentation and runoff of nutrients from farmland.	Medium low
The degree to which wildlife is present and sustained?	High diversity of waterbirds, including Australasian bittern and marsh crake, and a major habitat for waterfowl. Breeding area for some waterfowl and wading species. Extensive spawning area for galaxiids.	High

Influence of buildings / structures / earthworks

Criteria	Comments	Rating
The degree to which buildings, structures and earthworks (including dredging) influence the character of the landscape or seascape?	Roads, stop-banks reduce natural character. Bridges only structures.	Medium

Experiential naturalness

Criteria	Comments	Rating
The degree to which there are wild and scenic qualities?	Little wildness of either type. Moderately high scenic value however (picturesque).	Medium

Overall Natural character rating

Rating	Comments / Reasons	Outstanding?
Medium low	This unit has been significantly modified by human activity and has significantly diminished naturalness in all senses as a consequence. Some scenic value.	No